Marine Stores Guide

Eighth Edition

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International Marine Purchasing Association

MARINE STORES GUIDE

EIGHTH EDITION

impa

A CO-OPERATIVE VENTURE



MARINE STORES GUIDE

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Summary of New Updates

Section 15 **Cloth & Linen Products:** Additional Flame-retardant linen products (Bed spread, Tablecloths etc.), Laundry rack are newly included.	**Section 17** **Tableware & Galley Utensils:** Eco-friendly disposable cutlery (wood/biodegradable plastic/ recycled paper cups & plates), biodegradable plastic bags, Sanitary management products are newly included, 221 codes.	**Section 19** **Clothing:** New globes (Biodegradable plastic disposable / Touchscreen capable), High ancle shoes are newly included.
Section 23 **Rigging Equipment & General Deck Items:** Wire rope lubricator, Crosby products (from USA), Cargo lashing belt, Eco-friendly oil sorbent and stretch film are newly included.	**Section 27** **Painting Equipment:** Graco products (from Netherlands) are updated.	**Section 31** **Safety Protective Gear:** Bump cap, Harness and Lanyard, Anti-piracy products, Cut-resistant products are newly added, 32 codes.
Section 33 **Safety Equipment:** Safety signs are fully updated including Damage control plan signs & pipe identification tape, Pyrotechnics, Drager & Riken products, Portable drug tester are newly included.	**Section 37** **Nautical Equipment:** LED Searchlights, Remote control searchlights, Windsocks are newly added, Publication & flags are updated.	**Section 39** **Medicine:** "List of Recommended Medicines in IMG 3rd edition", and "Mapping of the medicines in the 3rd edition of the Guide to the quantities in 2nd edition, Australian and UK guidelines for ships" are updated.
Section 45 **Petroleum Products:** Ecofriendly oils & greases, Anti-seize products, WD-40 products are newly included and updated.	**Section 55** **Cleaning Material & Chemicals:** Eco-friendly products (Laundry detergent sheets, Various cleaners, Grease removers, Liquid air freshener), ECA water device, Water purifiers, Urea water are newly included.	**Section 59** **Pneumatic and Electrical Tools:** Various pneumatic and electrical tools are updated suggested by worldwide manufacturers, Rustibus (Norway), Holger Clasen (Germany), Trelawny (U.K.), Nitto Kohki (Japan) Den-Jet Marine (Singapore) etc.
Section 65 **Measuring Tools:** Various measuring tools are updated suggested by worldwide manufacturers from SIKA, Martechnic, TX Marine (all from Germany) etc.	**Section 75** **Valves & Cocks:** Various valves are updated suggested by worldwide manufacturers from KITZ (Japan), Gerhard Goetze (Germany), MESON (Denmark) etc.	**Section 79** **Electrical Equipment:** Various LED Products (Lamps, Floodlights, Explosion-proof lights, Cargo lights, Flashlights), Ex-proof products (Cable grands, Joint boxes sounders & neacon etc.) are newly added.
Section 81 **Packing & Jointing:** Various general repair products are updated suggested by worldwide manufacturers from ITW Devcon (worldwide), Weicon GmbH (Germany), Wencon (Denmark) etc.	**Section 85** **Welding Equipment:** Refrigerant gas cylinder and Fluorocarbon refrigerant recovery equipment, Portable arc welders are newly included and updated.	**Section 87** **Machinery Equipment:** Ultra high-pressure products for main engine (from CEJN), Various equipment are updated suggested by worldwide manufacturers from MESON (Denmark), Niikura Kogyo (Japan) etc.

Preface

Dear Colleagues,

A warm welcome to the 8th edition of the world leading, IMPA Marine Stores Guide, the industry standard for maritime procurement. The International Marine Purchasing Association (IMPA), alongside our partners Fuji Trading Company of Japan is once again immensely proud to introduce this new edition.

In an ever changing and dynamic maritime purchasing and supply environment it is important that the Marine Stores Guide, in both data and book formats remains a constant! The vision remains the same as well and whilst the portfolio now includes extensive online, offline and digital offerings, the printed book continues to be produced in response to the people of the industry.

As many readers and users will know, IMPA is at the heart of the sustainability movement within our industry and has been for many years, I am delighted therefore to be able to say that there are more sustainable products in this edition that ever before. We encourage all users to buy in the most sustainable way, which can often mean the most cost effective as well, in the long term.

Great work has been done in introducing colour photographs and improving content wherever needed and wherever possible, we hope the new format, design and layout will appeal to all users whether they are at sea or on land.

The MSG content is linked to the Marine Stores Guide Data License, that allows users to specify products quickly and effectively using the unique data that can be imported into a procurement or planned maintenance system. With illustrations, specifications, product information and comparison tables for major manufacturers the Marine Stores Guide 8th edition provides an invaluable reference for those involved in the maritime industry and we trust you will enjoy this new and improved edition.

You will find a separate list with Sections where changes, amendments and new additions have been made.

We continue to fight against counterfeit copies that are being circulated in the industry, this is of course illegal and breaks international copyright law. We therefore encourage you to always ensure you are buying the genuine MSG book, this has an impact on our association and the industry.

We are confident you will find this 8th edition to be of great use and value to your business whether you are a ship operator or ship supplier. If you have any comments or recommendations for further improvement or if you find any misprint etc, please visit www.marinestoresguide.com where you will find a customer feedback form and contact details for the MSG team.

Finally, I would like to thank the MSG team at Fuji Trading Co and at the London UK office who work hard to continue the development of our industry leading reference guide.

As always best wishes



Susan W. Koefoed
Chair & Chief Executive Officer
For and on behalf of IMPA – The International Marine Purchasing Association

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15 Cloth & Linen Products 

17 Tableware & Galley Utensils 

19 Clothing 

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65 Measuring Tools 

67 Metal Sheets, Bars, etc 

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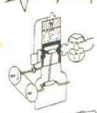
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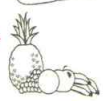
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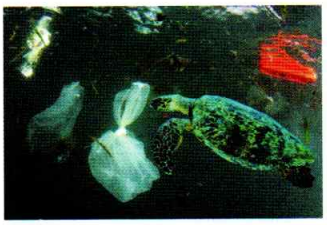
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Taking Actions for Our Ocean





Compared to two decades ago, the world is producing twice as much plastic. Every year, millions of tonnes of plastic waste leak into our oceans, altering habitats and natural processes, and harming ecosystems' ability to adapt to climate change. Under the influence of solar UV radiation and other natural factors, plastic breaks down into small particles that can kill wildlife, and can help transport invasive marine species, threatening the food web and biodiversity. The transfer of contaminants between marine species and humans through consumption of seafood has already been identified as a health hazard, and research is ongoing.

Plastic pollution is growing relentlessly and has become a widespread global problem. By making better, more sustainable choices, you can be part of the solution. The Marine Stores Guide is here to help you.

Here are some of our sustainable tips:

1. Where possible, try to choose more eco-friendly alternatives to plastic. Go for items made of stainless steel, wood, bamboo, natural fibres, paper or cardboard.
2. Where steering away from plastic is not possible, choose products made of biodegradable plastic or, if unavailable, simply choose safer classes of plastic, such as 2 (HDPE), 4 (LDPE) or 5 (PP).

IMPA 17 41 89



17 02 75



17 04 90

Biodegradable Plastic Products

3. Ditch single-use plastic drinking water bottles by using water purifiers onboard vessels and simply refilling reusable bottles. Make your own juice by adding water to boxed concentrated juice.



IMPA 55 06 90

4. Select larger available portions for food items, which often mean a reduction in packaging waste, and where possible, select items packaged in tins or paper.



5. Choose more eco-friendly materials for your packaging needs, and consider biodegradable wrapping films, 100% recycled and widely recyclable packaging items, and other eco-friendly methods of packaging.



IMPA 23 29 91

Join the IMPA SAVE initiative!

impasave
PLEDGER
People, Planet, Profit, Purpose

To learn more ways to stem the plastic tide and become part of a movement of hundreds of companies working towards a greener shipping industry, visit www.impasave.org and make your pledge.

Plastic Recycling Codes and Symbols

Below you will find the international coding system currently in use for plastic products identification. Understanding this will help in your endeavour to choosing safer classes of plastic where alternative, more eco-friendly options are not available.

PLASTIC RECYCLING CHART

Code and Symbol	1	2	3	4	5	6	7
	PETE	HDPE	PVC	LDPE	PP	PS	OTHER
Type of plastic	Polyethylene Terephthalate	High Density Polyethylene	Polyvinyl Chloride	Low Density Polyethylene	Polypropylene	Polystyrene	Other Plastics including acrylic, polycarbonate, polylactic fibres, nylon, fiberglass
Example of products	Soft drink bottles, Mineral water, Fruit juice containers, Cooking oil bottles	Grocery bags, Milk jugs, Cleaning agents, Laundry detergents, Bleaching agents, Shampoo bottles, Washing and shower soaps	Pipes, Window profiles Fencing , Flooring, Shower Curtains, Trays for sweets and fruits, plastic packing (bubble foil) and food foils to wrap the foodstuff	Plastic bags, Six-pack rings Dispensing bottles, Wash bottles, Molded lab equipment	Auto parts, Industrial fibres, Food containers Dishware	Desk Accessories, Cafeteria trays, Coffee cup lids Styrofoam, Video cassettes	Headlight lenses, Safety shields/goggles, Plastic lumber applications, Various bottles
Recyclable?	Widely Accepted	Widely Accepted	Rarely /Never Accepted	Moderately Accepted	Moderately Accepted	Rarely/Never Accepted	Rarely/Never Accepted

Please note that even if your plastic waste is recyclable according to the above system, each port sets its own rules for recycling. It is therefore advisable that you ask local suppliers for recycling rates and conditions in each area.

In this edition of the Marine Stores Guide, you will notice that we have included a vast array of eco-friendly products that can act as suitable alternatives to many conventional plastic items. We believe these products can considerably aid your efforts towards a greener, safer planet, so please do check these out. Below you will find the index.

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Bed Sheets

Sábanas 敷布 床単

Made of 100% cotton, woven 24 denier 131 (65 x 66) threads per square inch. Sanforized, machine wash, hot tumbler dry, usually furnished white or blue colour. Standard sizes are listed below.



Unit Per Sht.

White Sheets			Blue Sheets		
CODE	Size mm		CODE	Size mm	
	Width	Length		Width	Length
15 01 01	1,370	2,300	**15 01 41**	1,370	2,300
02		2,500	**42**		2,500
03		2,600	**43**		2,600
15 01 06	1,500	2,300	**15 01 46**	1,500	2,400
07		2,400	**15 01 51**	1,600	2,820
15 01 11	1,600	2,500	**15 01 56**	1,828	2,300
12		2,600	**57**		2,500
13		2,820	**58**		2,600
15 01 16	1,828	2,300	**15 01 61**	2,030	2,400
17		2,500	**62**		2,500
18		2,600	**63**		2,600
15 01 21	2,030	2,400			
22		2,500			
23		2,600			
15 01 26	2,286	2,400			
27		2,500			
28		2,600			

Non-ironing Bed Sheets

Sábanas con Plachado Permanente ノーアイロンシーツ 免熨床単

Non-iron blend of 50% polyester, 50% cotton, 32 denier, 165 threads per square inch. This fabric blend is smoother and softer than cotton, machine washable and tumbler dry.

Unit Per Sht.

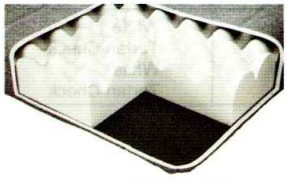
CODE	15 01 81	15 01 82
Size mm	1,370 × 2,300	1,828 × 2,500

Mattresses

Colchones マットレス 席梦思

There are two types of mattress filling constructions available: foam rubber type and spring type. All materials, regardless of construction, are covered with a rigid cotton cloth.

Standard sizes are listed below. If the size you require is not listed, please measure the inside length and width of the bedframe you are using.



Foam Rubber



Spring

Unit Per Pc.

CODE	Type	Size mm		
		Width	Length	Height
15 02 01	Foam Rubber	900	2,000	150
02		1,350	2,000	150
15 02 06	Spring	900	2,000	150
07		1,350	2,000	150

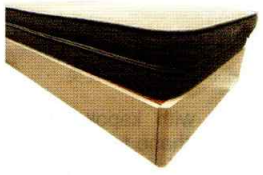
Mattresses and Foundations

Individual Spring Type

Colchoes y Bases con Resortes Individuales

個別スプリングマットレス及びボトム 独立弹簧式席梦思

Mattresses



Quality, longlife mattress made with individually wrapped coils providing even support and comfort to all parts of the body. A double sized mattress consists of more than 890 coils. The cover is a heavily padded, prebuilt, boarder taped box lining. The surface is button tuffed with ventilators and chord handles at each side.

Unit Per Pc.

CODE	Type	Size mm			Numbers of Pocket coils
		Width	Length	Height	
15 02 31	Single	970	1,980	170	594
32	Semi Double	1,200	1,980	170	759
33	Double	1,370	1,980	170	891
34	Queen	1,520	1,980	170	1,023

Foundations (Box Spring)

Box frame composed of specially shaped, heavy gauge tempered cone coils which are wire tied and mounted on a strong seasoned timber base. The frame is insulated with a firm 100% cotton pad and can be fitted with legs, castors, or special angle iron frames.

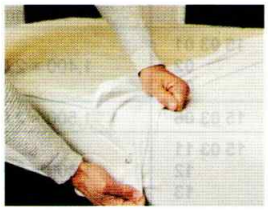
Unit Per Pc.

CODE	Type	Size mm			Height with Leg	Nos. of Coils
		Width	Length	Height		
15 02 41	Single	960	1,970	195	332 mm	55
42	Semi Double	1,190	1,970	195	332 mm	77
43	Double	1,360	1,970	195	332 mm	88
44	Queen	1,510	1,970	195	332 mm	99

Mattress Covers

Fundas de Colchón

マットレスカバー 护床垫



White or blue covers tightly woven of 100% cotton fabric, 20 denier, 120 threads per square inch with seamed edges for more durable wear. The length and width of the covers are usually 50 mm larger than the mattress to be covered. When ordering, please specify the size of mattress to be covered.
When ordering, please specify the following:

How to order: 15 - 02 - 51

Name — *Mattress Cover*
×
Material — *Cotton*
×
Colour — *White or Blue*
×
Size — *Size of Mattress to be covered*

Beddings
Duvet = Continental quilt
Duvet Cover = Cover for Duvet or Quilt
Counterpane = Bed spread

Pillows

Almohadas 枕 枕头



Filled with kapok, shredded polyurethane foam or chicken or duck feather and covered in linen. Standard sizes are listed below.

15 02 81	Pillow, polyurethan foam,	600 × 400 mm	Pc.
82	Pillow, kapok,	600 × 400 mm	"
83	Pillow, feather,	690 × 460 mm	"

Pillow Cases

Fundas de Almohada
枕カバー 枕套



Available in blue or white 100% cotton woven fabric. The stitch is 131 threads per square inch. The sizes below fit all standard pillows.

15 02 86	Pillow case white, 750 × 500 × 200 mm	Pc.
87	Pillow case blue, 750 × 500 × 200 mm	"

Blankets

Mantas 毛布 全羊毛毯

Wool 100% Blankets

Mantas 100% Lana 純毛毛布
羊毛 100%毛毯



Loom woven blanket of 100% wool. Shedding, matting, and piling resistant.

Unit Per Sht.

CODE	Size mm	Colour
15 03 01	1,400 × 2,000	White
02		Camel
03		Blue
15 03 06	1,500 × 2,000	Blue
15 03 11	1,800 × 2,300	White
12		Camel
13		Blue
15 03 16	1,800 × 2,400	Camel

Rayon-Acryl Blankets

Mantas Rayón-Acrílico レーヨン、アクリル混紡毛布 錦纶毯

Durable blend of 70% Rayon and 30% Acryl. Machine wash at warm temperatures and tumble dry.

Unit Per Sht.

CODE	Size mm	Colour
15 03 26	1,400 × 2,000	Camel
27		Blue
15 03 28	1,800 × 2,300	Camel
29		Blue

100% Acrylic Blankets

Mantas 100% Acrílico アクリル毛布 錦纶毯

100% acrylic blanket. Loom woven for softness and shape retention. Machine wash at warm temperatures and tumble dry.

Unit Per Sht.

CODE	Size mm	Colour
15 03 41	1,400 × 2,000	Camel
42		Blue
43		Grey
15 03 46	1,500 × 2,000	Camel
47		Blue
15 03 51	1,800 × 2,300	Camel
52		Blue

Blanket Covers

Funda de Cobija 毛布用カバー 毛毯套



When ordering, please specify the following:

How to order : 15 - 03 - 55

Name	*Blanket Cover*
×	
Material	*Cotton*
×	
Colour	*White or Blue*
×	
Size	*Size of Blanket to be covered*

Unit Per Sht.

CODE	Actural Size mm	For Blanket Size mm
15 02 88	1,800 × 2,400	1,800 × 2,300
89	1,500 × 2,100	1,400 × 2,000

Bed Spreads
(Counterpanes)

Cubrecamas/colcha
寝台掛け 床罩



Cotton woven bed spreads designed as day covers. A wide range of materials, colours, designs and sizes are available, but most are listed as follows. Please provide the size of the bed in use when ordering.

Unit Per Sht.

CODE	Size mm	Colour & Design
15 03 71	1,500 × 2,400	White
72	1,500 × 2,400	Tartan Check
73	1,800 × 2,600	White
74	1,800 × 2,600	Tartan Check

Beddings

Ropa de cama
寝具類 寝具(床上用品)类

Duvets

Edredón nórdico 羽毛布団
羽绒被褥



A thermal insulator bag filled with down, feather, or a synthetic alternative, and protected with a removable cover. Please specify kind of inner filling, and size (width x length in cm), when ordering.

15 03 81	Duvet, SIZE (Width x Length in cm)	Pc.
82	Cover for duvet, SIZE (Actual size : Width x Length in cm)	"

Comforters

Edredón 掛け布団 盖被



Comforter is filled with either an artificial material, such as polyester batting, or a natural material, usually thinner than the duvet. Please specify kind of inner filling, and size (width x length in cm), when ordering.

15 03 84	Comfort, SIZE (Width x Length in cm)	Pc.
85	Cover for comfort, SIZE (Actual size : Width x Length in cm)	"

Quilts

Edredón acolchado キルト かけ布団



A bed covering composed of a quilt top with a decorative design.

15 03 87	Quilt, SIZE (Actual size :Width x Length in cm)	Pc.

Flame Retardant Beddings

Ropa de cama resistente al fuego 難燃性寝具 阻燃性寝具

Made of 30% flame retardant modacryl (Protex) and 70% polyester & cotton. Enhanced tearing resistance, and minimum shrinkage. Each product has Labels approved as flame retardant products.

Bedding Sheets

Sábanas Ignífugas

難燃性ベッドシーツ 阻燃床単



Unit Per Sht.

CODE	Size mm	CODE	Size mm
White		**Light Blue**	
15 01 65	1,370 × 2,600	**15 01 69**	1,370 × 2,600
66	1,600 × 2,800	**70**	1,600 × 2,800
67	1,830 × 3,000	**71**	1,830 × 3,000
68	2,280 × 3,000	**72**	2,280 × 3,000

Mattresses

Colchón Ignífugo 難燃性マットレス

防火床垫



Made of 30% flame retardant modacryl (Protex) and 70% cotton & polyester honeycomb mesh cloth cover.

Unit Per Pc.

CODE	Inside Material	Size mm	Colour
15 02 35	100% polyethylene coil & 100% polyester coil	1,000 × 2,000 × 200	White
36		1,200 × 2,000 × 200	
37		1,400 × 2,000 × 200	
15 02 38	100% rigid urethane	1,000 × 2,000 × 100	Beige

High Resilient Mattress Pads

Colchoneta Ignífuga de Alta Elasticidad

防炎高反発マットレスパッド

防火高回弹床垫



High resilient polyethylene mattress pad with 30% flame retardant modacryl (Protex) and 70% polyester & cotton outer cover. It has superior air conductivity and heat insulation, and keeps the body hot by heat retaining property in winter.

Colour : White

Unit Per Pc.

CODE	Size mm	CODE	Size mm
15 02 45	1,000 × 2,000 × 30	**15 02 46**	1,000 × 2,000 × 50
52	1,200 × 2,000 × 30	**55**	1,200 × 2,000 × 50
53	1,400 × 2,000 × 30	**56**	1,400 × 2,000 × 50
54	1,600 × 2,000 × 30	**57**	1,600 × 2,000 × 50

Bed Pad

Colchoneta Ignífuga 難燃性ベッドパッド

阻燃床垫



Made of 30% flame retardant modacryl (Protex) and 70% polyester & cotton cover, filling is polyester cotton (m^2/400g), for using on top of mattress.

Unit Per Sht.

CODE	Size mm	CODE	Size mm
15 02 47	1,000 × 2,000	**15 02 49**	1,400 × 2,000
48	1,200 × 2,000		

Pillows

Almohada Antiinflamatoria

防炎枕 抗炎症枕



Made of flame retardant 60% acryl, 35% cotton and 5% nylon mixed cover.

Size: 43 x 63 cm.

Unit Per Pc.

CODE	Inside Material	Weight grm	Colour
15 02 90	Feather	App. 1,200 grm	White
15 02 85	Feather (1,000 grm) & polyethylene pipe (400 grm)	App. 1,400 grm	White

Pillowcases

Funda de Almohada Ignífuga

難燃性枕カバー 阻燃枕套



Case is envelope type.

Unit Per Pc.

CODE	Size mm	CODE	Size mm
White		Light Blue	
15 02 91	400 × 670	15 02 94	400 × 670
92	450 × 780	95	450 × 780
93	500 × 900	96	500 × 900
97	550 × 900		

Blankets

Tela de Lana Ignífuga
難燃性毛布　難燃ウール生地



2 multi-woven fabric blanket. Can be washed and tumble dried at high temperatures.

Size: 1,400 x 2,000 mm.

Unit Per Sht.

CODE	Inside Material	Weivht grm	Colour
15 03 53	Flame retardant	App. 1,200 grm	White
54	wool 100%		Beige
15 03 50	Flame retardant polyester 100%	App. 1,400 grm	Beige

Duvet Covers

Funda Nórdica Ignífuga
難燃性布団カバー　阻燃羽绒被套



Made of 30% flame retardant modacryl (Protex) and 70% polyester & cotton. Fire retardant cotton 100% type is also available.

Colour : White

Unit Per Pc.

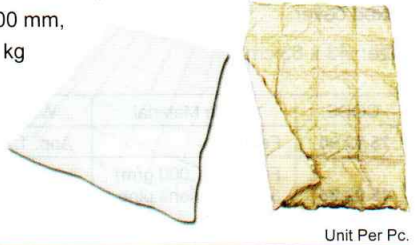
CODE	Size mm	Material	Colour
15 03 56	1,450 × 2,100		
57	1,500 × 2,150		
58	1,550 × 2,150	30% flame retardant modacryl (Protex) and 70% polyester & cotton.	White
59	1,850 × 2,400		
60	1,900 × 2,450		
15 03 61	1,500 × 2,000	Fire retardant cotton 100%	Blue

Comforters

Edredón Ignífugo　難燃性かけ布団　阻燃羽绒被

Comforter, flame retardant, quilt processed.

Size: 1,500 × 2,000 mm,
Weight: 1.2 kg



Unit Per Pc.

CODE	Inside Material	Colour
15 03 86	100% polyester	White
88	100% feather	Beige

Bedspread

Colcha Ignífuga　難燃性ベッドカバー　阻燃床單

Bedspread made of flame retardant modacryl (Protex) and cotton.

Size: 1,700 mm × 2,300 mm.

Unit Per Pc.

CODE	Material	Colour
15 03 75	Modacryl (Protex) & Cotton	Grey
76		Blue

Tablecloth

Mantel Ignífugo　難燃性テーブルクロス　阻燃桌布

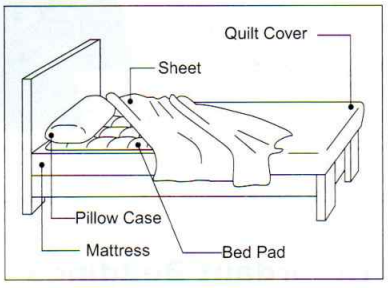
Tablecloth made of 100% flame retardant cotton.

Unit Per Sht.

CODE	Material	Colour	Size mm
15 06 53	Fire retardant cotton 100%	White	1,200 × 1,500
54			1,500 × 1,900

Illustration of Bed Linen

The vessels registered under the flags of the European Union Member States are to be equipped with bedding components in compliance with the Marine Equipment Directive – Equipments under the Directive list: "Fire protection".



Cook & Steward Coats

Chaquetas de Cocinero y Cameraro　コック用上衣　厨师及服务员上衣

White colour, all cotton or cotton/tetoron blended coat. Available in 3 types. Three ready made sizes are available, but when ordering, specify the height and the size of the neck and sleeve in centimeters as well as the type you require.



"Closed Collar" Coat
Chaquetas con Cuello Cerrado
詰襟シングルコート
立領上装（厨師用）



"Regular Finish" Coat
Chaquetas con Corte Regular
背広シングルコート
西式上装（厨師用）



"Double Breasted" Coat
Chaquetas Cruzadas
コックコート
雙排紐西式上装（厨師用）

Unit Per Pc.

Closed Collar		Regular Finish		Double Breasted	
CODE	Size	CODE	Size	CODE	Size
15 04 04	S	15 04 09	S	15 04 14	S
01	M	06	M	11	M
02	L	07	L	12	L
03	LL	08	LL	13	LL

Dimensions of Ready Made Sizes

Size	Cloth Length	Chest	Shoulder Length	Sleeve
S	68 - 70	97 - 101	40 - 42	52 - 54
M	70 - 72	103 - 106	42 - 44	54 - 56
L	72 - 74	108 - 110	44 - 46	56 - 58
LL	74 - 76	112 - 116	46 - 48	58 - 60

Unit in Centimeter

Cook & Steward Trousers

Pantalones de Cocinero y Camarero
コック用ズボン　厨师及服务员裤子

Cotton in white colour, polyester in black colour and cotton/polyester blends in stripes are available. When ordering, specify the height, size of waist, and the length of the inseam in centimeters as well as the colour and fabric you require.


White Colour


Black Colour


Striped

Unit Per Pr.

White Colour		Black Colour		Striped	
CODE	Size	CODE	Size	CODE	Size
15 04 24	S	**15 04 29**	S	**15 04 34**	S
21	M	**26**	M	**31**	M
22	L	**27**	L	**32**	L
23	LL	**28**	LL	**33**	LL

Approximate Sizes for Trousers

Size	Waist cm	Inseam cm
S	76	70
M	81	72
L	86	74
LL	91	77

Shirts

Camisas　ワイシャツ　衬衫

Made of white cotton, fastening up at the front with buttons. Available in short sleeves or long sleeves.



Unit Per Pc.

CODE	Size	Neck	Check	Shoulder	Length	Sleeve
Long Sleeves						
15 04 41	M	38	108	50	78	55
42	L	40	114	52	80	56
43	LL	42	120	54	82	57
44	3L	44	130	56	84	56
Short Sleeves						
15 04 46	M	38	108	50	78	22
47	L	40	114	52	80	23
48	LL	42	120	54	82	24
49	3L	44	130	56	84	25

Cook's Caps

Gorros de Cocinero　コック帽　厨师帽

Made from white cotton duck also paper made disposable caps are available.


Skull


Crown

Paper


Skull


Crown

Cotton

Unit Per Pc.

CODE	Material	Type	Colour
15 04 51	Paper	Skull	White
52		Crown	"
15 04 53	Cotton	Skull	White
54		Crown	"

Cook's Aprons

Delanales de Cocinero　コックエプロン　厨师围裙

Made from white cotton or plastic vinyl. Available in Bib and Waist type.


Waist Type


Bib Type

15 04 61	Apron, white cotton, waist type	Pc.
62	Apron, white cotton, bib type	"
63	Apron, colour vinyl, waist type	"
64	Apron, colour vinyl, bib type	"

Bow Ties

Corbatas de Pajarita　蝶ネクタイ　领结

A satin made short bow tie for formal catering apparel.



15 04 71	Bow tie, black	Pr.

Canvas Laundry Bags

Sacos para Ropa　ランドリーバッグ
帆布洗衣袋

Made from No. 11 white canvas. The standard size is 450 mm diam. and 1,170 mm high. Holes for a close string are set and eyeletted at the opening of the bag.



15 05 01	Laundry bag, canvas, D450 × H1,170 mm	Pc.

Laundry Pinches
(Clothes Pins)

Pinzas para Ropa　洗濯ばさみ　衣夹

Plastic made pinches which will not stain clothing with rust or flaking paint.



Plastic　Wood　Stainless Steel

15 05 11	Laundry pinches	plastic 10's/pkt	Pkt
12	"	plastic 20's/pkt	"
13	"	wood 10's/pkt	"
14	"	stainless 10's/pkt	"

Laundry Lines

Tendedero　物干しロープ
晾衣绳



Made of 3 synthetic strands of 4 mm diam, high tensile rope.

Available 5 mtr in coil with hooks at both ends and length adjusting plates, or in 200 mtr coils with cut ends.

15 05 21	Line, laundry, 5 mtr with hook	Pc.
22	Line, laundry, 200 mtr	C/L

Laundry Racks

Estanterías para Ropa
洗濯物干し　洗衣架



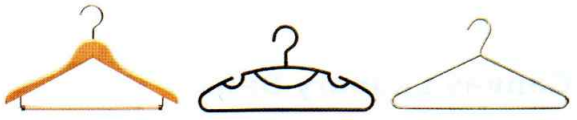
Foldable laundry racks for drying cloths, approx. size is 100 cm × 70 cm.

15 05 25	Laundry Rack, foldable, approx. 100 x 70 cm	Pc.

Coat Hangers

Percheros　洋服掛け　衣架

Made of wood, plastic or stainless steel, styled with a bar. Each hanger is approx. 400 mm wide.



Wood　Plastic　Stainless Steel

Unit Per Pc.

CODE	Description
15 05 26	Lacquered, natural finished hard wood with metal hook
15 05 27	Plastic made, solid-core durable/unbreakable tubular plastic
15 05 28	Stainless Steel, durable/rustproof

Plastic Storage Baskets

Cesta de Plástico　プラスチック運搬カゴ
塑料储物箱



A rigid plastic container for storing laundry, dishes, or various deck and engine stores.

Unit Per Pc.

CODE	Dimensions mm		
	Length	Width	Height
15 05 31	620	440	340
32	600	430	300

Plastic Clear Storage Containers
with Lid

Contenedor de Almacenamiento de Plástico, Transparente con Tapa
蓋付き透明コンテナ
塑料透明储物箱带盖子



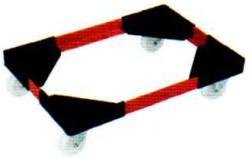
A rigid plastic clear container with lid for storing clothes, linens, materials, foods, etc.

Unit Per Pc.

CODE	Inner Size mm	Outer Size mm
15 05 41	442 × 298 × 170	530 × 360 × 185
42	442 × 298 × 255	530 × 360 × 270
43	436 × 292 × 355	530 × 360 × 370
44	541 × 371 × 210	635 × 440 × 225
45	541 × 371 × 310	635 × 440 × 325
15 05 46	535 × 365 × 398	635 × 440 × 435

Dollies
for Plastic Container

Carretilla para Contenedores de Plástico
プラスチックコンテナ用運搬台
手推車



Easy loading and handling for plastic container. Rimmed frame prevents container from slipping off. Maximum work load is up to 150 kg.

Unit Per Pc.

CODE	Inner Frame Size mm	For
15 05 51	355 × 500 × 135	150541/150542/150543
52	440 × 610 × 135	150544/150545/150546

Towels

Toallas　タオル　毛巾



Made of 100% cotton for durability and absorption. Looped cotton fabric on both sides.

Unit Per Sht.

CODE	Name	Colour	Size mm	Weight per Sht
15 06 01	Bath	White	730 × 1,330	315 grm
02		Blue		
15 06 03		White	670 x 1,270	305 grm
04		Blue		

(to be continued)

Unit Per Sht.

CODE	Name	Colour	Size mm	Weight per Sht
15 06 06 07	Face	White Blue	390 × 1,000	115 grm
15 06 08 09		White Blue	400 × 800	105 grm
15 06 11	Sweat	White	300 × 760	30 grm

Sponge Cloths

Esponjas/Bayetas フキン 擦布



A loosely woven soft porous cotton fabric used for cleaning dishes and machinery. Usual size is 350 × 450 mm.

15 06 16	Sponge cloth 350 × 450 mm	Sht

Pantry Cloths

Bayeta de Cocina パントリータオル
餐具擦布



Made of cotton for general use in pantry rooms or galley for cleaning, as a shelf lining, or to place tableware and utensils on.

400 x 690 mm in size.

15 06 17	Pantry towel cotton 400 × 690 mm	Sht

Glass Cloths
(Tea Towels)

Bayeta para Cristal グラス拭き
玻璃器皿擦布



Cotton & woven blended cloth, mainly used for glassware, etc. Size is 410 x 700 mm.

15 06 18	Glass towel 410 × 700 mm	Sht

Duster Cloths

Bayeta para Polvo ダスター 防尘布

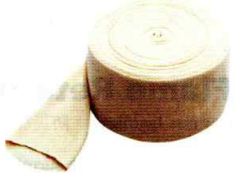


A hand cloth used for dusting. Several colours and sizes are available, the yellow colour, size 450 × 500 mm is most common.

15 06 21	Duster cloth	Sht

Mutton Cloths (Stockinet)

Bayeta de Punto (Blanca)
マトンクロース 针织布



An approx. 400 mm wide continuous length of stockinet. Used for wrapping meat and for filtering purposes. Sold by weight.

15 06 26	Mutton cloth	Kgs.

Tablecloths

Manteles テーブルクロス 桌布



A wide range of sizes, types and materials are available. The most popular material is a woven floral design of cotton Damask pattern, on a white, coloured, or checked background. When ordering, please specify the following matters:

(A) Size: Finished size or table size
(B) Shape: Square, rectangular, round
(C) Material: Cotton Damask or any others
(D) Colour: White, blue, green, checkered or plain

How to order: 15 - 06 - 41
Tablecloth × Size × Type × Material × Colour (Sht.)

Plastic Tablecloths
Cotton Lined

Manteles de Plástico forrados de algodón
プラスチックテーブルクロス生地
塑料桌布布料



Vinyl cotton lined oil cloth type. Various colours in checkered pattern are set on a white background. Has 2 fixed widths of 1,070 and 1,370 mm in a bundle of 30 mtrs. Sold by length in meters.

Unit Per Mtr.

CODE	Width mm	CODE	Width mm
15 06 51	1,070	**15 06 52**	1,370

Transparent Plastic Sheeting

Bobinas de Plástico Transparente
透明ビニールシート 软玻璃



Very useful as a tablecloth cloth cover or for covering floors in accommodations or hallways during paintwork, while in dock, or when discharging iron, ore, coal or other dry cargo.

Unit Per Rls.

CODE	Size mm		
	Thick	Width	Length
15 06 61 62 63	0.1	915 1,370 1,830	50 mtr
15 06 64 65	0.1	915 1,370	100 mtr
15 06 66 67 68	0.2	915 1,370 1,830	50 mtr
15 06 71 72 73	0.3	915 1,370 1,830	30 mtr
15 06 76 77 78	0.5	915 1,370 1,830	30 mtr
15 06 79	1.0	915	10 mtr
15 06 80	2.0	915	10 mtr

Moltplain Foam Rubbers

Gomaespumas フォームラバー
泡沫橡皮



A multi purpose foam rubber which can be used as an oil filter. It can also be used to place under items on smooth surfaces such as tables or desks to prevent them from sliding while at sea.

Unit Per Sht.

CODE	Thickness mm	CODE	Thickness mm
15 06 81	5	**15 06 84**	20
82	10	**85**	25
83	15		

Non-Skid Sheeting

Mantel Antideslizante
滑り止めシート 防滑布



Rubber made mesh sheet. Used for preventing dishes, etc. from slipping on a smooth surface. Thickness 2 mm, width 600 mm or 800 mm, length 30 mtrs/roll. Sold by length at random. Minimum length is one meter.

15 06 90	Non skid mesh sheet, width 600 mm	Mtr
91	" width 800 mm	"

Hook & Loop Tapes

(Velcro Tapes / Magic Tapes)

Cintas de Velcro マジックテープ
背胶魔术带



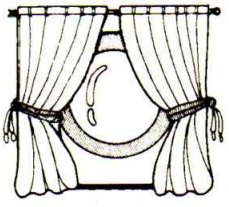
So called Velcro tape. Consists of two parts of tape, one with hooks and the other with loops. Normally the reverse of the tapes are glued. Can be fastened and closed almost permanently.

Unit Per Rls.

CODE	Size W × L	CODE	Size W × L
15 07 01	25 mm × 40 cm	**15 07 04**	25 mm × 25 mtr
02	25 mm × 1.5 mtr	**05**	50 mm × 25 mtr
03	25 mm × 3.0 mtr	**06**	100 mm × 25 mtr

Porthole Curtains

Cortinas de Portillos 舷窓用カーテン
船窗用窗帘

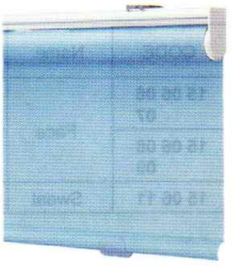


Made to order. Pairs available in rod-pocketed or pinch pleated styles with hooks or rings. When ordering, please ask for fabric samples and specify details.

How to order: 15 - 07 - 12
Curtain, porthole, size x type x material (Pr.)

Roller Blinders

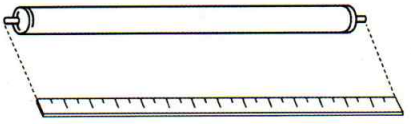
Persiana (Enrollable)
ローラーブラインド 布卷帘



For covering a porthole. Made to order. When ordering, please specify the width, length and material required.

How to order: 15 - 07 - 13
Roller blinder, width x length x material (Set)

How to measure shades for replacement.



Specify on your order "tip-to tip". If you measure the fabric width only, be sure to specify so on your order.

Shower Curtains

Cortinas de Ducha
シャワーカーテン 淋浴帘



Shower bath curtain in coloured, durable, waterproof vinyl with metal grommets. Standard size is 1,000 x 1,900 mm or 1,800 x 2,000 mm with 8 - 12 grommets. When ordering, please specify the size and colour required.

How to order : 15 - 07 - 14
Curtain, shower, vinyl, size x colour (Pc.)

Adjustable Rails

Chromed Adjustable Rails is also available, Standard size is 22 mm dia with range 1,100 mm to 2,000 mm length.

How to order: 15 - 07 - 17
Adjustable rails, chrome, dia and length (Pc.)

Door Curtains

Cortinas de Puerta ドアカーテン 窗帘



For use on the cabin door. Made to order. When ordering, please specify the size, material and other necessary information.

How to order: 15 - 07 - 15
Door curtain, size x material x type (Pc. or Pr.)

Flame Retardant Curtains

Cortinas Ignifugas 防災加工済みカーテン 阻燃窗帘

Textile fibre which significantly reduces the risk of fire by being permanently fire retardant. These curtains also withstand industrial cleaning processes.

When ordering, please specify the width, length and materials required.

How to order: 15 - 07 - 16
Curtain, flame retardant, width x length x materials (Set)

Solar Shades

Toldo (Enrollable)　ロール式窓用日よけ　遮阳窗帘

Anti-glare screens that reduce glare up to 93% which improve visibility with true colour rendition objects and safety for navigation purposes. Up to 87% of the sun's heat is rejected to make cooler and comfortable environments. Also at least 98% of UV light is filtered to protect your skin and eyes. They are easy to install and operate. Made with aluminium parts, highly durable and resistant to the harsh environment. There are two types, "With Cassette" or "Without Cassette". Please specify the size of window, type of screen rolling method, etc. Please ask more information to your local distributors when ordering.



with cassette



w/o casette

Unit Per Set

CODE	Type	Remark
15 07 21	Solar Shade w/ cassette	Size and type of screen method are to be confirmed.
15 07 22	Solar Shade w/o cassette	

Name of Mfr : Solar Solve Limited

Anti-shatter Films
(Blast Mitigation)

Láminas de seguridad para cristales (antiexplosiones)
窓ガラス用粉砕防止フィルム　窗玻璃防碎贴膜

Anti-shatter film provides protection from flying glass in the event of a natural disaster or demolition by pirates. It forms an almost invisible protective coating on the glass surface. This window film should only be applied to flat glass. It should never be applied to polycarbonate (plastic). Adhesive window films are constructed from a multi-lamination of micro-thin polyester. They also have a scratch resistant coating to protect the film surface and enhance durability (except films for external application). The film should be cut 10 mm over size in both dimensions, and trim around the oversized edges using a sharp trimming knife after squeezed the film.



15 08 21	Film, anti-shatter (Blast mitigation), 200 micron, Width 152 cm x Length 15 mtr	Rls.

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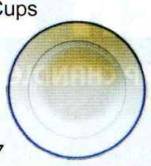
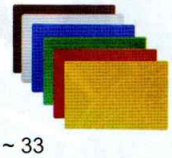
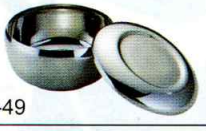
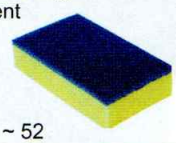
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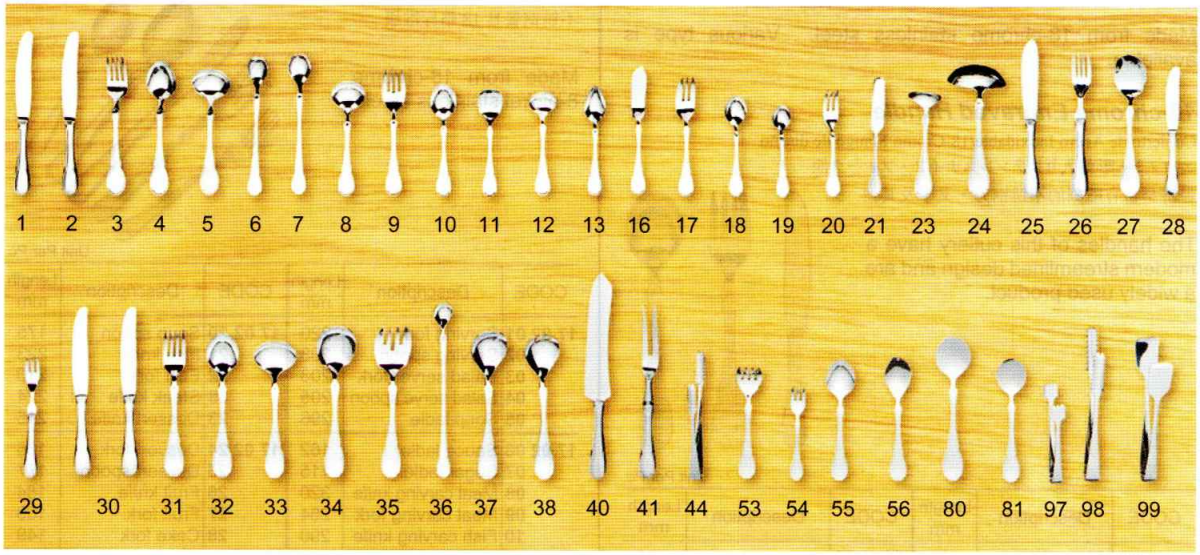
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17

Tableware & Galley Utesils

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Ice Instruments  P. 17-17 ~ 18	Serving Utensils  P. 17-18 ~ 19	Napkin Paper P. 17-19 ~ 20	Flying Pans & Cooking Pots  P 17-20 ~ 24
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1. Cutlery



1	Dessert Knife	28	Fruit Knife
2	Dessert Fork	29	Fruit Fork
3	Dessert Spoon	30	Table Knife
4	Dessert Soup Spoon	31	Table Fork
5	Soda Spoon	32	Tablespoon
6	Melon Spoon	33	Table Soup Spoon
7	Bouillon Spoon	34	Service Spoon
9	Salad Fork	35	Service Fork
10	Teaspoon	36	Parfait Spoon
11	Ice Cream spoon (Square)	37	Salad Service Spoon
12	Ice Cream spoon (Round)	38	Salad Service Fork
13	Grapefruit Spoon	40	Carving Knife
16	Butter Knife	41	Carving Fork
17	Tea Cake Fork	44	Ice Tong
18	Coffee Spoon	53	Oyster Fork
19	Demitasse Spoon	54	Cocktail Fork
20	Hime Fork	55	Large Teaspoon
21	butter spreader	56	Cake Spoon
23	Sugar Ladle	80	Rice Spoon (L)
24	Sauce Ladle	81	Rice Spoon(S)
25	Fish Knife	97	Lemon Tongs
26	Fish Fork	98	Ice Tongs
27	Fish Sauce Spoon	99	Bread Tongs

Stainless Steel Cutlery

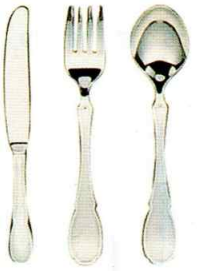
Cubiertos de Acero Inoxidable
ステンレス製ナイフ・フォーク他　不锈钢餐具

Made from 18-chrome stainless steel. Various type is available.

18-chrome Engraved Handle

Cubierto de Acero Inoxidable/18-Cromo Mango de diseño
エコノミー彫刻入りステンレスナイフ・フォーク他
经济型带有雕刻的不锈钢刀・叉子及其他

The handles of this cutlery have a modern streamlined design and are a widely used product.



Unit Per Pc.

CODE	Description	Length mm	CODE	Description	Length mm
17 01 01	Dinner knife	233	17 01 12	Cake fork	144
02	Dinner fork	210	13	Small fork	118
03	Table spoon	203	14	Butter knife	150
04	Soup spoon	172	15	Melon spoon	198
05	Fish knife	210	16	Cocktail spoon	188
17 01 06	Fish fork	177	17 01 17	Tea spoon	133
24	Steak knife	224	18	Coffee spoon	119
07	Dessert knife	213	19	Ice cream spoon	132
08	Dessert fork	185	20	Serving fork	220
09	Dessert spoon	180	21	Serving spoon	204
17 01 10	Fruit knife	178	17 01 22	Sauce ladle	160
11	Fruit fork	148	23	Sugar ladle	115

18-chrome Plain Handle

Cubiertos de Acero Inoxidable con mango liso de 18 cromo
無地ステンレスナイフ・フォーク他
不锈钢餐具 18 铬平纹手柄

A simple and plain design, very easy to keep clean.



Unit Per Pc.

CODE	Description	Length mm	CODE	Description	Length mm
17 01 51	Serving fork	216	17 01 66	Dessert knife	196
52	Serving spoon	201	67	Dessert fork	185
53	Salad server fork	201	68	Dessert spoon	180
54	Salad server spoon	201	69	Fruit knife	175
55	Sauce ladle	160	70	Fruit fork	155
17 01 56	Sugar ladle	115	17 01 71	Cake fork	137
57	Sugar tongs	108	72	Small fork	122
58	Ice tongs	165	73	Butter knife	148
59	Cake tongs	185	74	Butter spreader	132
60	Dinner knife	237	75	Melon spoon	196
17 01 61	Dinner fork	202	17 01 76	Cocktail spoon	185
62	Table spoon	198	77	Tea spoon	132
63	Soup spoon	172	78	Coffee spoon	116
64	Fish knife	205	79	Ice cream spoon	132
65	Fish fork	184	80	Strawberry spoon	134
17 01 81	Steak knife	224			

18-chrome 8-nickel Standard Grade

Cubiertos de Acero Inoxidable de 18 grados estándar de cromo
標準ステンレスナイフ・フォーク他
不锈钢餐具 18 铬标准级

Made from 18-chrome 8-nickel stainless steel.



Unit Per Pc.

CODE	Description	Length mm	CODE	Description	Length mm
17 02 01	Serving fork	220	17 02 20	Soup spoon	175
02	Serving spoon	208	21	Fish knife	223
03	Salad server fork	203	22	Fish fork	210
04	Salad serve spoon	205	38	Steak knife	224
05	Soup ladle	296	23	Dessert knife	215
17 02 06	Sauce ladle	162	17 02 24	Dessert fork	185
07	Sugar ladle	115	25	Dessert spoon	177
08	Meat carving knife	320	26	Fruit knife	184
09	Meat carving fork	284	27	Fruit fork	169
10	Fish carving knife	290	28	Cake fork	149
17 02 11	Fish carving fork	250	17 02 29	Small fork	127
12	Sugar tongs	108	30	Butter knife	144
13	Ice tongs	165	31	Butter spreader	139
14	Cake tongs	185	32	Melon spoon	200
15	Cake server	250	33	Cocktail spoon	190
17 02 16	Knife steel	335	17 02 34	Tea spoon	132
17	Dinner knife	246	35	Coffee spoon	118
18	Dinner fork	205	36	Ice cream spoon	130
19	Table spoon	199	37	Strawberry spoon	134

18-chrome 8-nickel Heavy Duty Grade

Cubiertos de Acero Inoxidable 18-cromo 8-níquel Heavy
高耐久製ステンレスナイフ・フォーク他
不锈钢餐具 18- 铬 8- 镍 重型

Made from 18-chrome 8-nickel stainless steel with heavy duty grade.



Unit Per Pc.

CODE	Description	Size (L x T) mm	CODE	Description	Size (L x T) mm
17 02 39	Serving fork	220 x 4	17 02 48	Fish fork	210 x 4
40	Serving spoon	208 x 4	49	Dessert knife	215 x 8
41	Steak knife	200 x 8	50	Dessert fork	185 x 4
42	Cake server	220 x 4	55	Dessert spoon	177 x 4
43	Dinner knife	246 x 8	56	Fruit fork	169 x 4
17 02 44	Dinner fork	205 x 4	17 02 57	Cake fork	149 x 4
45	Table spoon	199 x 4	58	Butter spreader	139 x 4
46	Soup spoon	175 x 4	59	Tea spoon	132 x 4
47	Fish knife	223 x 4	60	Coffee spoon	118 x 4

Disposable Cutlery

Cubierto de Plástico
プラスチック ナイフ・フォーク　塑料餐具

Disposable plastic cutlery, ideal for party use. Due to the global concerns, please also consider to choose alternatives for environmentally friendly cutlery.

Plastic Cutlery



17 02 51	Knife plastic	175 mm	Pc.
52	Fork plastic	144 mm	"
53	Spoon plastic	147 mm	"
54	Coffee spoon plastic	80 mm	"

Biodegradable Plastic Cutlery

Cubiertos de Plástico Biodegradables
生分解性プラスティックナイフ・フォーク他
可降解塑料餐具



Great Option for seeking more sustainable solutions, made from bioplastic. It is biodegradable with the right conditions after 90 days. Oil and waterproof finish ensuring that they are suitable for any food.

Unit Per Pc.

CODE	Type	Size (mm)	Packet
17 02 75	Knife	175	50's
76	Fork	175	50's
77	Spoon	175	50's
78	Coffee spoon	150	50's
79	Tea spoon	150	50's
80	Stirrer	130	100's

Wooden Cutlery

Cubiertos de Madera　木製ナイフ・フォーク他　木制餐具

Made from wood and environmentally friendly alternative to plastic cutlery. Lightweight, biodegradable, and sustainable.



17 02 81	Knife wooden	175 mm	Pc.
82	Fork wooden	144 mm	"
83	Spoon wooden	147 mm	"
84	Coffee spoon wooden	80 mm	"

Cutlery Boxes

Cajón de Cubiertos　食器入れ　餐具盒

Available various types of cutlery boxes, made of polypropylene or stainless steel.



Compartment　Dispenser　Dispenser with Lid



Box



Bench Stand

Unit Per Pc.

CODE	Type	Material	Size mm
17 02 61	Compartment	Polypropylene	515 × 295 × 90
63	Dispenser	"	530 × 325 × 160
64	Dispenser with Lid	"	530 × 325 x 100

Boxes

Unit Per Pc.

CODE	Colour	Size mm	Material
17 02 65	Dark Brown	125×300×106	Polypropylene
66	Beige	"	"

Bench Stands

Stainless steel stand with polypropylene boxes.

Unit Per Set

CODE	No. of Boxes	No. of Tiers	Size mm
17 02 67	2	2	180 × 440 × 230
68	4	"	300 × 440 × 230
69	6	"	430 × 440 × 230
70	8	"	550 × 440 × 230
17 02 71	3	3	180 × 550 × 350
72	6	"	300 × 550 × 350
73	9	"	430 × 550 × 350
74	12	"	560 × 550 × 350

2. Plate & Cups

Standard Quality Chinaware

Vajilla de Porcelana de Calidad Estándar
標準船舶用陶器　标准船舶用陶器

The items listed below are standard, mass produced white marine chinaware.



Oval Baker



Egg



Morning

Oval Platter



Dinner and Dessert



Rim Soup (Breakfast)



Oval Vegetable



Bread (Side Plate)



Coupe Soup



Cereal



Tea



Coffee



After Dinner (Greek Coffee Cup & Saucer)



Mug

Unit Per Pc.

CODE	Std. Quality Item	Size mm	Contents
17 03 01	Oval Baker	270 × 165	
17 03 02	Oval Platter	207 × 151	
03	"	235 × 172	
04	"	258 × 190	
05	"	293 × 210	
06	"	311 × 230	
07	"	360 × 260	
08	"	414 × 300	
17 03 09	Egg Cup with Stem	48	
17 03 10	Dinner Plate	233	
11	"	262	
17 03 12	Rim Soup Plate	205	
13	"	233	
17 03 14	Dessert Plate	191	
15	"	210	
17 03 16	Bread Plate (Side Plate)	168	
17 03 17	Morning Cup 200 cc	86	
18	Sauce for Morning Cup	148	
17 03 19	Oval Vegetable Dish	322 × 232 × 70	
17 03 26	Coupe Soup Plate	195	
17 03 27	Cereal Bowl	152	
17 03 28	Fruit Plate	142	
17 03 29	Tea Cup only	81	210 cc (7 oz)
30	Saucer for Tea Cup	150	
17 03 31	Coffee Cup only	70	150 cc (5 oz)
32	Saucer for Coffee Cup	150	
17 03 33	Mocha Cup only	64	120 cc (4 oz)
34	Saucer for Mocha Cup	126	
17 03 35	After Dinner Cup only	61	90 cc (3 oz)
36	Saucer for A.D. Cup	121	
17 03 37	Mug	78	290 cc

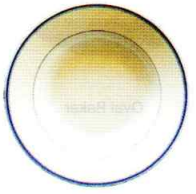
Standard Quality Chinaware

Blue Lined

Vajilla de Porcelana de Calidad estándar/Azul Rayado

紺線入り陶器　带有蓝色底线的陶器

Blue lined standard quality chinaware. A wide range of item patterns are available.



Unit Per Pc.

CODE	Blue-Lined Item	Diameter mm
17 03 50	Dinner Plate	262
51	"	233
52	Rim Soup Plate	233
53	Dessert Plate	191
54	"	210
55	Bread Plate (Side Plate)	168
56	Cereal Bowl	152
57	Fruit Plate	142
17 03 58	Tea Cup 208 cc	81
59	Saucer for Tea Cup	150
60	A.D. Cup 90 cc	61
61	Saucer for A.D. Cup	121
17 03 62	Coffee Cup 150 cc	74
63	Saucer for Coffee Cup	133

A.D. denotes After Dinner.

Melamine Tableware

Vajilla de Melamina　メラミン食器　密胺餐具

A range of Melaware that resists cracking and chipping and is suitable for repeated cleaning in dishwashers. Easy to handle and store. Colours will not fade.



Meat　Oval Plate　Mug Cup　Coffee Cup

Unit Per Pc.

CODE	Melamine Item	Size mm		cc
		Diam.	Height	
17 04 01	Meal Plate	210	18	-
02	"	230	20	-
03	Rice Plate	190	18	-
04	Cake Plate	160	15	-
17 04 05	Oval Plate	230 × 167	21	-
06	"	265 × 200	25	-
07	"	307 × 221	26	-
17 04 08	Comparted Round	213	23	-
09	"	250	27	-
10	Comparted Oval	232 × 177	21	-
11	"	315 × 220	23	-
17 04 12	Rim Soup Plate	190	32	320
13	"	230	40	240
17 04 14	Milk Cup	73	90	200
15	Mug Cup	85	74	260
16	Coffee Cup	75	65	170
17	Saucer for Coffee Cup	150	15	-

Serving or Table Chinaware

Fuente o Vajilla de Porcelana de Mesa　卓上用陶器　桌上用陶器

Standard quality serving chinaware such as creamers, sugar bowls, soup tureens, etc. are widely used and standardized regarding size and contents.



Creamer　Sugar Bowl　Tea Coffee Pot



Coffee pot　Soup Tureen

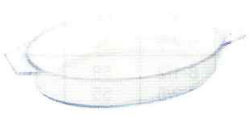
Unit Per Pc.

CODE	Std. Quality Item	Dimensions	
		cc	Height mm
17 04 31	Creamer	190	84
32	Sugar Bowl	300	92
33	Tea or Coffee Pot	450	110
34	"	700	130
35	Coffee Pot	480	135
17 04 37	Soup Tureen 312 × 185 mm	1,500	150
38	" 350 × 213 mm	2,500	182

Stoneware Gratin Dishes

Vajilla para gratén　グラタン皿　粗陶器奶汁烤菜盘

Stoneware made gratin dishes. When ordering, specify the shape and size of the dishes required.



Oval



Round

Unit Per Pc.

Oval		Round	
CODE	Size mm	CODE	Size mm
17 04 51	190 × 90	**17 04 53**	130
52	210 × 100	**54**	140
		55	150

Ovenware Gratin Dishes

Vajilla Refractaria para Gratén

オーブン用グラタン皿　烘箱用奶汁烤菜盘

High quality chinaware suitable for oven cooking. A wide range of patterns are available as listed below. When ordering, specify type and size.



Oval



Round



Oblong

Unit Per Pc.

CODE	Type	Size mm
17 04 61	Oval	191 × 123 × 33
62	"	228 × 139 × 34
63	"	324 × 194 × 45
64	"	366 × 222 × 51
65	"	408 × 240 × 57
66	"	445 × 265 × 60
17 04 67	Round	146 × 41
68	"	168 × 44
69	"	198 × 49
17 04 70	Oblong	179 × 123 × 42
71	"	249 × 159 × 48
72	"	290 × 212 × 48

Cast Steel Steak Platters

with Wooden Base

Platos de acero para Bistec / con Base de Madera

ステーキ皿　烤牛排盘

Platter is made of cast steel. Furnished with a wooden base. For serving steaks or any other food "sizzling hot". Furnished as a set. Tray size is 380 × 230 mm.

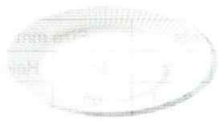


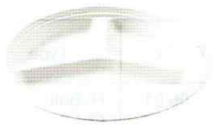
17 04 81	Steak platter, cast steel, 300 × 215 mm	Set

Paper Plates

Platos de Papel　紙皿　纸盘

Disposable paper plates for serving food or snacks, ideal for party use. Eco-friendly paper plates with ecolabels or recycled paper plates are also available for your choice.





Unit Per Pc.

CODE	Type	Size mm	Packet
17 04 86	Round	171	250'S
87	"	222	250'S
88	Comparted	235	125'S
89	Oval	254 × 191	125'S
Eco-Friendly Paper Plates			
17 04 90	Round	150	50'S
91	Round	220	50'S
92	Comparted	220	50'S
93	Oval	230 × 165	50'S

Biodegradable Plastic Plates

Platos de Plástico Biodegradables

生分解性プラスティック食器類　可降解塑料盘

Great Option for seeking more sustainable tableware solutions made from bioplastic. It is biodegradable with the right conditions after 90 days. Both oil and waterproof finish ensuring that they are suitable for any food.



Unit Per Pc.

CODE	Type	Size mm	Packet
17 04 94	Round Plate	175	50'S
95	"	225	"
96	Comparted Plate	250	"
97	Oval Plate	250 × 190	"
98	Bowl	295	"

Standard Plain Glassware

Cristaler de Caidad estándar　標準ガラス器　标准玻璃器皿

Standard glassware tumblers of various shapes, and uses. Each pattern is packed and furnished 12 pieces/box. Cut design can be inserted upon request.



Hi-Ball



Old Fashion



Beer



Straight



Barrel



Whiskey



Goblet



Champane



Cocktail



Wine



Liqueur



Brandy



Whisky Sour



Sherry

Unit Per Pc.

CODE	Type	Contents		Size mm	
		cc	oz	Diam	Height
17 06 01	Hi-Ball	245	8-3/4	65	116
02	Old Fashion	200	7	73	84
03	Beer	480	18	68	154
04	Straight	225	8	66	104
05	"	295	10	71	115
17 06 06	Straight	360	12-3/4	69	140
07	"	420	15	77	151
08	Barrel	270	9	74	79
09	Whisky	40	1-1/2	43	53
10	"	60	2	48	61
17 06 11	Goblet	300	10-3/4	77	134
12	Champagne	130	4-1/2	85	110
13	Cocktail	70	2-1/2	75	105
14	Wine	50	1-2/3	46	105
15	"	90	3-1/5	54	110
17 06 16	Liqueur	30	1	37	92
17	Brandy	210	7-1/2	55	107
18	"	330	11-3/4	77	116
19	Whisky Sour	135	4-4/5	56	144
20	Sherry	70	2-1/2	51	116

Special Quality Glassware

Cristalería de Calidad Superior　特製ガラス製品　特制玻璃器皿

One piece, hand blown glassware with a European style stem. Owners emblem, house flag or cut design can be inserted upon request.



Goblet　Champagne　Cocktail　Red Wine　White Wine　Liqueur

Unit Per Pc.

CODE	Type	Contents		Size mm	
		cc	oz	Diam	Height
17 06 31	Goblet	200	8	70	120
32	Champagne	180	6	90	133
33	Cocktail	90	3	63	105
34	Red Wine	160	5-1/2	60	100
35	White Wine	70	2-1/2	53	80
17 06 36	Liqueur	28	1	27	65

Hard-Strong Glass Tumblers

Vasos (Duralex) Cristal　強化ガラスコップ　钢化玻璃器皿

Manufactured under a patented process, these glasses are thin but strong and will not break easily. Packed 12 pieces per box.



Straight　Barrel　Table

Unit Per Pc.

CODE	Type	Contents		Size mm	
		cc	oz	Diam	Height
17 06 41	Straight Tumbler	180	6-2/5	60	92
42	"	210	7-1/2	64	100
43	"	290	10	71	117
44	Barrel Tumbler	150	5	56	73
45	"	190	6-2/5	56	94
17 06 46	Barrel Tumbler	240	8-1/2	58	106
47	Table Tumbler	180	6-2/5	55	94
48	"	240	8-1/2	63	94

Heavy Duty Glassware

Cristaleria Reforzar　強化ガラス器　高级玻璃器皿

Well balanced modern stemware, made of crystallized strengthened glass for ships use.



Wine Long　Wine Short　Sherry　Whisky Sour

Brandy　Goblet　Cocktail　Champagne

Unit Per Pc.

CODE	Type	Contents		Size mm	
		cc	oz	Diam	Height
17 06 51	Wine Long	185	6-3/5	52	157
52	Wine Short	185	6-3/5	66	136
53	Sherry	85	3	54	122
54	Whisky Sour	130	4-1/3	49	144
55	Brandy	340	12	63	127
17 06 56	Goblet	325	11-1/2	71	153
57	Cocktail	100	3-1/2	71	111
58	Champagne	155	5-1/2	80	114

Beer Mugs

Jurras de Cerveza
ビールジョッキ　啤酒杯



Heavy based glass mug.

Unit Per Pc.

CODE	Con-tents cc	Size mm		CODE	Con-tents cc	Size mm	
		Diam	Height			Diam	Height
17 06 66	265	72	100	**17 06 68**	630	85	177
67	500	79	167	**69**	840	96	189

Disposable Cups

Vasos Desechables　使いすてコップ　一次性杯子

Made of paper or styrofoam plastic or eco-friendly bioplastic, suitable for use with hot or cold drinks. Also for use in vending machines.


With Handle


W/O Handle Paper


Eco-Friendly


W/O Handle


Bioplastic


Styrofoam Plastic


Insert


Holder


Stick

Unit Per Pc.

CODE	Size Diam × H mm	CC	Type
	Paper		
17 06 81	73 × 81	205	with handle
82	73 × 81	205	without handle
88	77 × 93	270	"
89	81 × 118	360	"
90	83 × 131	420	"
91	89 × 139	545	"
	Eco-Friendly Paper		
17 06 71	80 × 95	240	without handle
72	90 × 110	360	
73	90 × 135	480	
74	90 × 150	600	
	Plastic		
17 06 83	70 × 92	215	without handle
92	77 × 92	275	
93	79 × 120	340	
94	84 × 122	400	
95	90 × 135	545	
	Biodegradable Plastic		
17 06 75	80 × 95	240	without handle
76	90 × 110	360	
77	90 × 135	480	
78	90 × 150	600	
	Styrofoam		
17 06 84	80 × 92	260	without handle
	Plastic Insert Cup & Holder		
17 06 85	81 × 77	204	Insert Cup
86	-	-	Holder
87	L: 130 mm	-	Stick Spoon

Straws

Pajas ストロー 吸管

A plastic hollow tube for drinking. Environmentally friendly straws made of paper or aluminium are also available for your choice.


Standard Paper Alminium Flexible

Unit Per Pc.

CODE	Type	Material	Size mm Diam × L
17 06 96	Standard	Plastic	4 × 180
97			6 × 180
98			6 × 210
79		Paper	6 × 210
80		Aluminium	6 × 200
99	Flexible	Plastic	6 × 210

3. Tableware

Ice Cream and Sherbet Dishes

Vajillas para Helados y Sorbete

アイスクリーム・シャーベットカップ 冰激淋—冰糕杯子

Glass

Glass stemware in three types for ice cream or sherbet.


Flat Bottom


Goblet


Tulip

Unit Per Pc.

CODE	Type	Size mm	
		Diam	Height
17 07 01	Flat bottom	96	80
02	Goblet	100	90
03	Tulip	119	90

Stainless Steel

Stainless steel bowl and cup for individual service.


Bowl


Cup

Unit Per Pc.

CODE	Type	Size mm	
		Diam	Height
17 07 06	Bowl	110	25
07	Cup	100	56

Ice Cream Scoops

(Ice Cream Dishers)

Pinzas para Bolas de Helados / Racionador

アイスクリーム ディッシャー

冰激淋舀

Stainless steel twin grip ice cream portioner. Available in round and oval easy clean types.


Round Scoop Oval Scoop

Unit Per Pc.

CODE	Type	Size & Capacity
17 07 11	Round	55 mm × 50 cc
12	"	59 mm × 60 cc
13	"	65 mm × 80 cc
14	"	68 mm × 90 cc
15	Oval	62 × 47 mm × 40 cc

Glass Plates and Dishes

Platos Redondos de Cristal　丸皿　圆盘

Round Plate

When ordering, specify diameter.



Unit Per Pc.

CODE	17 07 31	17 07 32	17 07 33	17 07 34
Diam. mm	160	180	230	300

Fruit Dish

Glass made with an engraved design. Has a 144 mm diameter and 25 mm height.



17 07 38	Fruit dish, glass, 144 mm diam.	Pc.

Bowls

Bols de Cristal　ボール　玻璃碗

Glass Bowl

Multi purpose glass bowl for fruits, ice cream, salad, jam, etc.



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 07 41	120	**17 07 43**	230
42	160		

Tempered Glass Bowl

Tempered plain, clear glass bowls. Made of a thick, resistant glass which won't chip or crack.



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 07 46	120	**17 07 49**	200
47	140	**50**	230
48	170		

Glass Salad Bowl

Made of glass with an engraved design.



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 07 56	129	**17 07 58**	180
57	150	**59**	210

Plastic Salad Bowl

Heavy duty, transparent, plastic salad bowl.



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 07 61	160	**17 07 64**	225
62	185	**65**	250
63	200		

Biodegradable Plastic Bowl

Bol de Plástico Biodegradable
生分解性プラスティックボウル
可降解塑料碗



Great Option for seeking more sustainable solutions made from bioplastic. It is biodegradable with the right conditions after 90 days. Both oil and waterproof finish ensuring that they are suitable for any food.

Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 07 51	150	**17 07 54**	225
52	180	**55**	250
53	200		

Wood Salad Bowl

Machine carved from hard wood and finished with a protective lacquer. Used mainly for salad and vegetable servings.



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 07 71	150	**17 07 74**	225
72	180	**75**	250
73	200		

Wooden Salad Servers

Pinzas de Madera para Servie Ensalada
木製サラダサーバー　木制色拉帮手



A set consists of a wooden fork and spoon.

17 07 80	Wooden salad server, length 255 mm	Set
81	" 300 mm	"

Wood Spoons

Cucharas de Madera　木製スプーン　木勺



Plain wood serving and stirring spoon.

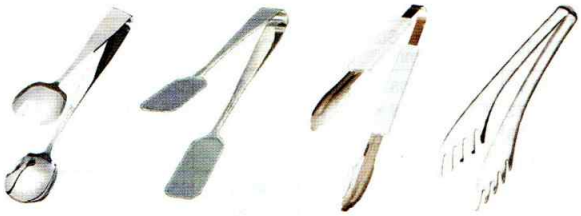
17 07 82	Wooden spoon, L 250 mm	Pc.
83	" " L 300 mm	"
84	" " L 400 mm	"
85	" " L 600 mm	"

Serving Tongs

Pinzas de Servir　サービストング　夹子

Available in various types and lengths for serving salad, bread and cake, etc. For preventing cross contamination of different food groups, various colours are available for multipurpose type for sanitary management.





Salad Serving | Bread & Cake Serving | Multi Purpose Serving | Spaghetti Serving

Unit Per Pr.

CODE	Serving for	Material	Overall Length mm	Colour
17 07 91	Salad	Plastic	230	-
92	Salad	Stainless Steel	240	Metal
17 07 93	Bread & Cake	Stainless Steel	215	Metal
17 07 94	Multi Purpose	Stainless Steel	240	Metal
60	"	"	"	Red
66	"	"	"	Blue
67	"	"	"	Yellow
68	"	"	"	Green
69	"	"	"	Brown
70	"	"	"	White
17 07 95	Multi Purpose	Stainless Steel	300	Metal
76	"	"	"	Red
77	"	"	"	Blue
78	"	"	"	Yellow
79	"	"	"	Green
86	"	"	"	Brown
87	"	"	"	White
17 07 96	Multi Purpose	Stainless Steel	390	Metal
88	"	"	"	Red
89	"	"	"	Blue
90	"	"	"	Yellow
98	"	"	"	Green
99	"	"	"	Brown
17 08 00	"	"	"	White
17 07 97	Spaghetti	Stainless Steel	260	Metal

Stainless Steel Dishes

Fuentes de Acero Inoxidable　ステンレス皿　不锈钢器皿

Oval and round type stainless steel serving dishes. Suitable for buffets and arrangements of any type of food. Cleans very easily.



Oval　Round

Unit Per Pc.

Oval		Round	
CODE	Size mm	CODE	Diam. mm
17 08 01	200 × 150	**17 08 16**	165
02	230 × 165	**17**	200
03	255 × 180	**18**	230
04	305 × 205	**19**	255
05	355 × 240	**20**	305
17 08 06	410 × 275	**17 08 21**	355
07	460 × 310	**22**	410
08	510 × 355	**23**	460
09	560 × 380		
10	610 × 445		

Stainless Steel Gravy Boats

Salseras de Acero Inoxidable
ステンレス製ソースボート
不锈钢调味船型碗



For serving sauce, etc. When ordering, specify content capacity.

Unit Per Pc.

CODE	17 08 31	17 08 32	17 08 33
Capacity (cc)	200	300	400

Stainless Steel Soup Tureens

Plain Round

Soperas de Acero Inoxidable
ステンレス スープチューリン（一般向）
不锈钢汤锅



Plain stainless steel round soup tureen. Available in 5 sizes complete with cover.

Unit Per Pc.

CODE	Contents ltr	Size mm (Diam × Height)
17 08 38	0.4	150 x 100
34	1.3	192 × 135
35	3.0	256 × 158
36	2.4	200 × 210
37	4.0	282 × 195

Stainless Steel Soup Tureens

Soperas de Acero Inoxidable
ステンレス スチール スープチューリン　不锈钢汤勺

Oval and round type soup tureen made of stainless steel. Provided complete with cover.



Oval　Round

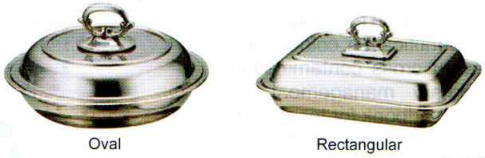
Unit Per Pc.

CODE	Type	Contents ltr.	CODE	Type	Contents ltr.
17 08 41	Oval	2.6	**17 08 43**	Round	2.8
42	"	4.0			

Stainless Steel Vegetable Dishes

Fuentes para Verduras de Acero Inoxidable
S.S. 小判型及び角型エントレーディッシュ　不锈钢圆型及角型素菜锅

Undivided oval and rectangular vegetable dish. Stainless steel, complete with cover for self service of fresh or steamed vegetables, pastas and salads.



Oval　Rectangular

Unit Per Pc.

CODE	Type	Size mm
17 08 47	Oval	287 × 206 × 38
17 08 48	Rectangular	310 × 243 × 46
49	"	370 × 304 × 46

Stainless Steel Food Service Containers

Recipientes para Servir Comida de Acero Inoxidable
ステンレステーブルパン　不锈钢桌盘

Stainless steel containers designed to prepare, store, freeze and serve foods. The graduated size pans can be used in any combination with each other. Containers can also save the dead spaces combining the graduated pans efficiently as the picture shows below. When ordering, specify the type and size required. Containers with an outer depth of 65 mm or 150 mm graduated containers are also available if required.



Unit Per Pc.

CODE	Type	Inner Size mm	ltr
17 08 51	1/9	150 × 82 × 100	1.0
52	1/6	150 × 136 × 100	1.6
53	1/4	240 × 136 × 100	2.6
54	1/3	300 × 150 × 100	3.8
55	1/2	300 × 240 × 100	6.2
17 08 56	L 1/2	500 × 136 × 100	5.8
57	2/3	325 × 300 × 100	8.6
58	1	500 × 300 × 100	13.8

Stainless Steel Covers

for Food Service Container

Tapas de Recipientes Servir Comida de Acero Inoxidable
ステンレステーブルパン用蓋
不锈钢桌盘盖



Stainless steel cover with handle for above mentioned food service containers. When ordering, specify the size of the container as shown in the illustration above.

Unit Per Pc.

CODE	Type Number	Size mm	CODE	Type Number	Size mm
17 08 61	1/9	176 × 108	**17 08 65**	1/2	327 × 265
62	1/6	176 × 163	**66**	L 1/2	530 × 163
63	1/4	265 × 163	**67**	2/3	353 × 327
64	1/3	327 × 176	**68**	1	530 × 327

Airtight Plastic Food Service Containers with Coloured Clip

Recipientes Herméticos de Plástico para Alimentos con Clip de Color
カラークリップ付きプラスティックフードコンテナ
带彩色夹子的食品用密封塑料容器



Plastic container includes the double airtight lip for airtight seal and 7 identification colour clips to prevent cross contamination for sanitary management on board. Handbook for Inspection of Ships and Issuance of Ship Sanitation Certificates 2.4.2 states the prevention of cross-contamination through use of separate utensils and cutting boards, and separation by colours will help for achieve this requirement. Dishwasher proof, HACCP and NACCP certified.

Unit Per Pc.

CODE	GN	Inner Size mm	Ltr	CODE	GN	Inner Size mm	Ltr
17 08 71		176 × 108 × 65	0.6	**17 08 83**		325 × 265 × 65	4.0
72	1/9	176 × 108 × 100	1.0	**84**	1/2	325 × 265 × 100	6.5
73		176 × 108 × 100	1.5	**85**		325 × 265 × 150	10.0
17 08 74		176 × 162 × 65	1.1	**86**		325 × 265 × 200	12.5
75	1/6	176 × 162 × 100	1.7	**17 08 87**		354 × 325 × 100	9.0
76		176 × 162 × 150	2.6	**88**	2/3	354 × 325 × 150	14.0
17 08 77		265 × 162 × 65	1.8	**89**		354 × 325 × 200	19.0
78	1/4	265 × 162 × 100	2.8	**17 08 90**		530 × 325 × 65	8.3
79		265 × 162 × 150	4.3	**91**	1/1	530 × 325 × 100	13.7
17 08 80		325 × 176 × 65	2.5	**92**		530 × 325 × 150	20.5
81	1/3	325 × 176 × 100	4.0	**93**		530 × 325 × 200	27.5
82		325 × 176× 150	6.0				

Remark: GN refers to the Gastronorm ("GN") sized food pan

Stainless Steel Vegetable Bowls

Bols para Verduras Acero inoxidable
ステンレス野菜ボール　不锈钢蔬菜碗



Oval shaped stainless steel bowls for serving vegetables.

Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 09 06	200 × 135	**17 09 08**	255 × 180
07	230 × 155	**09**	290 × 206

Stainless Steel Cake or Fruit Stands

Portapasteles o Fruteros de Acero Inoxidable
ステンレス ケーキ・フルーツスタンド
不锈钢蛋糕水果台



Fancy and plain type table stand for serving cake or fruit.

Unit Per Pc.

CODE	Type	Size mm	
		Diam	Height
17 09 16	Fancy	270	110
17 09 17	Plain	255	140
18	"	285	170

Plastic Fruit Baskets

Cestas para Frutas de Plástico
プラスチック果物入れ　塑料果盘

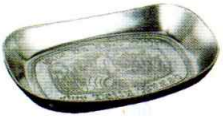


Meshed plastic round basket for serving fruit.

17 09 21	Fruit basket plastic 275 mm diam. × 73 mm height	Pc.

Stainless Steel Bread Trays

Bandejas para Pan, de Acero Inoxidable
S.S. パン用トレー　不锈钢烘炉



Oval shaped tray for serving sliced bread. Size 332 ×195 mm.

17 09 26	Bread tray, stainless steel 332 × 195 mm	Pc.

Stainless Steel Toast Racks

Porta-tostadas de Acero Inoxidable
ステンレス製トースト立て
不锈钢烤司架



Convenient serving tray for toast. Holds 4 slices in a standing rack design.

17 09 27	Toast rack, stainless steel, 4 slices	Pc.

Bread Baskets

Cesta para Pan　パン入れ　面包筐

Plastic



Plastic made oval shape basket.

17 09 31	Bread basket, plastic, oval 295 × 200 × 98 mm	Pc.

Bamboo



Bamboo made oval shaped bread basket.

17 09 32	Bread basket, bamboo, oval 290 × 180 × 90 mm	Pc.

Stainless Steel Egg Cups

Huevera de Acero Inoxidable
ステンレス卵立て
不锈钢鸡蛋杯



Size: D45 mm × H55 mm.

17 09 40	Egg cup, stainless steel	Pc.

Stainless Steel Finger Bowls

Cuencos para Mezclar Acero Inoxidable
ステンレス製フィンガーボール
不锈钢餐后洗手指盆



Used to rinse the hands during meals or to keep premeasured amounts of spices or other ingredients at easy reach when cooking.

Size : D 110 mm x H 50 mm.

17 09 42	Finger bowl, stainless steel, 110 mmΦ	Pc.

Table Bells

Campanillas de Mesa　テーブルベル　桌铃



Brass with a chrome plated finish.
Size: D 75 mm x H 90 mm.

17 09 46	Table bell, chrome plated brass	Pc.

Hand Bells

Campanillas　ハンドベル　振铃

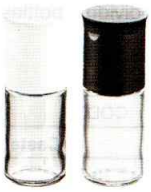


Polished brass made for announcing meal time, etc.

17 09 47	Hand bell, brass, 125 mm diam.	Pc.
48	" " 145 mm diam.	"

Salt & Pepper Shakers

Saleros y Pimenteros
塩及び胡椒振り　盐及胡椒振盒



Glass

Fluted sides with plastic or stainless steel top.

Unit Per Pc.

CODE	Name	Top
17 10 01	Salt Shaker	Plastic
02	"	Stainless Steel
03	Pepper Shaker	Plastic
04	"	Stainless Steel

Stainless Steel



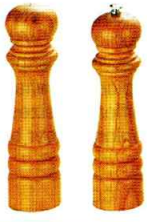
Marked on top with the letters "S" or "P" respectively for distinguishing between salt and pepper. The stainless steel shakers won't break and are easy to clean.

Unit Per Pc.

CODE	For	Size mm
17 10 06	Salt	D73 × H91 mm
07	Pepper	

Wood Salt Shakers & Pepper Mills

Salero y Molinilo de Pimienta de Madera
木製 塩振り・コショー挽き
木制盐振盒及胡椒罐



Old fashion designed wooden salt shaker, and pepper mill.

17 10 11	Salt shaker, wood 48 mm dia × H 120 mm	Pc.
17 10 12	Pepper mill, wood 48 mm dia. × H 120 mm	"

Caster Sets

Juego　キャスターセット　调味瓶一套



Salt & Pepper

Glass shakers, complete with stainless steel stand.

17 10 16	Salt & pepper caster set	Set

Sauce



Revolving stand with 4 bottles for Worcestershire sauce, soy sauce, salt and tooth picks. Available in all plastic or glass body with stainless steel cap type in set.

Unit Per Set

CODE	Name	Top
17 10 18	Plastic	Plastic
19	Glass with stainless steel cap	Stainless steel

Oil & Vinegar



Stainless steel made stand with two glass bottles for vinegar, oil or other dressings. Available in a set or individual bottles.

Unit Per Set		Unit Per Pc.	
CODE	Description	CODE	Description
Caster Set		**Bottle only**	
17 10 21	80 cc × 2 btls	**17 10 23**	80 cc
22	180 cc × 2 btls	**24**	180 cc

4 Pcs Cruet Stand Sets
(Condiment Sets)

Juegos de Condimiento (Convoy) Juego 4 Pcs.
キャスターセット(4 個) 調味瓶組



Stainless steel stand with two glass bottles for vinegar, etc., and two glass cruets for salt and pepper.

17 10 26	Cruet stand set 4 pcs	Set

Stainless Steel Spice Containers

Recipientes para Especias de Acero inoxidable
ステンレス薬味入れ 不锈钢调料盒



Stainless steel spice container with cover. Designed especially for spice. Available in six different sizes to hold oblong inner boxes.

Unit Per Set

CODE	No. of Inner Boxes	Container Size mm
17 10 28	2	L255 × W145 × H60
17 10 31	3	L330 × W145 × H60
17 10 29	4	L435 × W145 × H60
32	"	L285 × W225 × H60
17 10 30	5	L543 × W145 × H60
17 10 33	6	L330 × W285 × H60

Plastic Sauce Dispensers

Dosificadores de Salsa, de Plástico (Botellas Exprimibles)
ソースディスペンサー 酱汁分配器



Plastic squeeze dispensers used for sauce, ketchup, mustard and other condiments. Available in red, yellow and white colours for identification of the contents.

Unit Per Pc.

CODE	Capacity	Size D × H mm	Colour
17 10 36	180 cc	45 × 180	Red
37			Yellow
38			White
17 10 39	270 cc	50 × 185	Red
40			Yellow
41			White
17 10 42	400 cc	60 × 205	Red
43			Yellow
44			White

(to be continued)

Glass Sauce Bottles

Botellas para Salsas de Cristal
醤油・ソースビン 酱油・酱汁瓶



Glass bottle with plastic or stainless steel top and pouring spout. Ideal for use with soy sauce or other cooking oils.

Unit Per Pc.

CODE	Top	Capacity	Size D × H mm
17 10 46	Plastic	90 cc	60 × 90
47	"	120 cc	57 × 105
45	"	220 cc	70 × 112
17 10 48	Stainless steel	150 cc	57 × 121
49	"	180 cc	70 × 112
50	"	280 cc	70 × 131
53	"	330 cc	70 × 152

Mustard Pots

Recipiente para Mostaza 辛子入れ 芥末瓶



Glass body with plastic or stainless steel cover with spoon.

17 10 51	Mustard pot, glass, w/plastic cover	Pc.
52	" " " , w/stainless steel cover	"

Bitters Bottles

Dispensador para Aliño de Cristal
ビターボトル 苦料瓶



For holding bitters or oil seasonings which should be dispensed in droplets. Bottle stands at 160 mm height.

17 10 54	Bitters bottle, glass	Pc.

Syrup Pitchers

Jarras para Siropes シロップ注ぎ 糖浆壶



Stainless Steel

Made of stainless steel. Syrup pours easily when the tab is pulled back and the pitcher is tipped forward.

17 10 55	Syrup pitcher, stainless steel 250 cc	Pc.
56	" " 300 cc	"

Glass



Pitcher has a glass body with a plastic lid and handle. On the lid there is a built in spring which extends when the lever is pulled allowing the syrup to flow out easily.

17 10 58	Syrup pitcher, glass 200 cc	Pc.

Plastic Butter Cases

Mantequillera de Plástico
プラスチックバターケース　塑料黄油盒



Plastic made economical butter case with cover.

17 10 61	Butter case with cover, plastic W80 × L150 × H40 mm	Pc.

Stainless Steel Butter Trays

Mantequillera de Acero Inoidable
ステンレス製バター皿　不锈钢黄油盒

Stainless steel butter tray with cover.



Plastic Cover



S. Steel Cover

Unit Per Pc.

CODE	Cover	Size mm
17 10 63 64	Plastic S. Steel	L185 × W110 × H55

Stainless Steel Butter Dishes

Mantequera de Acero Inoxidable
ステンレス製バター入れ　不锈钢黄油壶



Made of stainless steel. The dish has a rolled rim.

17 10 66	Butter dish, stainless steel D95 × H70 mm	Pc.

Stainless Steel Jam Bowls

Bols para Mermelada de Acero Inoxidable
ステンレス製ジャムボウル
不锈钢果酱碗



To be used for jam, marmalades, sugar, etc. Lid is not included.

Unit Per Pc.

CODE	Contents cc	Size mm	
		Diam	Height
17 10 71	80	57	45
72	140	68	48
73	280	82	65

Glass Jam Casters

Juego-Servicio para Mermelada de Vidrio
二色ジャムキャスター　双色果酱调味瓶



Twin jam pots in one holder. Glass pot furnished with plastic lid.

Size: 163 mm x 75 mm.

17 10 76	Jam caster set, glass, twin	Set

Glass Jam Pots

Botes de Mermelada o Queso
ジャム入れ　玻璃果酱罐



Single jam pot. Quality and design same as above.

Size: D82 mm x H92 mm.

17 10 77	Jam pot, glass	Pc.

Glass Jam or Cheese Dishes

Platos de Mermelada o Queso
ジャム・チーズ皿　玻璃果酱奶酪壶



Made of plate glass with a stainless steel cover.

Size: D 100 mm x H 47 mm.

17 10 78	Jam or cheese dish glass with stainless steel cover	Pc.

Tooth Picks

Mondadientes-Palillos de Dientes　爪楊枝　牙签

Wooden tooth picks, available in round or flat types.



Round



Individual wrapped round

Unit Per Pkt.

CODE	Type	Contents
17 10 90	Round	150'S
91	Flat	750'S
92	Individually wrapped round	1,000'S

Tooth Pick Holders

Palilleros　爪楊枝立て　牙签盒

Plastic

Made of plastic with a transparent cover.



Size: D 59 mm x H 73 mm

17 10 95	Tooth pick holder, plastic	Pc.

Glass

Size: D 44 mm x H 52 mm.



17 10 96	Tooth pick holder, glass	Pc.

Sugar Pots

Azucarero de Cristal　シュガーポット　玻璃糖罐

Glass



A glass bowl with a stainless steel lid and handle. The lid has a hole on it for closing the lid while a spoon is in the bowl. Furnished without spoon unless specified otherwise.

17 11 01	Sugar bowl, glass diam 80 mm × height 135 mm	Pc.

Stainless Steel



Unit Per Pc.

CODE	Contents cc	Size mm	
		Diam	Height
17 11 06	280	82	85
17 11 07	350	88	64
17 11 08	130	70	65
09	200	80	75
10	360	95	90

Sugar Dispensers

Disificador de Azúcar　砂糖振り　砂糖罐



Glass or stainless steel dispensers with a stainless steel top fitted with a dispenser nozzle. The nozzle automatically controls the quantity of the sugar dispensed at one time.

17 11 11	Sugar dispenser, glass automatically adjusted	Pc.

Stainless Steel Creamers

Lechera de Acero Inoxidable
ステンレス製ミルクピッチャー
不锈钢油壶



17 11 21 - 22



17 11 23 - 25

To be used as a creamer or milk pitcher. The pattern shown on the left hand side is furnished without a lid.

Unit Per Pc.

CODE	Contents cc	Size mm	
		Diam	Height
17 11 21	140	47	50
22	280	69	90
17 11 23	100	55	75
24	160	65	85
25	220	75	95

Stainless Steel Coffee Pots

Cafetera-(Jarra de Café) de Acero Inoxidable
ステンレス製コーヒーポット　不锈钢咖啡壶

Below are shown a few of the different types of coffee pots which are most popular. When ordering, specify the type as well as the carrying capacity by the code numbers listed below.



17 11 27 - 30



17 11 32 - 34



17 11 35 - 37

Unit Per Pc.

CODE	Contents cc	Size mm	
		Diam	Height
17 11 27	370	75	115
28	460	80	140
29	900	90	185
30	1,100	100	205
17 11 32	460	76	126
33	550	84	132
34	900	103	140
17 11 35	400	75	130
36	750	100	160
37	1,000	110	190

Stainless Steel Tea Pots

Tetera- (Jarra de Té) de Acero Inoxidable
ステンレス製ティーポット　不锈钢茶壶

These pots can be used either as tea or coffee pots. When ordering, please specify the code number as well as the carrying capacity.



17 11 41 - 43



17 11 44



17 11 45 - 48

Unit Per Pc.

CODE	Contents cc	Size mm	
		Diam	Height
17 11 41	460	83	84
42	550	92	90
43	900	118	118
17 11 44	500	100	115
17 11 45	370	80	110
46	460	95	125
47	900	110	140
48	1,100	127	155

Turkish Coffee Pots

Cafeteta para CaféGriego
ギリシャコーヒーポット　土耳其咖啡壶



Made of copper with a long handle for convenience. Designed to prepare Turkish style coffee.

Unit Per Pc.

CODE	Cups	Size mm	
		Base Diam	Height
17 11 51	1	57	63
52	2	68	75
53	3	75	83
54	5	90	92

Boiling Coffee Pots

Cafeteras
コーヒーポット
热咖啡壶



Stainless Steel



Decanter

Unit Per Pc.

CODE	Capacity Ltr	CODE	Capacity Ltr
Stainless Steel		**Decanter**	
17 11 66	1.5	**17 11 56**	0.3
67	3.0	**57**	0.5
68	4.0	**58**	0.7
		59	0.8
		60	1.2
		69	1.8

Coffee Makers "Mocha Express"

Cafeteras "Moka"
モカエキスプレス　上帝咖啡壶



A coffee maker for use with filter paper. Available in 3 sizes. Filter papers must be ordered separately.

17 11 71	Coffee maker "Mocha Express"	No. 3	Pc.
72	"	No. 6	"
73	"	No. 9	"

Filter Paper



Round type filter paper for "Mocha Express".

Unit Per Pkt.

CODE	Name	Size No. Diam. mm	Packed in
17 11 76	Round Filter Paper	No. 3 56	100's
77	"	No. 6 60	100's
78	"	No. 9 68	100's

Percolators

Cafeteras Filtradopras
パーコレーター　咖啡壶



Stainless steel made pot & cover with glass knob. Can be furnished for 6 or 8 cup capacity.

Unit Per Pc.

CODE	Cap Capacity	Size mm
17 11 81	6	175 × 115
82	8	205 × 115

Melita Coffee Maker

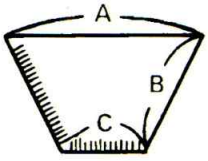
Cups & Filter Paper

Filtros para Cafetera Melita
メリタコーヒーカップ及びフィルターペーパー
卖里它咖啡壶以及过滤纸

Simple and easy coffee making cup and filter paper.



Filter Cup



Filter Paper

17 11 86	Melita coffee maker cup size No. 1 × 2	Pc.
87	" 1 × 4	"
88	" 1 × 6	"

Filter Paper

Unit Per Pkt

CODE	Size No.	Actual Size mm			Packed in
		A	B	C	
17 11 91	1 × 2	160	85	55	100's
92	1 × 4	197	127	55	100's
93	1 × 6	225	135	55	100's

Crinkled Coffee Filter Papers

Filtro de Papel Ondulado
波形コーヒーフィルター　波型咖啡过滤纸



Disposable filters to fit most coffee brewers. Described sizes are measured when the filter is extended.

Unit Per C/S

CODE	Diam. mm	Pcs Per Case
17 11 94	230	1,000's
95	250	"
98	270	"
99	280	"
17 11 96	250	1,800's
97	280	"

Water Jugs

Jarras de Agua　水差し　水壶



Plastic

Plastic handy jug.

17 12 01	Water jug, plastic, 2 ltr	Pc.

Plastic – Double Framed Wall



As polyurethane foam is filled between the double framed wall, it holds cold water for longer periods than conventional plastic water jugs. Also the body will not get wet by drops of dew even if filled with ice water.

17 12 03	Water jug, plastic, double framed wall, 1.7 ltr	Pc.

Glass – (Carafe)



Glass water jug with plastic handle.

Unit Per Pc.

CODE	Contents ltr	Size mm	
		Diam	Height
17 12 06	1.2	110	235
07	1.9	138	270

Glass, with Ice Lip

Glass water jug with ice lip and handle. Body diam. 155 mm and height 325 mm.



17 12 09	Water jug, glass 2 ltr	Pc.

Stainless Steel

Available in plain and ice lip and insulated types.



Plain



Ice-lip



Insulated

Unit Per Pc.

CODE	Type	Ltr	CODE	Type	Ltr
17 12 16	Plain	1.8	**17 12 19**	Insulated	1.0
17		2.8	**20**		1.85
17 12 18	Ice-lip	2.0			

Glass Water Decanters

Licoreras de Cristal　ガラス製水瓶　房间用水瓶

Glass made bottle with plastic plug.

Size: Bottom Diam.
105 mm x Height 220 mm.



17 12 11	Water decanter glass, 220 mm height	Pc.

Thermos Bottles

Termos　魔法瓶　保温瓶

Insulated jug with rotating stopper to keep the spout open or closed and avoid spillage.



Unit Per Pc.

CODE	Capacity	CODE	Capacity
17 12 35	500 ml	**17 12 31**	1 ltr
37	750 ml	**32**	1.9 ltr

Air Pressure Type

Air pressure type thermos bottle. Liquid is dispensed by pressing a pump tab at the top of the thermos.



Unit Per Pc.

CODE	Capacity	CODE	Capacity
17 12 33	2.2 ltr	**17 12 34**	3.0 ltr

Thermos Water Tanks

Tanque - Termo de Agua

保温・保冷ウォータータンク　保温保冷水瓶

Mobile water container with insulation. Allows the keeping of hot or cold water.



17 12 36	Thermos water tank, capacity 10 ltr	Pc.

4. Bar Utensils

Pouring Measure

Dosificador　メジャードポアラー　浆料傾注装置

Shot pourer, easily attachable to a liquor bottle to dispense the same premeasured quantity (1 oz) each time.



17 13 06	Pouring measure, 28.5 cc	Pc.

Non-Drip Measure and Brackets

Dosificador Anti-Goteo

ウィスキーメジャー　威士忌计量器

Non Drip Measure
Standard, non-drip, all purpose spirit measure in 28.5 cc.

Bottle Brackets
Standard single bracket suitable for clamping to a wall or shelf. Polished aluminium. Height with standard bottle, approx. 460 mm.



17 13 11	Non-Drip spirit measure 28.5 cc	Pc.
17 13 12	Standard single bottle bracket	"
17 13 13	Non-Drip spirit measure with single bottle bracket	Set

Stainless Steel Jigger Cups

Medida de Cóctel de Acero Inoxidable

ステンレス洋酒用計量カップ

不锈钢扬酒用计量杯

For measuring whisky, cocktail ingredients, etc. Both ends of the jigger can be used as measuring cups.



Unit Per Pc.

CODE	Cup Contents		Size mm
	cc	oz	
17 13 16	28 × 56	1 × 2	110 × 40 × 45
17	14 × 28	1/2 × 1	90 × 35 × 37

Stainless Steel Cocktail Shakers

Cocteleras de Acero Inoxidable
ステンレス製カクテルシェーカー　不锈钢调酒壶



A handy designed shaker for cocktails, iced juice, etc.

Unit Per Pc.

CODE	Contents		Size mm
	cc	oz	
17 13 21	200	7	150 × 65
22	330	12	175 × 75
23	500	17	205 × 80

Cocktail Glasses with Strainers

Vasos de Cóctel con Colador
ストレーナー付カクテルグラス　带有过滤器的鸡尾酒玻璃杯

Mixing glass of H135 x D85 mm with stainless steel strainer. Specify if stainless steel twisted bar spoon, length 135 mm, is required.



Cocktail Glass



Strainer



Bar Spoon

17 13 31	Cocktail glass with strainer	Pc.
32	Bar spoon for cocktail	"

Muddlers

Ajitador de Bebidas
マドラー　搅酒棒



Cocktail stirrer, available in plastic and stainless steel, length 200 mm.

17 13 36	Muddler, plastic, 200 mm length	Pc.
37	Muddler, stainless steel 200 mm length	"

Coasters

Posavasos　コースター　杯垫



Available in a round and square type, paper, copper or leather.

17 13 41	Coaster, paper, round 100's/pkt	Pkt.

5. Ice Instruments

Ice Pails

Cubos de Hielo　アイスペール　冰提桶



Designed as an ice cube server. Non insulated. Handle can be folded. Furnished with ice tongs.

Unit Per Set

CODE	Capacity	CODE	Capacity
Glass		**Stainless Steel**	
17 13 49	1.5 ltr	**17 13 46**	1 ltr
		51	1.5 ltr
		47	2 ltr
		48	3 ltr
		50	5 ltr

Thermos Type

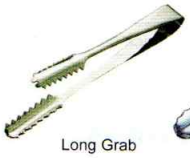
Insulated thermos ice cube container. Furnished without ice tongs.



17 13 52	Ice pail, thermos, 1.1 ltr	Pc.
53	" 1.4 ltr	"

Ice Tongs

Pinzas de Hielo
アイストング
冰钳子



Long Grab



Short Grab

Unit Per Pr.

CODE	Length mm	CODE	Length mm
Long Grab		**Short Grab**	
17 13 56	145	**17 13 58**	155
54	180	**57**	180
55	215	**59**	210

Stainless Steel Champagne Coolers

Cuvo de Champán de Acero inoxidable
ステンレス製シャンパンクーラー
不锈钢香槟冷却桶



Has handles at both sides.

Unit Per Pc.

CODE	Capacity	Diam	CODE	Capacity	Diam
17 13 61	4.5 ltr	190 mm	**17 13 62**	6.0 ltr	225 mm

Ice Chippers

Pincho para Hielo (3 Puntas)　三本針氷割り　碎冰机



Heavy duty ice chippers with 3 steel points set in a cast iron shank.

17 13 71	Ice chipper, 3 points, overall length 195 mm	Pc.

Ice Picks

Punzón - Pincho para Hielo　氷割り　凿冰针



Steel pick with wooden handle. Handle has a metal head.

17 13 72	Ice pick, overall length 235 mm	Pc.

Ice Cube Trays

Bandeja de Plástico para Cubitos de Hielo
製氷皿　制冰盘

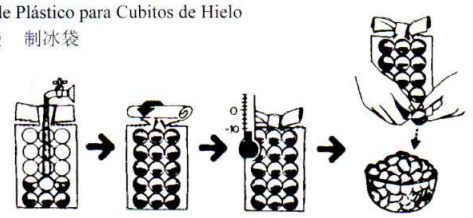


Tray is made of plastic to make removing the ice cubes easier. Just twist the tray and the ice cubes come out without breaking.

17 13 76	Ice cube tray plastic	Pc.

Ice Cube Packs

Bolsa de Plástico para Cubitos de Hielo
製氷袋　制冰袋



Fill with Water　Tie Fast　Put in Freezer　Push Out

17 13 78	Ice cube pack plastic, 325 × 160 mm, 10's	Pkt.

Ice Block Tongs
(Crampons)

Tenazas para Hielo　氷ばさみ　冰剪



For carrying ice blocks with a firm grip. Pin pointed hook ends prevent slipping.

Unit Per Pr.

CODE	Opening	CODE	Opening
17 13 80	400 mm	**17 13 82**	600 mm
81	500 mm		

Hand Claws

Garras de mano　手かぎ　手抓



A wood handle with curved claw for handling ice block, frozen meat or fishes.

Unit Per Pc.

CODE	Length mm	CODE	Length mm
17 13 84	300	**17 13 87**	390
85	330	**88**	420
86	360	**89**	450

Ice Block Cutting Saws

Sierras bloque de hielo cutting　氷のこぎり　冰锯



For cutting ice blocks with stainless steel blade. The length in the table are indicated only blade length.

Unit Per Pc.

CODE	Blade Length mm	CODE	Blade Length mm
17 13 90	300	**17 13 95**	450
91	330	**96**	480
92	360	**97**	510
93	390	**98**	540
94	420	**99**	600

6. Serving Utensils

Service Trays

Bandeja de Servicio　お盆　盘

Plastic

High density, dishwasher proof and very light. Available in rectangular or round shapes.



Rectangular



Round Non-slip

Unit Per Pc.

CODE	Shape	Size mm	CODE	Shape	Size mm
17 14 01	Rectangular	350×270	**17 14 06**	Round	353
02	"	410×300	**17 14 07**	Round,	353
03	"	435×325	**08**	Non-slip	405
04	"	475×370			

Wood

Teak or Mahogany veneer. Available in rectangular or round shapes.



Rectangular



Round

Unit Per Pc.

Rectangular		Round	
CODE	Size mm	CODE	Size mm
17 14 11	420 × 247	**17 14 16**	300
12	460 × 265	**17**	355
13	510 × 308	**18**	400

Stainless Steel

For serving dishes from the galley direct to dining or mess rooms. Trays are available in rectangular, cafeteria, divided and round type.



Round



Cafeteria



Rectangular

Unit Per Pc.

CODE	Shape	Size mm	CODE	Shape	Size mm
17 14 21	Round	300	**17 14 27**	Rectangular (handled)	455 × 340
22		350	**28**		505 × 370
23		400	**29**		560 × 405
17 14 24	Cafeteria	250 × 350 × 19	**30**		600 × 435
25		305 × 415 × 20	**17 14 31**	Comparted	400 × 300 × 30
26		320 × 435 × 21			

Alumite



Unit Per Pc.

CODE	Size mm	CODE	Size mm
17 14 33	460 × 305 × 25	17 14 35	535 × 340 × 27
34	500 × 330 × 27	36	580 × 385 × 30

Melamine Service Trays

Bandejas de Melamna
メラミン製盆　密胺餐盘



Comparted service tray for serving dishes from the galley direct to dining or mess rooms. Made of Melamine.

Unit Per Pc.

CODE	Size mm	Number of Packets
17 14 32	394 × 294	6

Stainless Steel Menu Holders

Porta-menú de Acero Inoxidable
S.S. メニュー立て
不锈钢菜单架



Wide



"I"

Available in various types, but the two most common are listed below.

Unit Per Pc.

CODE	Description	Size mm
17 14 45	Wide pinch	W125 × H60
46	I shape pinch	H60

Menu Cards

Tarjetas de Menú　メニューカード　菜单卡

Plain white paper of a standard size convenient for posting a daily menu. If necessary, sizes other than those listed below are available upon request.

17 14 47	Menu card white plain 130 × 180 mm	Sht
48	" " " " 150 × 200 mm	"

7. Napkin Paper

Napkin Papers
(Serviettes)

Servilleteros
ナプキンペーパー　餐巾纸



Unfolded

Folded

Napkin paper can be furnished unfolded or folded. 3 colours are available in 1/4 sized folded napkin papers. Sizes and types are listed below. Eco-friendly type such as recycled paper or with Eco logo mark is also available for your choice. Please specify whether folded or unfolded napkins are required.

CODE	Type	Colour	Open Size mm	Unit
17 14 51	Unfolded	White	250 × 250	1,000's/pkt
52		White	300 × 300	1,000's/pkt
49		Eco-friendly	250 × 250	1,000's/pkt
17 14 53	1/6 Folded	White	250 × 250	100's/pkt
59		White	250 × 250	1,000's/pkt
54		White	250 × 250	10,000's/ctn
50		Eco-friendly	250 × 250	100's/pkt
17 14 55	1/4 Folded	White	320 × 320	500's/pkt
56		Blue	320 × 320	500's/pkt
57		Orange	320 × 320	500's/pkt
58		Pink	320 × 320	500's/pkt
60		Eco-friendly	320 × 320	500's/pkt

Stainless Steel Paper Napkin Holders

Servilleteros de Acero Inoxidable
S.S. ペーパーナプキン立て　不锈钢餐巾纸盒

The two napkin holders shown on the left are for hand folded, diagonal shaped napkins and the holder on the right is for prefolded 1/4 sized napkins.



17 14 61



17 14 62



17 14 63

Unit Per Pc.

CODE	Description	Size mm
17 14 61	For Hand folded napkin papers	72 × 140
62	For Hand folded napkin papers	122 × 140
63	For Ready folded napkin papers	95 × 140

Stainless Steel Paper Napkin Dispensers

Dispensador de Servilletas de Papel de Acero Inoxidable
S.S. ペーパーナプキンディスペンサー
不锈钢餐巾纸分配箱



Unit Per Pc.

CODE	Size mm	CODE	Size mm
17 14 66	115 × 95 × 140	17 14 67	220 × 105 × 190

Cotton Damask Napkins

Servillas de Algodón / Damasco
ダマスクナプキン　锦缎餐巾纸



Woven from white cotton damask. Standard sizes are 450 mm square and 500 mm square. Other sizes are available upon request.

17 14 71	Napkin, table, cotton damask white 450 mm sq.	Sht
17 14 72	Napkin, table, cotton damask white 500 mm sq.	"

Napkin Rings
(Serviette Rings)

Servillетero (Aro)　ナプキンリング　餐巾纸环



Used for enclosing table napkin. 45 mm diameter.

Unit Per Pc.

CODE	Material	CODE	Material
17 14 74	Stainless steel	17 14 75	Acryl resin

Paper Table Napkins

Servilletas de Papel
食卓用紙ナプキン　层片餐巾纸

2 ply crepe paper table napkins.

Unit Per C/T

CODE	Size mm	Per/Carton
17 14 76	330 × 330	2,400's
77	450 × 450	2,000's
79	450 × 450	100's

Lace Paper
(Paper Doily)

Blondas de Papel　レースペーパー　镶花边餐巾纸

Lace like decorated doily for trays, coffee tables, etc. Round or oval design.



Round



Oval

Unit Per Pkt.

Round			Oval		
CODE	Diam. mm	Pkt	CODE	Diam mm	Pkt
17 15 01	100	500's	**17 15 21**	150 × 105	500's
02	122	"	**22**	170 × 110	"
03	150	"	**23**	200 × 140	"
04	175	"	**24**	254 × 175	"
05	200	"	**25**	305 × 215	"
17 15 06	225	500's	**17 15 26**	355 × 240	300's
07	254	"	**27**	405 × 265	"
08	275	"	**28**	455 × 290	"
09	305	"	**29**	505 × 330	"
10	330	300's	**30**	555 × 340	"
17 15 11	355	300's	**17 15 31**	625 × 410	300's
12	405	"	**32**	610 × 280	"
13	455	"			
14	505	"			

8. Frying Pans & Cooking Pots

Frying Pans

Sartenes de Acero　フライパン　钢制煎锅

Steel

Heavy black wrought steel pan and handle.



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 17 01	160	**17 17 09**	320
02	180	**10**	340
03	200	**11**	360
04	220	**12**	380
05	240	**13**	400
17 17 06	260	**17 17 14**	420
07	280	**15**	450
08	300		

Stainless Steel

Stainless steel frying pan with a long plastic handle which will not conduct heat.



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 17 16	160	**17 17 20**	260
17	180	**21**	280
18	200	**23**	300
19	220	**28**	330
22	240		

Aluminium

Made of heavy duty aluminium for use on all types of stoves or grills.



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 17 24	210	**17 17 26**	270
25	240	**27**	300

Teflon Coated

A steel frying pan coated with teflon to prevent foods from sticking to the pan and scorching.



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 17 29	190	**17 17 33**	280
30	220	**34**	320
31	240	**35**	370
32	260		

Cast Aluminium Steak Pans

Sartén para Bistec de Aluminio Fundido
アルミ鋳物ステーキパン　特铝烤牛排锅

Oval type pan with a wooden handle, made of heavy duty cast aluminium, ideal for cooking steaks or chicken for a special grill-broiled taste.



17 17 36	Steak pan, cast alum, oval 260 × 240 mm	Pc.
37	" 320 × 240 mm	"

Cast Iron Skillets

Sartén de Hierro Fundido　鉄鋳物フライパン　铸铁煎锅

A heavy duty cast iron frying pan suitable for preparing large amounts of food. Available with welded handle or wooden handle.



Welded Handle



Wooden Handle

Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
Welded Handle			
17 17 38	240	**17 17 39**	260
Wooden Handle			
17 17 40	160	**17 17 44**	240
41	180	**45**	260
42	200	**46**	280
43	220	**47**	300

French Fryers

Sartén Friedora
フレンチフライヤー
法式炸锅



Steel made deep fryer for frying shrimp, chicken croquette, etc. Handle comes riveted to the pan and a wire strainer basket is also available upon request.

With Wire Basket			Wire Basket Only		
CODE	Diam × Depth mm	Unit	CODE	Diam × Depth mm	Unit
17 17 51	300 × 180	Set	**17 17 53**	240 × 180	Pc.
52	360 × 200	"	**54**	280 × 200	"

Baskets for Cooking

Canasta para cocinar　揚げもの用バスケット
烹饪篮



For Boiling Spaghetti

Stainless steel mesh basket with handle for boiling spaghetti.

Unit Per Pc.

CODE	Basket Diam × Depth mm	Overall Height mm	CODE	Basket Diam × Depth mm	Overall Height mm
17 17 56	120 × 190	380	**17 17 58**	100 × 300	490
57	140 × 230	420			

For Boiling

Stainless steel wire basket for boiling chips, spaghetti, etc., with wire handle.



Unit Per Pc.

CODE	Diam × Depth mm	For Pan Diam mm	CODE	Diam × Depth mm	For Pan Diam mm
17 17 81	160 × 90	180	**17 17 84**	220 × 140	240
82	180 × 100	200	**85**	240 × 150	270
83	200 × 107	220	**86**	240 × 150	270

Remark: 171786 has a hook to rest on a rimmed pan without slipping.

For Frying Potato

For frying potato crisps. Made of stainless steel with handle.



Unit Per Pc.

CODE	Basket Size mm L × W × D	Handle Length mm
17 17 87	210 × 150 × 150	280
88	270 × 120 × 120	280
89	270 × 180 × 120	280

Saute Pans

Cacerolas Saltear　ソテーパン　爆香锅



Standard Aluminium

Aluminium saute pan with handle and lid for sauteeing vegetables, etc. throughly at a low temperature.

Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 18 01	150 × 60	1.0	**17 18 04**	240 × 80	3.4
02	180 × 65.5	1.5	**05**	270 × 90	5.0
03	210 × 70	2.4	**06**	300 × 100	6.0

Heavy Duty Aluminium

Heavy duty, 3 mm thick, polished aluminium saute pan. Complete with lid. The handle is securely riveted to the body.



Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 18 11	150 × 60	1.0	**17 18 15**	270 × 90	5.0
12	180 × 65	1.5	**16**	300 × 100	6.0
13	210 × 70	2.4	**17**	330 × 110	9.5
14	240 × 80	3.4	**18**	360 × 120	12.0

Stainless Steel

Stainless steel saute pan with handle and lid for sauteering vegetables etc.



Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 17 91	160 × 60	1.0	**17 17 95**	240 × 80	3.5
92	180 × 65	1.6	**96**	270 × 90	5.0
93	200 × 70	2.0	**97**	300 × 100	7.0
94	210 × 70	2.3			

Sauce Pans
(Stew Pans)

Cazos Altos　シチューパン　煮汤锅



Standard Aluminium

Pans with a capacity up to 6.0 ltrs come with the regular straight handle. Pans with a capacity greater than 6.0 ltrs have looped handles.

Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 18 21	150 × 90	1.5	**17 18 25**	270 × 150	8.6
22	180 × 100	2.7	**26**	300 × 180	12.0
23	210 × 120	4.2	**27**	330 × 190	16.0
24	240 × 130	6.0	**28**	360 × 210	22.0

Heavy Duty Aluminium

Heavy duty aluminium made sauce pan for boiling and cooking. Capacity up to 6.2 ltrs has one straight handle, and over 6.2 ltrs size has two loop handles.



Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 18 31	150 × 90	1.5	**17 18 35**	270 × 150	8.6
32	180 × 110	2.8	**36**	300 × 170	12.0
33	210 × 120	4.2	**37**	330 × 210	18.0
34	240 × 140	6.2	**38**	360 × 230	23.0

Stainless Steel

Stainless steel made sauce pan with handle and lid for boiling and cooking.



Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 19 51	160 × 90	1.7	**17 19 55**	240 × 140	6.0
52	180 × 110	2.7	**56**	270 × 150	8.6
53	200 × 120	3.6	**57**	300 × 170	12.0
54	210 × 125	4.2			

Braziers

Cacerolas bajas con Tapa Alumino 外輪鍋 标准铝制外轮锅



Standard Aluminium

Standard aluminium made shallow pan with riveted handles.

Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 18 41	210 × 70	2.4	**17 18 48**	420 × 140	19.0
42	240 × 80	3.6	**49**	450 × 150	23.0
43	270 × 90	5.0	**50**	480 × 160	29.0
44	300 × 100	6.8	**51**	510 × 170	34.0
45	330 × 110	9.4	**52**	540 × 180	41.0
17 18 46	360 × 120	12.0	**17 18 53**	600 × 210	56.0
47	390 × 130	15.0			

Heavy Duty Aluminium

A heavy duty 3.0 mm thick aluminium shallow pan with riveted handles.



Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 18 56	270 × 90	5.0	**17 18 61**	420 × 140	19.0
57	300 × 100	6.8	**62**	450 × 150	23.0
58	330 × 110	9.4	**63**	480 × 160	29.0
59	360 × 120	12.0	**64**	510 × 170	34.0
60	390 × 130	15.0	**65**	600 × 210	56.0

Stainless Steel

Stainless steel made shallow pan with lid and riveted handle.



Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 19 61	210 × 70	2.3	**17 19 66**	360 × 120	12
62	240 × 80	3.5	**67**	390 × 130	15
63	270 × 90	5.0	**68**	420 × 140	19
64	300 × 100	6.7	**69**	450 × 150	23
65	330 × 110	9.5			

Sauce Pots

Cacerolas Altas 半寸胴鍋 半尺寸的锅



Standard Aluminium

Standard aluminium sauce pot with loop handles.

Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 18 71	180 × 130	3.0	**17 18 78**	390 × 250	30
72	210 × 150	5.0	**79**	420 × 280	38
73	240 × 160	7.2	**80**	450 × 300	49
74	270 × 180	10.0	**81**	480 × 330	60
75	300 × 190	13.0	**82**	510 × 350	70
17 18 76	330 × 220	18.0	**17 18 83**	540 × 370	84
77	360 × 240	24.0	**84**	600 × 390	113

Heavy Duty Aluminium

A heavy duty alum. made sauce pot. The handles are riveted to the pot body. Thickness of the aluminium is 3.0 – 5.0 mm.



Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 18 86	240 × 170	7.8	**17 18 92**	420 × 270	38.0
87	270 × 180	10.0	**93**	450 × 290	46.0
88	300 × 200	15.0	**94**	480 × 320	58.0
89	330 × 210	18.0	**95**	510 × 350	70.0
90	360 × 230	23.0	**96**	600 × 400	113
17 18 91	390 × 240	28.0			

Stainless Steel

Stainless steel made sauce pots that have a copper lined bottom to distribute heat faster and more evenly, using less fuel or electricity.



Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 19 08	210 × 140	4.7	**17 19 04**	360 × 240	24
09	240 × 170	7	**05**	390 × 250	30
01	270 × 180	10	**06**	420 × 280	38
02	300 × 190	13	**07**	450 × 310	49
03	330 × 220	18			

Stock Pots

Ollas con Tapa de Alumino Tipo Estándar 寸銅鍋 标准铝制一寸炖锅



Standard Aluminium

Standard aluminium made stock pot with handles riveted to the pot body.

Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 19 11	180 × 160	4.4	**17 19 18**	390 × 370	44
12	210 × 190	6.5	**19**	420 × 400	55
13	240 × 220	10.0	**20**	450 × 430	68
14	270 × 250	14.0	**21**	480 × 450	81
15	300 × 280	20.0	**22**	510 × 480	98
17 19 16	330 × 310	26.0	**17 19 23**	540 × 520	116
17	360 × 340	34.0	**24**	600 × 580	160

Heavy Duty Aluminium

A heavy duty aluminium made stock pot with handles riveted to the pot body. The aluminium is 3.0 – 5.0 mm thick.



Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 19 26	240 × 240	11	**17 19 32**	420 × 420	57
27	270 × 270	15	**33**	450 × 450	70
28	300 × 300	20	**34**	480 × 480	85
29	330 × 330	27	**35**	510 × 510	100
30	360 × 360	35	**36**	600 × 600	164
17 19 31	390 × 390	45			

Stainless Steel

Ideal for cooking large quantities of sauce or stock evenly without scorching or thickening.



Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 19 39	210 × 210	7.2	**17 19 45**	390 × 390	45
40	240 × 240	10	**46**	420 × 420	57
41	270 × 270	15	**47**	450 × 450	70
42	300 × 300	20	**48**	480 × 480	85
43	330 × 330	27	**49**	510 × 510	100
17 19 44	360 × 360	35			

Casseroles

Cacerolas　蒸し焼き用鍋　蒸烤锅

A large deep dish made of china or heat-resisting glass for oven cooking.



China



Heat Resisting Glass



Stainless Steel

Unit Per Pc.

CODE	Diam mm	ltr	CODE	Diam mm	ltr
China			**Heat-resisting Glass**		
17 18 07	200	2.4	**17 18 29**	200	2.4
08	220	3.3	**30**	220	3.3
09	240	4.2	**39**	240	4.2
10	260	5.3	**40**	260	5.3
19	280	6.7	**54**	280	6.7
20	300	8.4	**55**	300	8.4

Stainless Steel

Unit Per Pc.

CODE	Diam mm	ltr	CODE	Diam mm	ltr
17 19 80	220	2.4	**17 19 83**	260	5.3
81	220	3.3	**91**	280	6.7
82	240	4.2	**92**	300	8.4

Aluminium Pressure Cookers

Ollas a presión de aluminio　圧力鍋　闹表

Aluminium mirror polished cooker with handles at both sides. Pressure control valve at the lid will release steam regularly to control pressure. This pressure cooker requires approx. one-third of the energy required by ordinary cooking pans.



Unit Per Pc.

CODE	Diam × Depth mm	ltr	CODE	Diam × Depth mm	ltr
17 19 10	210 × 200	4	**17 19 50**	268 × 215	12
25	230 × 210	6	**77**	268 × 260	14
37	250 × 210	8	**78**	268 × 270	15
38	260 × 215	10	**79**	268 × 330	18

Aluminium Standard Fish Kettles

Hervidor de Pescado con Tapa de Aluminio
小判魚蒸し鍋　标准铝制蒸鱼锅

A standard aluminium kettle complete with drainer and lid. Allows for slow steam cooking of fish or vegetables to a soft texture.



Unit Per Pc.

CODE	Size mm	CODE	Size mm.
17 19 70	500 × 240 × 220	**17 19 72**	600 × 270 × 250
71	560 × 300 × 230		

Fish Broilers

Parrilla para Pescado　合せ魚焼網　烤鱼器

For grilling meat, fish, etc. over charcoal fire, gas or electric heaters. Turning can be easily carried out by simply pulling the turning lever.



17 19 76	Broiler fish, galv. iron 360 × 300 mm	Pc.

Egg Poachers

Cacerolas de Escalfar
エッグポーチャー　蒸鸡蛋锅



Stainless steel pan fitted with a plastic handle and complete with poaching cups and lid.

Unit Per Pc.

CODE	Size	CODE	Size
17 20 01	4 cups × 200 mm φ	**17 20 03**	5 cups × 250 mm φ
02	6 cups × 250 mm φ		

Kettles

Teteras　やかん　茶壺

Alumite

Alumite made flat based kettle with an ebonite covered handle.



Unit Per Pc.

CODE	Diam. mm	ltr	CODE	Diam. mm	ltr
17 20 11	145	2	**17 20 15**	180	6
12	160	3	**16**	220	8
13	180	4	**17**	220	10
14	240	5			

Stainless Steel

The kettle body is made of one piece of stainless steel sheet. A very rigid kettle. Handle is covered with ebonite.



Unit Per Pc.

CODE	Diam. mm	ltr	CODE	Diam. mm	ltr
17 20 21	125	1.0	17 20 25	185	4.0
22	150	1.5	26	220	5.0
23	160	2.0	27	230	6.0
24	180	3.0			

9. Roasting Pans, Mixing Bowls, Strainers.etc.

Roasting Pans with Lid

Rustideras con una Tapa
蓋付きローストパン　烤盘盖



Aluminium

Made of aluminium bakeware with lid. Please specify only pan or pan with lid required.

Unit Per Pc.

CODE	Size mm	CODE	Size mm
Pan with Lid		Pan only	
17 20 61	350 × 250 × 70	17 20 71	350 × 250 × 70
62	400 × 300 × 80	72	400 × 300 × 80
63	500 × 400 × 90	73	500 × 400 × 90
64	600 × 450 × 100	74	600 × 450 × 100
65	650 × 500 × 100	75	650 × 500 × 100
17 20 66	700 × 550 × 110	17 20 76	700 × 550 × 110

Aluminium Deep

Deep type aluminium roasting pan with lid. Please specify only pan or pan with lid required.



Unit Per Pc.

CODE	Size mm	CODE	Size mm
Pan with Lid		Pan only	
17 20 81	350 × 250 × 150	17 20 91	350 × 250 × 150
82	400 × 300 × 150	92	400 × 300 × 150
83	500 × 400 × 150	93	500 × 400 × 150
84	600 × 450 × 150	94	600 × 450 × 150
85	650 × 500 × 150	95	650 × 500 × 150
17 20 86	700 × 550 × 150	17 20 96	700 × 550 × 150

Roast Pans

Rustideras　ローストパン　烤盘



Aluminium

Made of aluminium bakeware. The pan size 640 x 425 x 120 mm and has handles at both ends.

Unit Per Pc.

CODE	17 21 01	17 21 02	17 21 03
Size mm	400 × 280 × 65	490 × 325 × 80	640 × 425 × 120

Steel

Made of steel with folding type handles at both ends. Any sizes not listed here can be made to order.



Unit Per Pc.

CODE	Size mm	CODE	Size mm
17 21 06	350 × 270 × 45	17 21 08	500 × 350 × 50
07	380 × 320 × 45	09	545 × 395 × 40

Rectangular Pans

Fuente Rectangular　角バット　角盘



Aluminium

Aluminium made pan to store meat, fish, vegetables, etc. prior to cooking.

Unit Per Pc.

CODE	Size mm	CODE	Size mm
17 21 11	160 × 110 × 25	17 21 15	175 × 210 × 35
12	190 × 135 × 28	16	310 × 240 × 35
13	210 × 150 × 30	17	345 × 268 × 35
14	240 × 180 × 30	18	370 × 305 × 45

Stainless Steel

Stainless steel made pan for storing meat, fish, vegetables, etc. prior to cooking. Stainless steel rack is separate order.



Pan



Rack

Unit Per Pc.

CODE	Size mm	CODE	Size mm
Pan		Rack	
17 21 21	300 × 230 × 45	17 21 71	258 × 194 × 15
22	320 × 260 × 50	72	285 × 213 × 15
23	350 × 270 × 63	73	308 × 220 × 15
24	400 × 290 × 67	74	360 × 243 × 15
25	480 × 335 × 80	75	425 × 280 × 15
17 21 26	570 × 367 × 90	17 21 76	510 × 315 × 15

Remark: Each rack sizes in the right column are suitable to each pan sizes in the left column.

Aluminium Pie Dishes

Plato para Pastel de Aluminio
アルミ角型パイ皿　铝制角型馅型盘



A rectangular shaped aluminium pie server. The inner dimensions are 230 mm width, 300 mm length and 50 mm depth.

17 21 31	Pie dish, aluminium 230 × 300 × 50 mm	Pc.

Aluminium Sheet Pans

Fuente de Aluminio　アルミシートパン　铝制薄片盘

Made of aluminium. Sometimes used as cover for roasting pan. Stainless Steel made rack is separate order.



Pan



Rack

Unit Per Pc.

CODE	Size mm	CODE	Size mm
Pan		Rack	
17 21 35	455 × 330 × 25	17 21 37	425 × 300 × 15
36	660 × 445 × 25	38	625 × 410 × 15

Remark: Each rack sizes in the right column are suitable to each pan sizes in the left column.

Mixing Bowls

Ceno - Bol para Mezclar
ミキシングボール 撹拌碗



Aluminium

Aluminium made bowl for mixing creams, vegetables, etc.

Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 21 41	150	**17 21 46**	300
42	180	**47**	330
43	210	**48**	360
44	240	**49**	390
45	270	**50**	450

Stainless Steel

For mixing vegetables, etc. There are many sizes available, so please specify which size you need when ordering.



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 21 56	150	**17 21 63**	360
57	180	**64**	390
58	210	**65**	420
59	240	**66**	450
60	270	**67**	500
17 21 61	300	**17 21 68**	550
62	330	**69**	600

Colanders

Escurridera con Base コランダー 濾器



Stainless steel or aluminium made colander (strainer) with riveted handles.

Unit Per Pc.

Stainless Steel		Aluminium	
CODE	Diam. mm	CODE	Diam. mm
17 21 95	270	**17 22 01**	300
96	330	**02**	360
97	390	**03**	400
98	450	**04**	450

Stainless Steel Conical Strainers

Coladores Cónicos de Acero Inoxidable (Chino)
三角スープ漉し 不锈钢圆锥型滤器



Stainless steel, conical shaped strainer with handle.

Unit Per Pc.

CODE	Size mm	
	Diam	Depth
17 22 06	210	180
07	240	230
08	300	300

Strainers

Coladores ストレーナー 濾器



Bowl Strainer

Made of fine mesh stainless steel net with wood handle. Strainer has hubs to allow it to rest on a rimmed pan without slipping.

Unit Per Pc.

CODE	17 22 11	17 22 12	17 22 13
Diam. mm	153	203	254

Oil Strainer

A multi purpose strainer for draining salad, filtering cooking oil, etc. Stainless steel mesh attached to a stainless steel or tin bowl.



Unit Per Pc.

Tin		Stainless Steel	
CODE	Diam. mm	CODE	Diam. mm
17 22 15	218	**17 22 18**	215
16	240	**19**	235
17	275	**20**	275

Tea Strainer

Made of a stainless steel strainer attached to a wood handle.



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 22 26	62	**17 22 28**	100
27	85	**29**	130

Potato Strainer

Mesh is made of nylon, extra fine horse hair or stainless steel with a wood rim. The elasticity of the horse hair makes the strainer last longer.



Unit Per Pc.

Nylon			Horse Hair		
CODE	Diam. mm	Mesh	CODE	Diam. mm	Mesh
17 22 31	300	Coarse	**17 22 37**	300	Coarse
32	300	Fine	**38**	300	Fine
17 22 33	330	Coarse	**17 22 39**	330	Coarse
34	330	Fine	**40**	330	Fine
17 22 35	360	Coarse	**17 22 41**	360	Coarse
36	360	Fine	**42**	360	Fine

Stainless Steel

Unit Per Pc.

CODE	Diam. mm	Mesh	
17 21 81	300	Coarse	(14 mesh)
82	300	Medium	(24 mesh)
83	300	Fine	(40 mesh)
17 21 84	330	Coarse	(14 mesh)
85	330	Medium	(24 mesh)
86	330	Fine	(40 mesh)
17 21 87	360	Coarse	(14 mesh)
88	360	Medium	(24 mesh)
89	360	Fine	(40 mesh)

Tomato & Vegetable Strainer



Designed for grating tomatoes, vegetables, etc. Made of stainless steel.

Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 22 46	240	**17 22 47**	310

Oil Pots

Ollas de aceite inoxidables
オイルポット　不锈钢热油瓶



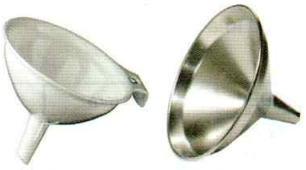
Stainless steel made oil pot for temporary preserving. A strainer is furnished for filtering grounds from oil.

Unit Per Pc.

CODE	Diam × Height mm	ltr	CODE	Diam × Height mm	ltr
17 22 22	140 × 140	2	**17 22 24**	188 × 205	5
23	160 × 160	3			

Funnels

Embudos　漏斗　滤斗



Plastic　　Stainless Steel

Available in plastic, stainless steel, or galvanized.

Unit Per Pc.

Plastic		Stainless Steel		Galvanied	
CODE	Diam. mm	CODE	Diam. mm	CODE	Diam. mm
17 22 50	90	**17 22 55**	120	**17 22 43**	90
51	120	**56**	160	**44**	150
52	150	**57**	180	**45**	210
53	180	**58**	210		
54	210	**59**	250		
17 22 49	240				

Wooden Sieves

Cedazos de Madera　木わく粉ふるい
木制筛



Wooden rim cook's sieve mainly used for flour sifting. Available in 3 sizes with 2 kinds of mesh.

Unit Per Pc.

CODE	Diam. mm	Mesh	CODE	Diam. mm	Mesh
17 22 61	240	6.5	**17 22 64**	240	30
62	300	6.5	**65**	300	30
63	360	6.5	**66**	360	30

Stainless Steel Sieves

Cedazos de Acero Inoxidable
ステンレス粉ふるい　不锈钢筛

Heavy stainless steel rim with inter-changeable spare meshes.



Rim



Mesh

Unit Per Pc.

CODE	Item	Diam. mm	Mesh No.	Remark
17 22 71	Rim	310	-	Rim only
17 22 72	Mesh	310	No. 4 (6.35 mm)	Mesh only
73	"	310	No. 7 (3.63 mm)	"
74	"	310	No. 9 (2.82 mm)	"
75	"	310	No. 20 (1.27 mm)	"
76	"	310	No. 30 (0.83 mm)	"
77	"	310	No. 50 (0.50 mm)	"
78	"	310	No. 65 (0.39 mm)	"

Flour Sifters

Tamizes de Harina　回転粉ふるい　不锈钢筛



These sifters are made of tin and operate manually with the rotation of a handle.

17 22 81	Flour sifter galv. tin, 130 mm diam.	Pc.

10. Knives

Knives

El cuchillo para la cocina　調理用ナイフ　烹调用刀

French Knife



Carbon steel or stainless steel blade with a wooden or plastic handle.

Unit Per Pc.

Stainless Steel		Carbon Steel	
CODE	Blade Length mm	CODE	Blade Length mm
17 22 91	150	**17 22 99**	150
87	180	**17 23 06**	180
92	200	**00**	200
88	210	**07**	210
93	240	**01**	240
17 22 94	270	**17 23 02**	270
95	300	**03**	300
96	330	**04**	330
97	360	**05**	360

Coloured French Knife

For preventing cross contamination of different food groups. The Food Standards Agency suggests to use each colour of cutting knife with the following foods. Red: Raw meat / Blue: Raw fish / Yellow: Cooked meat / Brown: Vegetables / Green: Salads & fruit / White – Bakery & dairy. Stainless steel blade with plastic handle.

Unit Per Pc.

CODE	Colour	CODE	Colour	CODE	Colour
Blade Size: 200 mm		Blade Size: 250 mm		Blade Size: 300 mm	
17 22 82	Red	**17 22 90**	Red	**17 23 29**	Red
83	Blue	**98**	Blue	**32**	Blue
84	Yellow	**17 23 08**	Yellow	**33**	Yellow
85	Brown	**09**	Brown	**40**	Brown
86	Green	**10**	Green	**41**	Green
89	White	**20**	White	**43**	White

Boning Knives

Pointed edge for chicken meat cooking, and straight edge for beef meat cooking. Available in carbon steel or stainless steel.


For Beef Meat


For Chicken Meat

Unit Per Pc.

For Beef Meat			For Chicken Meat		
CODE	Blade Material	Blade Length mm	CODE	Blade Material	Blade Length mm
17 23 11	Carbon Steel	150	17 23 13	Carbon Steel	150
12	Stainless Steel	150	14	Stainless Steel	150

Butchers Knife

Available in carbon steel blade or stainless steel blade with a wood or plastic handle.



Unit Per Pc.

Carbon Steel		Stainless Steel	
CODE	Blade Length mm	CODE	Blade Length mm
17 23 21	210	17 23 25	240
22	240		
23	270		
24	300		

Frozen Meat Knife

Designed specially for cutting frozen meat. Sharp edged carbon steel blade.



17 23 26	Knife for frozen meat, carbon steel, blade length 230 mm	Pc.

Bread Knife

Stainless steel serrated blade with plastic handle.



Unit Per Pc.

CODE	Handle	Blade Length mm
17 23 34	Plastic	203
35	"	300
36	"	255

Fruit Knife

Stainless steel blade with a wooden or plastic handle.



17 23 42	Fruit knife stainless steel, blade length 95 mm	Pc.

Bar Knife

Stainless steel knife with a pointed snout end.



17 23 44	Bar knife stainless steel, blade length 120 mm	Pc.

Small Knives

Carbon steel or stainless steel blade with a wood or plastic handle. Both blades are 120 mm in length and are designed for multipurpose use.


Standard


Superior

Unit Per Pc.

Carbon Steel		Stainless Steel	
CODE	Class	CODE	Class
17 23 46	Standard	17 23 48	Superior
47	Superior		

Grapefruit Knife

Stainless steel blade with a wooden or plastic handle.



17 23 50	Grapefruit knife. stainless steel, blade length 90 mm	Pc.

Decorating Knife

Carbon steel blade with a wooden or plastic handle. One side is notched and the other side of the blade is edged.



17 23 52	Decorating knife, carbon steel, blade length 85 mm	Pc.

Cheese Knives

Stainless steel blade with a wooden or plastic handle. Available in 3 types.


With two prong


Off-set


Large

Unit Per Pc.

CODE	17 23 56	17 23 57	17 23 58
Blade Length mm	105	100	180
Remark	With two prong	Off-set	Large

Paring Knife

Cuchillo para Mondar　皮ムキナイフ　剥皮刀

Stainless steel blade with a wooden or plastic handle. For preventing cross contamination of different food groups, various colours are available for sanitary management.



Unit Per Pc.

CODE	Blade Length	Colour	CODE	Blade Length	Colour
17 23 61	80 mm	Wood	17 23 54	80 mm	Blue
49	"	Black	55	"	Yellow
51	"	White	59	"	Brown
53	"	Red	69	"	Green

Cleavers

Macheta - Hacha de Carnicero　クリーバー　切肉刀

Carbon steel heavy duty blade for cutting meat, bones, etc.



Unit Per Pc.

CODE	Blade Length	CODE	Blade Length
17 23 15	150 mm	17 23 17	210 mm
16	180 mm	18	250 mm

With Long Handle

Carbon steel heavy duty blade for cutting meat or bones. 250 mm blade length and 900 mm overall length.



17 23 19	Cleaver with long handle, carbon steel, blade length 250 mm	Pc.

Slicers

Cuchillos スライサー 切片机

Ham Slicer

Stainless steel blade with a wooden handle.



Unit Per Pc.

CODE	Blade Length	CODE	Blade Length
17 23 27	260 mm	**17 23 28**	300 mm

English Slicer (Salmon Slicer)

Carbon steel blade with a wooden handle and sometime used as salmon slicer.



Unit Per Pc.

CODE	**17 23 30**	**17 23 31**
Blade Length mm	300	360

Hotel Slicer

Carbon steel blade with a wooden handle.



Unit Per Pc.

CODE	Blade Length	CODE	Blade Length
17 23 37	240 mm	**17 23 39**	300 mm
38	270 mm		

11. Peelers & Scalers

Potato Peelers

Pelapatatas ポテトピーラー 土豆去皮器

Carbon steel blade with a frame or wooden handle.



Grip Type



Frame Handle



Wood Handle

Unit Per Pc.

CODE	Handle	Length mm
17 23 62	Frame	Overall 145
63	Wood	Blade 65
64	Plastic	Blade 65
65	Plastic Grip Type	Overall 145

Corers

Cuchillos Descorazonador 芯抜き 芯去掉

Apple Corer

Stainless steel corer with a plastic handle. Used mainly for fruit dressing.



Japanese Style



Western Style

17 23 66	Apple corer Japanese style length 180 mm	Pc.
67	" Western style length 185 mm	"

Olive Corer

Punch like olive kernel remover. Made of stainless steel.



17 23 68	Olive corer, stainless steel, overall length 190 mm	Pc.

Fish Shears

Tijeras para Pescado 調理鋏 修理剪

To be used for cutting fish fins, tail, etc. The center part can be used as bottle opener. For preventing cross contamination of different food groups, various colours are available for sanitary management.



Unit Per Pr.

CODE	Size	Colour	CODE	Size	Colour
17 23 70	200 mm	-	**17 23 77**	200 mm	Yellow
71	"	Red	**78**	"	Green
73	"	Blue	**79**	"	Black

Fish Scalers

Escamador de Pescado うろこ落し 除垢器

For scaling and cleaning fish prior to boiling or frying.



17 23 72	Fish scaler, overall length 190 mm	Pc.

Bone Tweezers

Pinza para Extraer Espinas 骨抜き 骨镊子

Stainless steel made tweezers for pulling bones from fish before cooking.



Unit Per Pr.

CODE	Overall Length mm	CODE	Overall Length mm
17 23 74	105	**17 23 75**	120

Poultry Secateurs

Stainless Steel

Podaderas para Carne de Ave / Hacer inoxidable 鳥用ステンレスばさみ 不锈钢家禽大剪刀

Stainless steel made poultry secateur with a volute spring.



17 23 76	Poultry secateur, stainless steel L 250 mm	Pr.

12. Butcher's Gear

Butcher's Saws

Serruchos Carnicero 骨鋸 锯条

For cutting meat, bones, etc. Available in bowsaw and handsaw types.



Bowsaw type



Handsaw type

Unit Per Pc.

CODE	Description	Blade Length mm
17 23 81	Butcher's Bowsaw complete with bow & blade	460
17 23 82	Above spare blade only	460
17 23 83	Butcher's Handsaw	450

Meat Hooks

Canchos para Carne
肉フック 肉钩

Made of galv. iron or stainless steel. Available in swivel and non-swivel types.



Non-Swivel Swivel

Unit Per Pc.

CODE	Length	Material	Type
17 23 86	180 mm	Galv. Iron	Non-Swivel
87	180 "	Stainless Steel	"
88	210 "	"	"
89	300 "	Galv. Iron	Swivel

Butcher's Steels

Chaira 棒やすり 钢棒锉

For quick easy sharpening of knives. Overall length is 500 mm.



17 24 01	Butcher's steel, magnetized blade length 290 mm	Pc.

Butcher's Gloves

Guantes de Carnicero
肉切り用手袋 屠夫手套

Butcher gloves made from stainless steel chain mail and cut resistant type. Several colours are available for sanitary management.



Chainmail



Cut-resistant

Unit Per Pr.

CODE	Size	Colour	CODE	Size	Colour
Chainmail			**Cut-resistant**		
17 23 45	XS	Green	**17 23 91**	XS	Green
80	S	White	**92**	S	White
84	M	Red	**93**	M	Red
85	L	Blue	**94**	L	Blue
90	XL	Orange	**95**	XL	Orange

Butcher's Aprons

Delantales de Carnicero
肉切用エプロン 屠夫围裙

Butcher's apron made from stainless steel chain mail.



17 23 96	Butcher's apron, stainless steel chainmail 750 × 500 mm	Pc.

Cotton Meat Twine

Hilo de Algodón para Carne
ロース糸 缠肉棉线

A strong tasteless cotton thread to secure meat rolls, sausages, etc. Available with rolled in a ball type, or in a binder type.



Ball Type



Binder Type

Unit Per Rls. Unit Per Pc.

Ball Type		Binder Type		
CODE	Weight grm	CODE	Thread Diam. mm	Length mm
17 40 40	100	**17 40 36**	1.0	550
41	150	**37**	1.2	430
42	180	**38**	1.4	320
		39	1.6	280

13. Sharpening Stones

Sharpening Stones

Piedra de afilar 金剛砥石 金刚磨石

Rough

Made of emery stone. Rough grit surface may be used wet or dry.



Unit Per Pc.

CODE	17 24 04	17 24 05
Size mm	50 × 25 × 205	75 × 50 × 205

Carborundum Finish

Made of carborundum. Fine grit surface. For best results wet surface before using.



Unit Per Pc.

CODE	Size mm	CODE	Size mm
17 24 06	66 × 34 × 207	**17 24 09**	100 × 70 × 230
07	70 × 60 × 209		

Natural Finish

A natural blue whetstone for finishing.



Unit Per Pc.

CODE	Size mm	CODE	Size mm
17 24 10	66 × 60 × 205	**17 24 08**	70 × 70 × 220

Griddle Stones

Planchas de Piedra para Cocinar レンジ用砥石　铁盘用磨石

Used for burnishing cooking griddle, range, etc. Stone size is 102 x 72 x 50 mm. Usually furnished with holder but stone can be purchased separately.



Complete with Handle



Stone Only

17 24 11	Griddle stone complete with handle	Set
12	Griddle stone only	Pc.

14. Kitchen Utensils

Cutting Boards
(Chopping Boards)

Tabla para Cortar, de Madera　まな板　切板



Wood

Made of hard wood.

Unit Per Pc.

CODE	Size mm	CODE	Size mm
17 24 28	400 × 300 × 20	17 24 24	900 × 330 × 60
29	480 × 240 × 20	25	1,050 × 400 × 45
21	600 × 300 × 60	26	1,200 × 400 × 60
22	600 × 450 × 60	27	1,500 × 400 × 60
23	750 × 350 × 60		

Plastic - White Colour

Made of white colour hard plastic. A durable board that will not scratch or deform and is easy to keep clean.



Unit Per Pc.

CODE	Size mm	CODE	Size mm
17 24 31	440 × 250 × 15	17 24 35	720 × 330 × 20
32	500 × 270 × 20	36	840 × 390 × 30
33	600 × 300 × 20	37	1,200 × 450 × 40
34	600 × 300 × 30	38	1,500 × 550 × 50

Coloured Plastic Cutting Boards

Tablas de cortar de plástico de colores
色付きプラスチックまな板
彩色塑料砧板



For preventing cross contamination of different food groups. The Food Standards Agency suggests to use each colour of cutting board with the following foods. Red: Raw meat / Blue: Raw fish / Yellow: Cooked meat / Brown: Vegetables / Green : Salads & fruit/White – Bakery & dairy.

Unit Per Pc.

CODE	Colour	CODE	Colour	CODE	Colour
Size 450 × 300 × 12 mm		Size 530 × 325 × 20 mm		Size 600 × 400 × 20 mm	
17 24 41	Red	17 24 46	Red	17 24 61	Red
42	Blue	47	Blue	62	Blue
43	Yellow	48	Yellow	63	Yellow
44	Brown	49	Brown	64	Brown
45	Green	50	Green	65	Green

Cutting Board Stands

Soportes para Tablas de Cortar
まな板立て　切菜板支架



Variety of cutting board stand are available. Made of stainless steel and can store cutting board vertically.

17 24 66	Cutting board stand, size 270 × 280 × 300 mm	Pc.

Cutting Board Brushes

Cepillos Para Tablas de Cortar
色付きまな板ブラシ　切菜板刷



Especially used for cutting board. For preventing cross contamination of different food groups, various colours are available for cutting board brush for sanitary management.

Unit Per Pc.

CODE	Size mm	Colour	CODE	Size mm	Colour
17 24 67	150 × 62.5 × 50	Red	17 24 70	150 × 62.5 × 50	Brown
68	"	Blue	71	"	Green
69	"	Yellow	72	"	White

Nail Brushes

Pinceles para Uñas
爪洗い用ブラシ　指甲刷



Used to scrub and wash away dirt that has even penetrated into the nails. For preventing cross contamination of different food groups, various colours are available for sanitary management.

Unit Per Pc.

CODE	Size mm	Colour	CODE	Size mm	Colour
17 24 73	150 × 62.5 × 50	Red	17 24 76	150 × 62.5 × 50	Purple
74	"	Blue	77	"	Green
75	"	Yellow	78	"	White

Food Safety Charts & Labels

Tablas y Etiquetas de Seguridad Alimentaria
食品安全チャート & ラベル　食品安全图表和标签



Description
2-sided chart in 3 languages

Variety of food safety charts and labels are available for vessels' sanitary management.

Unit Per Pc.

CODE	Description	CODE	Description
17 24 79	Colour reference wall chart	**17 24 83**	Suitable for vegetarian label
80	Use first label	**84**	Contains nuts label
81	Use by label	**85**	Food sample label
82	Day of week label	**86**	Plastic label dispenser

Magnetic Knife Holders

Estante para Cuchillos con un Imán
マグネットナイフラック
磁铁小刀架



Strong double magnet bars that will hold knives safely on the steel wall.

Unit Per Pc.

CODE	Length mm	CODE	Length mm
17 24 51	410	**17 24 53**	810
52	510		

Knife Racks

Estante para cuchillos
ナイフラック　単层小刀架

A stainless steel made rack for storing knives safely on the wall. An opening for insertion knife blade is protected with composition rubber sheet.



Single Row



Double Row

Unit Per Pc.

CODE	Row	Size mm	Capacity
17 24 56	Single	325 × 55 × 365	Knives
57	Double	325 × 105 × 365	Knives

Cooking Forks

Tenedores Trinchantes de Cocina
料理用フォーク　厨房用叉子



Kitchen Fork

Stainless Steel fork with plastic handle. 310 mm overall length.

17 25 01	Kitchen fork, stainless steel with plastic handle 310 mm	Pc.

Cook's Forks

Available in all stainless steel or with a stainless steel blade fitted to a wooden handle.



With Wood Handle



Stainless Steel

Unit Per Pc.

CODE	Description	Overall Length mm
17 25 03	Stainless steel blade with wooden handle	420
04	All stainless steel made	410

Meat Fork

Made of a stainless steel blade with a wooden handle.



17 25 06	Meat fork, stainless steel with wooden handle overall length 300 mm	Pc.

Meat Carving Sets

Juegos de Trinchantes para Carne
ミートカービングセット
切割肉类刀具一套



A set consists of a carving knife and fork. The knife has an overall length of 345 mm and the fork has an overall length of 280 mm. Both are made of stainless steel and fitted with a wood handle.

17 25 08	Meat carving knife & fork set	Set

Skewers *(Brochettes)*

Brochetas
肉串（プロセット）
烤肉叉



Regular　Arrow　For Fish

Stainless steel skewers for grilling small pieces of meat, vegetables or fish meat.

Unit Per Pc.

Regular		Arrow		For Fish	
CODE	Length mm	CODE	Length mm	CODE	Length mm
17 25 11	150	**17 25 15**	210	**17 25 91**	450
12	180	**16**	240	**92**	480
13	210	**17**	270	**93**	510
14	240	**18**	300	**94**	540
				95	600

Bowl Scrapers

Espátula　へら　夺勺



Rubber

Hard rubber scraper with a wood or plastic handle. For cleaning the bottom of pans, ovens, grill tops, etc.

Unit Per Pc.

CODE	Blade Width mm	CODE	Blade Width mm
Wood Handle		**Plastic Handle**	
17 25 21	100	**17 25 23**	80
22	120		

Silicone Rubber

Silicone rubber scraper for cleaning bowls and pans or for mixing butters and basting poultry.



Unit Per Pc.

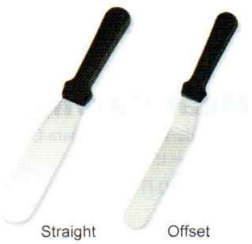
CODE	Length mm	CODE	Length mm
17 25 26	250	**17 25 28**	420
27	350		

Turners

Espátulas de Cocina スパテラ 刮刀

Spatula Turners

The straight blade spatula is used to slice or remove pastries from pans. The offset blade is used to turn items on a frying pan. Both have stainless steel blades with wooden handles.



Straight Offset

Unit Per Pc.

CODE	Type	Length mm	CODE	Type	Length mm
17 25 31	Straight	150	**17 25 35**	Straight	280
32	"	180	**36**	"	300
33	"	200	**37**	Offset	38 × 360
34	"	250			

Egg and Cake Turners

Made of stainless steel for preparing and turning eggs or other fried and baked goods.



Egg Cake

Unit Per Pc.

CODE	For	Blade Size mm	Handle Length mm
17 25 41	Egg	75 × 90	270
42	Cake	70 × 165	200

Fish or Steak Turners

Stainless steel blade with wooden handle. Ideal when cooking steak or fish on a grill or stove.



Solid Blade Slotted Blade

Unit Per Pc.

CODE	For	Blade Size mm	Overall Length mm
17 25 46	Solid	75 × 170	195
47	"	76 × 200	360
48	Slotted	76 × 120	270

Stainless Steel Soup Ladles

Cacillo para Sopa de Acero Inoxidable
ステンレス製スープレードル 不锈钢长柄汤勺

Made of stainless steel, nominal size is determined by bowl capacity and diameter.



Unit Per Pc.

CODE	Bowl		CODE	Bowl	
	Capacity cc	Diam. mm		Capacity cc	Diam. mm
17 25 51	36	52	**17 25 56**	360	115
52	90	74	**57**	540	135
53	144	85	**58**	1,000	160
54	180	95	**59**	1,800	205
55	270	105			

Stainless Steel Spoons

Cucharones de Acero Inoxidable ステンレス製スプーン 不锈钢勺

Stainless steel, long handle cooking spoons. Standard spoon size is 103 x 66 mm and handle length is 273 mm.



Basting Perforated Cooking

Unit Per Pc.

CODE	Type	cc	Handle Length mm
17 25 61	Basting	70	255
17 25 62	Perforated	70	255
17 25 63	Cooking	70	255
81		90	370
82		144	370
83		180	370

Skimmers

Cucharón de vacante de agujero
スキマー 漏勺

A large perforated spoon used in skimming liquids, or hot oil. Made of stainless steel.



Unit Per Pc.

CODE	Bowl Diam mm	Handle Length mm
17 25 84	115	310
85	160	350

Stainless Steel Scoops

Palas de Acero Inoxidable (Librador)
ステンレス製スコップ 不锈钢舀

Various types of scoops are available. The most common types are illustrated below with a list of specifications.



Grocers Scoop Flour Scoop Utility Scoop

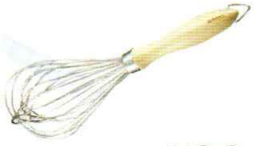
Unit Per Pc.

CODE	Name	Material	Scoop Size
17 25 66	Grocer Scoop	Stainless Steel	W105 × OL275 mm
67	Flour "		D135 × L210 mm
68	Utility "		L210×W130×H65 mm

Wire Whips

Batidores de Mano あわ立て器 搅打器

Whip and handle are made of stainless steel.



Unit Per Pc.

CODE	Overall Length mm	CODE	Overall Length mm
17 25 71	240	**17 25 76**	390
72	270	**77**	420
73	300	**78**	450
74	330	**79**	500
75	360	**80**	540

Egg Beaters

Batidores de Manivela de Acero inoxidable (Huevo)
回転エッグヒーター　鸡蛋搅拌器



Stainless steel made double rotary beaters and turn gear with ebonite handle. Used for mixing cake and pancake butters and scrambled eggs.

17 25 86	Egg beater, stainless steel overall length 250 mm	Pc.

Bottle Openers

Abridores de Botella
栓抜き　开瓶器



A variety of bottle opener types and sizes are listed as follows.

17 26 00	Stainless steel	100 mm	Pc.
01	"	137 mm	"
03	"	180 mm	"
17 26 02	Nickel plated with wooden handle	175 mm	Pc.

Bottle Opener & Sealers

Abridores y Cerradores de Botella
シズラー栓抜き付ソーダ止栓　开瓶器



Can be used to both open and reseal bottle caps.

17 26 06	Bottle opener & sealer	Pc.

Corkscrews

Sacacorchos
コルク栓抜き
软木塞螺旋钉



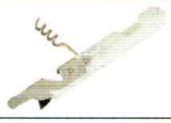
Regular Type　German Type　Geared Lever Type

17 26 11	Corkscrew, regular type	Pc.
12	Corkscrew, German type	"
13	Corkscrew, geared lever type	"

Hand Can Openers

Abrelatas Manual　缶切り　罐头起子

Unit Per Pc.

CODE	Illustration	Name of Type	Overall Length mm
17 26 15		Waiter Knife	105
17 26 16		Economy	80
17 26 17		3 Way	130
17 26 18		Miracle	185
17 26 19		Plier	185

Edlund Table Can Openers

Abrelatas de Mesa　卓上缶切り
桌式罐头起子



Knife　Gear

Heavy duty manual can opener which can be screwed or clamped to a bench. Made of a tough cast iron construction with a hardened and tempered steel knife. Two models with the respective specifications are listed below.

Edlund Model	Max. Height of Can App. mm	Overall Length mm	Base Size mm
No. 2	200	320	100 × 100
No. 3	350	565	140 × 205

How to order:

17 26 21	Table can opener, Edlund No. 2 complete	Set
22	Spare knife for Edlund No. 2 can opener	Pc.
23	" gear "	"
17 26 24	Table can opener, Edlund No. 3 complete	Set
25	Spare knife for Edlund No. 3 can opener	Pc.
26	" gear "	"

15. Baker & Pastry Utensils

Pans (Mould)

Moldes　型　面包盘



Bread Pan

Sartén para pan　パン型　面包平底锅

Bread pan with a sliding cover for the easy removal of bread after baking. Standard sizes are listed below, but other sizes are available upon request. Made of tin plate.

Unit Per Pc.

CODE	Size mm	CODE	Size mm
With Slide Cover		**Without Cover**	
17 26 94	185 × 95 × 90	17 26 95	185 × 95 × 75
96	190 × 120 × 125	17 27 02	400 × 100 × 100
97	255 × 115 × 90		
98	250 × 120 × 125		
99	375 × 120 × 125		
17 27 01	400 × 100 × 100		

Tin Layer Cake Pan

Molde de Hojalata para Tartas
底取ケーキデコ型　底部蛋糕装饰模具



Tin plate with rolled edges and loose bottom for the easy removal of the contents.

(to be continued)

Unit Per Pc.

CODE	17 27 06	17 27 07	17 27 08
Diam. x Height mm	180 × 60	210 × 75	240 × 75

Pie Pan

Molde para Tartas パイ皿 饼盘



A shallow, round tin plate pan for baking pies.

17 27 12	Pie pan, tin 230 mm diam.	Pc.
13	" , " 250 mm "	"

Muffin Pans

Molde para Magdalenas
マフィン型 松饼锅



Tin plate made for baking muffins. When ordering, specify if the 6 or 12-cup type is required.

Unit Per Pc.

CODE	Number of Cup	Cup Size mm	Plate Size mm
17 27 16	6	73 × 36	270 × 183
17	12	55 × 32	300 × 227

Angel Cake Pan

Molde Angel Cake
エンゼルケーキ型 天使蛋糕盘



Aluminium made mould for cake baking.

Unit Per Pc.

CODE	Diam × Height mm	Material
17 27 21	180 × 52	Aluminium
22	210 × 63	"
23	240 × 69	"

Loaf Tins

Molde para Plumcake
ブリキローフ型 长方形洋铁盒

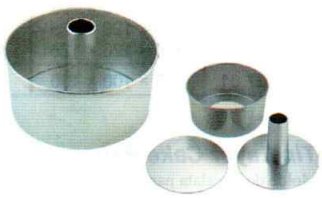


Tin plate pan for baking any loaf shaped cakes, etc.

17 27 10	Loaf tin 215 × 112 × 65 mm	Pc.

Spring Release Cake Tins

Moldes para Tartas Desmontable
底板取替式ケーキ型
底板可换式蛋糕盘



Expanding rim with side lock. Choice of one plain base or with two extra bases, one funnel and one raised wreath.

Unit Per Pc.

CODE	Diam × Depth mm	CODE	Diam × Depth mm
17 27 26	210 × 75	17 27 27	240 × 75

Doughnut Cutters

Cortadoras de Dojuts
ドーナツカッター 油炸圈饼切割器



Stainless steel doughnut cutter. 67 mm outside diameter.

17 27 28	Doughnut cutter, stainless steel, 67 mm diam.	Pc.

Moulds

Moldes 型 面包盘

Pudding Mould

Molde para Pudding プリン型 布丁模具



Aluminium made pudding mould. Available with or without cover.

Unit Per Pc.

CODE	Cover	Size Diam. mm	cc
17 27 30	Without cover	56	110
33	"	79	220
34	"	88	290
31	"	135	-
17 27 32	With cover	175	-

Jelly Mould

Molde de Gelatina ゼリー型 果冻模具

Aluminium made swirled mould for jellies, etc.



70 mm 134 mm 145 mm

Unit Per Pc.

CODE	Diam × Depth mm	cc
17 27 36	70 × 35	86
37	134 × 70	500
38	145 × 82	1,000

Pastry Brushes

Borocha para Reposter 刷毛 糕饼刷



Sterilized bristles with lacquered wood handle or plastic handle. The bristles are odor free and easy to rinse.

Unit Per Pc.

Wood Handle			Plastic Handle		
CODE	Brush Type	Brush Size mm	CODE	Brush Type	Brush Size mm
17 27 41	Flat	25	17 27 44	Flat	30
42	"	50	45	"	60
17 27 43	Round	25			

Pastry Bags
(Icing Bags)

Mangas Pasteleras 製菓用絞り袋 糕饼囊



Nylon or light canvas bag for spreading icing on cake.

17 27 46	Pastry bag, nylon,	350 mm length	Pc.
47	"	405 mm "	"
48	"	457 mm "	"
49	"	508 mm "	"
17 27 50	Pastry bag, canvas cloth 430 × 200 mm		"

Pastry Tube Sets

Juego de Boquillas para Mangas Pasteleras
絞り袋用口金　糕饼软管一套



Made of stainless steel. For use with pastry bags. Assorted types of 6 and 12 piece sets are available.

Unit Per Set

CODE	Type	Material	Nos. of Set
17 27 54	Assorted	Stainless Steel	6 pcs
55	"	"	12 pcs

Dough Scrapers

Rasqueta de Repostero
スクレッパー　面团刮刀



Stainless steel made. For scraping pastry boards, baking ovens, etc.

Unit Per Pc.

CODE	**17 27 58**	**17 27 59**	**17 27 60**
Size mm	150 × 110	180 × 115	210 × 115

Pastry Jaggers

Cortador de Pastas - Pizza　パイ車　馅饼车



Stainless steel made. Overall length:180 mm, and wheel diam. 48 mm.

17 27 62	Pastry jagger, 180 mm	Pc.

Pastry Cutters, 12's Set

Pastry Cutters, 12&s Set　拔型　馅饼刮刀，一套 12 个

A set consists of twelve different sizes. Furnished as a set only. When ordering, specify if the plain or crinkled type is required.



Plain



Crinkled

Unit Per Set

CODE	**17 27 66**	**17 27 67**
Description	Plain	Crinkled

Hard Wood Rolling Pins

Rodillos　麵棒　面棒

Made of hard, smooth finished wood. The length listed below includes the handle.



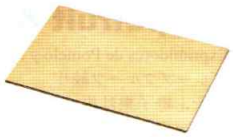
French Type　Roller Type

Unit Per Pc.

French Type		Roller Type	
CODE	Size mm	CODE	Size mm
17 27 71	L450 × D30	**17 27 73**	L240 × D41
72	L600 × D30	**74**	L380 × D85
		75	L450 × D40
		76	L550 × D60

Pastry Boards

Tablas de Repostería　麵板　面板



One-piece solid, hard wood pastry board.

Unit Per Pc.

CODE	Size mm	CODE	Size mm
17 27 78	600×450×30	**17 27 80**	750×750×30
79	600×600×30		

Pizza Pans

Cacerolas de pizza　ピザ用皿　皮萨烤盘



A stainless steel pan suitable for baking pizza. These pans are also excellent for baking fruit pies or any general purpose baking.

Unit Per Pc.

CODE	Diam mm	CODE	Diam mm
17 27 81	225	**17 27 84**	330
82	255	**85**	363
83	290		

Pizza Cutters

Cúter de pizza　ピザカッター　比萨刀



A wheel type pizza cutter.

Unit Per Pc.

CODE	Wheel Diam mm	Overall Length mm
17 27 87	65	175
88	105	240

16. Squeezers & Mashers

Lemon Squeezers

Exprimidores de Limón　レモン絞り　柠檬果汁机

Available in various types but most common types are listed below.



Plastic Reamer



Glass Reamer



Stainless Steel Chick Type



Stainless Steel Cup



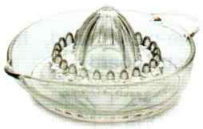
Cast Aluminium Lever

Unit Per Pc.

CODE	Type	Size
17 28 01	Plastic reamer type	110 mmΦ
02	Glass reamer type	135 mmΦ
03	Stainless steel chick type	1/4 Slice
04	Stainless steel cup type	100 mmΦ
05	Cast aluminium lever type	224 mmΦ

Grapefruit & Orange Squeezers

Exprimidores de Pomelo y Naranja
グレープフルーツ絞り
柚子，橙子果汁机



Same type as glass lemon squeezer but of a larger size.

17 28 06	Grapefruit/orange squeezer, glass, 185 mmφ	Pc.

Juice Extractors

Extractoes de Zumo
ジュース絞り器　果汁机



For fruits and vegetables. Made of cast aluminium.

Unit Per Pc.

CODE	Size mm
17 28 08	110 × 230 × 210
17 28 09	192 × 215 × 500

Potato Mashers

Trituradores de Patatas　芋つぶし器　土豆捣碎器

Easy tool for preparing mashed potatoes.



Heavy Wire Type



Cup Type

Unit Per Pc.

CODE	Description	Size mm
17 28 11	Heavy wire type with wooden handle	100 sq. × 270 length
17 28 12	Cup type stainless steel	80 diam × 245 length
13	"	90 width × 310 length

Vegetable Scoops & Ballers

Vaciadores de Verduras
野菜くり抜き器　蔬菜舀



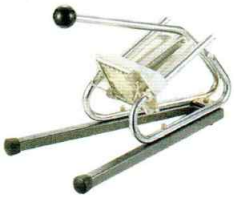
For serving ball shaped potato or vegetable pieces. Bowls made of stainless steel with a wood handle.

Unit Per Pc.

CODE	Size mmΦ	CODE	Size mmΦ
17 28 21	9 × 12	**17 28 23**	21 × 24
22	15 × 18	**24**	27 × 30

Manual Lever Potato Chippers

Cortadora Manual de Patatas
手動ポテトチッパー
手动土豆倾卸装置



Lever action for easy chipping. complete with 10 mm sq. stainless steel cutter which is simple to remove for cleaning. Base size 240 × 440 mm.

Unit Per Pc.

CODE	Blade Size mm	CODE	Blade Size mm
17 28 26	6 × 6	**17 28 28**	10 × 10
27	8 × 8		

Garlic Presses

Prensa - Ajos　ガーリックプレス　大蒜榨机



Aluminium or stainless steel made garlic press for manual operation. Overall length is 150 mm.

Unit Per Pc.

CODE	Material	Overall length mm
17 28 30	Aluminium	150
31	Stainless steel	"

Nut Crackers

Cascanueces　クルミ割り　坚果击碎器



Polished cast iron or stainless steel made. 158 mm length.

17 28 32	Nut cracker, cast iron 158 mm	Pc.
33	" stainless steel 158 mm	"

Cheese Boards

Tablas para Queso　チーズボード　干酪板



Wood board for cutting cheese and bread.

17 28 36	Cheese board, wood 420 × 210 × 30 mm	Pc.
37	" wood 480 × 240 × 30 mm	"

Cheese Cutters

Cortadoras de Queso　チーズ切り
干酪切刀



Available with a roller or just a stainless steel slicing wire.

Unit Per Pc.

CODE	Description	Blade Length mm
17 28 41	With Roller	100
42	Stainless twisted wire	120

Cheese Slicers

Cortadoras de Queso en Lonchas
チーズスライサー　干酪切片刀



Stainless steel Norwegian type cheese slicer. 220 mm overall length and 75 mm blade width.

17 28 44	Cheese slicer, stainless steel Norwegian	Pc.

Cheese Graters

Ralladores de Queso　チーズおろし　干酪锉刀



Half Round Cut　All Round Cut　4 Side Cut　Rotary

Unit Per Pc.

CODE	Description	Material	Size mm
17 28 46	Half rount cut	Tin	80 × 155
47	"	"	95 × 242
48	All round cut	"	85 × 155
49	4-side cut	Stainless steel	60 × 90 × 204
50	"	"	80 × 100 × 240
17 28 51	Rotary with fixture	Aluminium & tin	Drum diam 85

Butter Ballers

Palas para Mantequilla (Ovilladora)
木製バターまるめ　木制黄油成球器



Will form butter balls within a moment. Easy to handle. Made of wood.

17 28 53	Baller butter, wood	Pr.

Egg Slicers/Wedgers/Cutters

Cortadoras para Huevo　卵スライサー　切鸡蛋器具



Slicer　Wedger　Cutter

Unit Per Pc.

CODE	Name	Material	Size	Remark
17 28 56	Slicer	Plastic	100 × 85	Two way round or oval slicer
17 28 57	"	Stainless Steel	140 × 85	
17 28 58	Wedger	Plastic	210 × 65	Plastic body fitted with stainless wires to cut six wedges
17 28 59	Cutter	Plastic	130 × 60	Plastic case with stainless steel wires to cut boiled egg into flower like shape

Steak Tenderizers

Ablandadores de Carne　肉たたき　肉松软器

Made of cast aluminium. Used for tenderizing meats prior to grilling or frying etc.



Flat Trowel　Notched Trowel　Square Hammer

Unit Per Pc.

CODE	Head Type	Overall Length mm
17 28 71	Flat trowel type	200
72	Notched trowel type	200
73	Square hammer type	247

17. Storage Containers

Stainless Steel Food Storage Containers

Contenedores para Comida de Acero Inoxidable
ステンレス製キッチンポット
不锈钢食品储藏罐



Stainless steel container for storing prepared foods. Handles are attached to both sides.

Unit Per Pc.

CODE	Diam × Depth mm	Ltr	CODE	Diam × Depth mm	Ltr
17 29 01	120 × 120	1.8	**17 29 06**	220 × 220	8.3
02	140 × 140	2.1	**07**	240 × 240	11.0
03	160 × 160	3.2	**08**	260 × 260	14.0
04	180 × 180	4.5	**09**	300 × 300	21.0
05	200 × 200	6.2	**10**	360 × 360	36.0

Soup Containers

Recipientes para Sopa　給食缶　汤容器

Alumite



Made of alumite and furnished with an airtight lid to prevent condensation. Furnished with a pail type handle for easy carrying. These containers are used to keep and serve soups, etc.

Unit Per Pc.

CODE	Diam × Height mm	Ltr	CODE	Diam × Height mm	Ltr
17 29 11	250 × 160	6	**17 29 14**	285 × 234	12
12	275 × 181	8	**15**	290 × 260	14
13	257 × 230	10	**16**	300 × 305	16

Stainless Steel



Made of stainless steel and furnished with an airtight lid to prevent condensation. Furnished with a pail type handle for easy carrying. These containers are used to keep and serve soups, etc. at a buffet or some place outside of the kitchen. The 26 ltr type container has handles attached on each side of the containers.

Unit Per Pc.

CODE	Diam × Height mm	Ltr	CODE	Diam × Height mm	Ltr
17 29 21	180 × 180	4	**17 29 24**	270 × 270	15
22	210 × 210	7	**25**	300 × 300	20
23	240 × 240	10	**26**	330 × 330	26

Soup Carriers

Termo que Lleva Sopa
スープキャリアー　不锈钢送汤桶



Made of aluminium with airtight lid and pail type handle for easy carrying.

Unit Per Pc.

CODE	Diam × Height mm	Ltr	CODE	Diam × Height mm	Ltr
17 29 17	210 × 220	6	**17 29 19**	270 × 290	13
18	240 × 250	9			

Plastic Food Containers

with Cover

Fiambrera para Comida de Plástico con Tapa
アクリル容器　塑料食品罐



A general purpose round plastic container with cover for any type of food.

Unit Per Pc.

CODE	17 29 32	17 29 33
Diam mm	120	135

Food Containers

with Sealed Cover

Fiambrera para Comida con Tapa Hermética
タッパーウェア　食品罐（带有密封盖）



Made of durable polypropylene. Withstands a wide range of temperatures. Snap-on polyethylene lids designed for a tight fit. Available in many sizes but the most common sizes are listed below.

Unit Per Pc.

Rectangular			Round		
CODE	ltr	Size mm	CODE	ltr	Size mm
17 28 81	0.8	182 × 115 × 51	**17 28 86**	0.42	Φ130 × 50
82	1.5	198 × 134 × 67	**87**	0.79	Φ155 × 63
83	2.3	217 × 156 × 84	**88**	1.5	Φ185 × 76
17 29 36	3.6	270 × 200 × 85	**17 29 39**	1.6	Φ155 × 130
37	5.9	310 × 235 × 105	**40**	2.8	Φ185 × 145
38	9.6	355 × 270 × 20	**17 28 89**	3.6	Φ255 × 90

Deep Type



Rectangular



Round

Unit Per Pc.

Rectangular			Round		
CODE	ltr	Size mm	CODE	ltr	Size mm
17 28 90	0.46	120 × 80 × 70	**17 28 95**	0.74	Φ125 × 90
91	0.9	145 × 95 × 90	**96**	1.4	Φ150 × 110
92	1.4	170 × 120 × 90	**97**	2.4	Φ175 × 135
93	3.0	200 × 150 × 135	**98**	3.8	Φ205 × 150
94	4.8	300 × 155 × 135	**99**	7.2	Φ255 × 175

Plastic Food Storage Boxes

Large Size with Covers

Flambrera Grande con Tapa
大型ばんじゅう　塑料食品储藏箱



Heavy duty polypropylene made, large size food storage box with a lid for storing and freezing various foods.

Unit Per Pc.

CODE	Outer Size mm	Inner Size mm	ltr
17 29 41	685 × 425 × 100	645 × 385 × 87	21.4
42	643 × 417 × 160	603 × 377 × 145	32.7
43	685 × 425 × 160	645 × 385 × 147	36.2

Plastic Food Ingredient Bins

with Coloured Clips

Cubos de Plástico para Ingredientes Alimentarios con Clips de Colores
カラークリップ付きプラスチック食品素材入れ
塑料食品配料桶 带彩色夹子



Normal　　with Wheel

Food ingredient bin with coloured clip and labels for preventing cross contamination of different food groups. Available colours are red/blue/yellow/brown/green/white. Wheel type is also available.

Unit Per Pc.

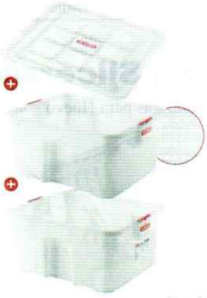
CODE	GN Type	Size	Ltr
17 28 75	1/3	645 × 385 × 87	7.0
76	2/3	415 × 340 × 200	16.0
77	1	565 × 340 × 200	22.0
78	1	565 × 340 × 400	50.0
17 28 79	With wheels	655 × 435 × 650	80.0
80	With wheels	705 × 465 × 580	100.0

Remark: GN refers to the Gastronorm ("GN") sized food pan.

Defrost Kits with Colour Clips

Kits de Descongelación con Clips de Color
カラークリップ付き解凍容器
带颜色夹的除霜套件





Defrost kits with various colour clips and labels for preventing cross contamination of different food groups. Available colours are red/blue/yellow/brown/green/white.

Unit Per Pc.

CODE	Inner Size mm	Ltr	CODE	Inner Size mm	Ltr
17 29 27	530 × 325 × 200	17.5	**17 29 29**	650 × 530 × 318	70.0
28	530 × 396 × 285	35.0	**31**	650 × 530 × 400	90.0

Plastic Space Saver Food Storage Containers

Contenedor para Comida, de Plástico
角型食品ポリ容器　角型食品塑料容器



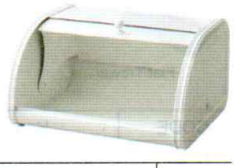
Heavy duty polypropylene, square shaped, tall food storage container. Has up to 60 % more usable storage space than a round container.

Unit Per Pc.

CODE	Size mm	Capacity ltr
17 29 46	380 × 275 × H530	33
47	415 × 310 × H590	45
48	465 × 355 × H655	65

Plastic Bread Bins

Paneras de Plástico　パン箱　面包箱



Made of plastic with a clear slide-up cover. Suitable for keeping sliced bread, etc.

17 29 52	Bread bin plastic, over slide cover, 350 × 285 × 202 mm	Pc.

Vegetable Preserving Bags

Bolsas para conservar verduras
野菜用保存袋　蔬菜用保存袋



Made of special plastic films with micro holes for preserving the vegetables. Micro holes controls the breathing of the vegetable itself and can preserve its freshness and nutrition. Able to use repeatedly by washing. Available in three sizes, S, M & L.

Unit Per Pkt.

CODE	Description	Size	Packet
17 29 53	Vegetable Preserving Bags, S	180 × 220 mm	5's/pkt
54	" M	220 × 295 mm	3's/pkt
55	" L	300 × 400 mm	2's/pkt

Food Storage Boxes

Stainless Steel

Contenedores/Acero Inoxidable
フードボックス　食品储藏箱（不锈钢）



Stainless steel made lacquer finished storage box for bread, dried goods, etc. Furnished with steel straps at both ends.

17 29 56	Food storage box, stainless steel, 410 × 330 × 305 mm	Pc.

Galvanized Steel Food Storage Cans

with Lid

Galvanizó latas de almacenamiento de comida de acero
メタル製フード缶　金属食物桶



Durable galvanized steel can with tightly fitting lid. Suitable for storing cereals, dried foods, etc.

Unit Per Pc.

CODE	Size mm Diam × Height	Ltr	CODE	Size mm Diam × Height	Ltr
17 29 57	405 × 570	55	**17 29 58**	475 × 700	85

Storage Pails

for Condiment

Baldes de almacenamiento para condimento
調味液用保管ペール　调味桶



Polyethylene made pail for storage liquefied condiment with a tight fitting cover. A steel ball handle is attached.

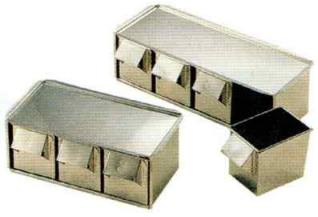
Unit Per Pc.

CODE	Size mm Diam × Height	Ltr	CODE	Size mm Diam × Height	Ltr
17 29 61	204 × 220	6	**17 29 63**	302 × 315	20
62	255 × 280	12			

Stainless Steel Spice Containers

Drawer Type

Contenedores de Especias/
Acero Inoxidable (Tipo Cajonera)
ステンレス製スパイス容器
不锈钢调料盒



Designed for the storage of several kinds of spices. Convenient when cooking because each drawer box has its own easy to grab handle.

Unit Per Set

CODE	No. of Drawers	Tier	Unit Size mm W × H × D
17 29 65	3	1	320 × 150 × 100
66	4	1	420 × 150 × 100
67	6	2	330 × 220 × 150
68	8	2	430 × 220 × 150

Racks

El estante para vajill
食器かご　餐具用架

Dish Drainer Rack



Rigid heavy gauge steel wire, plastic coated.

17 29 71	Rack, dish drainer, steel wire with plastic coating, 420 × 340 × 125 mm	Pc.

Compartment Steel Wire Glass Rack



Compartmented to suit most standard size glasses. Made of heavy gauge steel wire, plastic coated.

Unit Per Pc.

CODE	Outer Size mm	Max. Glass Diam mm	For Tumbler	Pocket
17 29 72	500 × 250 × 120	73	8 oz	18's
73	500 × 250 × 155	73	10 oz	18's
17 29 74	475 × 315 × 155	69	8 oz	24's
76	475 × 475 × 135	69	10-12 oz	36's
75	475 × 475 × 155	69	8 oz	36's

Steel Wire Tableware Rack

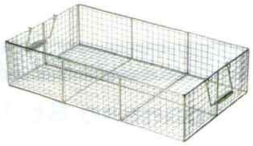


All purpose for cups, plates, glasses, trays, etc. Made of heavy gauge wire, plastic coated.

Unit Per Pc.

CODE	Size mm	CODE	Size mm
17 29 77	500 × 250 × 120	**17 29 79**	475 × 475 × 130
78	475 × 315 × 130		

Steel Wire Flatware Rack



Suitable for draining water drop from knives, folks and spoons after washing. Made of heavy gauge wire, plastic coated.

Unit Per Pc.

CODE	Size mm	CODE	Size mm
17 29 81	500 × 250 × 110	**17 29 82**	500 × 500 × 100

Steel Wire Cup Rack



Suitable for draining water drop from coffee cups, tea cups, etc. after washing. Made of heavy gauge wire, plastic coated.

Unit Per Pc.

CODE	Size mm	Pocket	For
17 29 83	475 × 475 × 80	16's	Tea, Bouillon soup
84	475 × 475 × 80	25's	Coffee, Demitasse

Dish Washer Rack

Constructed of hard, heat resistant plastic and designed for continuous dishwasher use. A compartment rack is also available for tumblers, tea cups, etc. When ordering the compartment rack type, please specify the diameter and the height of the tumblers or cups to be used with the rack.



Open Rack



Plate & Tray Rack



Glass Rack



Cup Rack

Unit Per Pc.

CODE	Size mm	Pocket Size mm	Weight Kg
Open Rack			
17 29 88	500 × 500 × 90	-	1.47
85	500 × 500 × 115	-	1.65
89	500 × 500 × 130	-	2.06
Plate & Tray Rack			
17 29 86	500 × 500 × 115	-	1.60
Glass Rack			
17 29 91	500 × 500 × 110	72 × 72 (36 pockets)	1.84
92	500 × 500 × 130		2.14
93	500 × 500 × 140		2.20
94	500 × 500 × 150		2.26
95	500 × 500 × 160		2.32
96	500 × 500 × 170		2.38
97	500 × 500 × 180		2.42
98	500 × 500 × 190		2.45
Cup Rack			
17 30 01	500 × 500 × 110	109 × 109 (16 pockets)	1.76
02	500 × 500 × 130		1.89
03	500 × 500 × 150		1.95
17 30 04	500 × 500 × 110	87 × 109 (20 pockets)	1.85
05	500 × 500 × 130		1.98
06	500 × 500 × 150		2.04
17 29 87	Rack for glass or tea cup with further details (Pc.)		

18. Japanese Style Tableware

Japanese Style China Tableware

Porcelana Japonesa 日本食用陶器 日本食用陶器

Standard sizes and combinations of traditional style Japanese tableware. The accessories are white with floral designs painted on the sides. They are lightweight and easy to handle and stack minimizing breakage.



Regular Rice Bowl



Large Rice Bowl with Cover



Pickle Bowl



Nimono Bowl



Soy Sauce Bowl and Plate



Boiling Cup with Cover



Vegetable Plate



Sashimi Plate



Grilled Fish Plate



Green Tea Cup



Japanese Tea Pot

Unit Per Pc.

CODE	Item	Size mm Diam	Size mm Height
17 31 01	Regular Rice Bowl	119	67
02	Large Rice Bowl with Cover	155	104
03	Large Rice Bowl without Cover	155	73
04	Small Pickle Bowl	113	57
05	Large Pickle Bowl	120	70
17 31 06	Nimono Bowl	150	45
07	Soy Sauce Bowl	78	35
08	Soy Sauce Plate	L 83	W 57
09	Boiling Cup with Cover	107	70
17 31 10	Vegetable Plate	93	
11	"	110	
12	"	155	
13	"	180	
14	Sashimi Plate	L 167	W 100
15	Grilled Fish Plate	L 183	W 128
17 31 16	Green Tea Cup	83	55
18	Japanese Tea Pot	135	150

Japanese Style Plastic Tableware

Vajila Japonesa de Plástico

日本食用プラスチック食器 日本食用塑料餐具

Heavy duty but light weight P.P. (Polypropylene resin) tableware which resists cracking and chipping. Suitable for cleaning in dishwashers. Easy to handle and store. Lustrous colours will not fade. Acid and alkaline proof, withstands temperatures up to 120 deg. C.



Regular Rice Bowl



Large Rice Bowl with Cover



Regular Soup Bowl



Large Soup Bowl with Cover


Regular Noodle Bowl


Large Noodle Bowl


Small Bowl


Nimono Bowl


Egg Bowl

Roud Plate

Square Plate


Soy Sauce Plate


Green Tea Cup

Unit Per Pc.

CODE	Item	Size mm	
		Diam	Height
17 31 26	Regular Rice Bowl	115	60
27	Large Rice Bowl with Cover	155	68
28	Large Rice Bowl without Cover	155	75
29	Regular Soup Bowl	120	55
30	Large Soup Bowl with Cover	129	55
17 31 31	Regular Noodle Bowl	155	68
32	Large Noodle Bowl	200	75
33	Small Bowl	110	47
34	Nimono Bowl	85	30
35	Nimono Bowl	113	28
17 31 36	Egg Bowl	110	45
37	Round Plate	100	21
38	"	130	25
39	"	160	30
40	"	190	30
17 31 41	Square Plate	197×137	24
42	Soy Sauce Plate	92× 68	22
43	Green Tea Cup	97	57

19. Japanese Style Pans & Ladles

Japanese Cooking Pans

La cacerola para platos japonés -style
日本料理用鍋　日本菜用锅

"Sukiyaki" Pan

Heavy cast iron made pans for SUKIYAKI with separate handle.



Unit Per Pc.

CODE	Size mm	CODE	Size mm
17 31 51	200	**17 31 53**	260
52	240	**54**	280

"Tempura" Pan

Steel made pan for frying vegetables, fishes, etc.



Unit Per Pc.

CODE	Diam × Depth mm	Ltr	CODE	Diam × Depth mm	Ltr
17 31 55	270 × 62	1.5	**17 31 58**	360 × 89	4.0
56	300 × 63	2.0	**59**	390 × 91	6.0
57	330 × 80	3.0	**60**	420 × 106	8.0

"Yosenabe" Pan

Heavy duty aluminium made pans for Yosenabe with two looped handles.



17 32 08	Yosenabe pan, aluminium, dia 180 mm	Pc.

Aluminium Japanese "Donburi" Pan with Handle

Suitable for cooking toppings for Japanese broiled rice. Aluminium made pan with wood handle.



Unit Per Pc.

CODE	Diam × Depth mm	CODE	Diam × Depth mm
17 32 09	145 × 30	**17 32 10**	165 × 30

Omelet Frying Pans

Sartenes para Tortilla
銅玉子焼鍋　铜制炒鸡蛋锅

Copper made pans with wooden handle. Designed to easily cook large, square omelets without mess.



Unit Per Pc.

CODE	Pan Size mm	CODE	Pan Size mm
17 31 61	135 × 180	**17 31 64**	180 × 225
62	150 × 195	**65**	195 × 240
63	165 × 210	**66**	210 × 255

Aluminium Boiling Pans

Cuenco para "Baño Maria"
アルミ段付鍋　铝制蒸煮锅

Heavy duty aluminium pans with handles riveted to both sides. Wooden lid sold separately.



Unit Per Pc.

CODE	Diam × Depth mm	Ltr	CODE	Diam × Depth mm	Ltr
17 31 71	300 × 140	5.4	**17 31 76**	450 × 200	19
72	350 × 150	7.6	**77**	480 × 210	24
73	360 × 170	9.0	**78**	510 × 220	32
74	390 × 180	13.0	**79**	540 × 240	36
75	420 × 190	16.0	**80**	600 × 270	49

Wooden Lids
for Aluminium Boiling Pan

Tadas de Madera/para Cuencos "Baño Maria"
段付鍋用木蓋　铝制蒸煮锅木盖



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 31 86	300	**17 31 91**	450
87	350	**92**	480
88	360	**93**	510
89	390	**94**	540
90	420	**95**	600

Aluminium Boiling Pans
with Handle

Cazo Alto con Mango para "Baño Maria"
アルミ打出し雪平鍋
带把手铝制蒸煮锅

Heavy duty aluminium made pans with short wood handle.



Unit Per Pc.

CODE	Diam × Depth mm	Ltr	CODE	Diam × Depth mm	Ltr
17 32 01	180 × 70	1.6	**17 32 04**	240 × 90	3.7
02	200 × 75	2.0	**05**	270 × 110	5.4
03	210 × 80	2.4	**06**	300 × 120	7.6

Double Boilers

Calderos dobles　湯煎鍋　铝制汤煎锅

The double boiler consists of an inner and outer pan. Water is boiled in the outer pan to keep the contents of the inner pan (Sauces, Stews, Soups) warm and of a soft consistency.



Aluminium

Unit Per Pc.

CODE	Outer Pan Diam. × Depth mm	Inner Pan Diam. × Depth mm	ltr
17 32 11	300 × 300	240 × 230	10
12	330 × 330	270 × 260	14
13	360 × 360	300 × 290	20

Stainless Steel

Unit Per Pc.

CODE	Outer Pan Diam. × Depth mm	Inner Pan Diam. × Depth mm	ltr
17 32 20	270 × 305	210 × 210	7
22	300 × 335	240 × 240	10
23	330 × 365	270 × 270	15
24	360 × 395	300 × 300	20
25	390 × 425	330 × 335	26

Grilling Nets

Parrillas
焼網 烧烤网



Galv. Iron



Stainless Steel

For grilling meat, fish, etc. over charcoal fire, gas or electric heaters.

Unit Per Pc.

CODE	Description	Size mm
17 32 16	Galv. iron without handle	450 × 450
17	Stainless steel without handle	270 × 210
18	Stainless steel with handle	400 × 325

Skimming Ladles

Espumaderas　粕揚げ　撇渣勺

Designed for skimming soup, frying oil, etc. Shallow mesh wire net with handle.



Unit Per Pc.

Round Net		Square Net	
CODE	Net Diam. mm	CODE	Net Size mm
17 32 26	150	**17 32 28**	145 × 185
27	180		

Wire Skimmers

Espumaderas de Alambre
ステンレス網杓子（そば揚げ）
不锈钢网勺子

For skimming soup, etc. Stainless steel fine mesh with a wooden handle.



Unit Per Pc.

CODE	17 32 31	17 32 32	17 32 33
Diam mm	180	200	250

Stainless Steel Noodle Boilers

Calderos para Fideo de Acero Inoxidable
ステンレスうどん揚げ
不锈钢面条勺子

Used to boil pasta or egg noodles instantly. Made of a stainless steel strainer with a wooden handle.



17 32 36	Noodle boiler, stainless steel strainer size D130 × H170 mm	Pc.

Net Scoop Ladles

Palas de Malla　すくい玉　网状铲斗勺子

Designed to take noodles, vegetables, pieces of fish, etc. out of water after boiling. Flat, round, stainless steel net with a wooden handle. When ordering, please specify the diameter of the net required. Overall length of the ladle is 600 mm.



17 32 38	Net scoop ladle S.S 210 mm diam.	Pc.
39	Net scoop ladle S.S 240 mm diam.	"

20. Japanese Style Baskets

Bamboo Baskets

Colador de bambú　竹ざる　竹笸箩

For washing rice before boiling. Available in bamboo or stainless steel made in two different designs.



Side-Cut



Round

Unit Per Pc.

Side-Cut			Round		
CODE	Material	L × W × H mm	CODE	Material	Dia × H mm
17 32 41	Bamboo	490 × 430 × 130	**17 32 44**	Bamboo	480 × 150
42		540 × 500 × 150	**45**		540 × 200
43		600 × 550 × 180	**46**		600 × 230
17 32 47	S. Steel	420 × 360 × 165	**17 32 82**	S. Steel	300 × 160
48		470 × 430 × 190	**83**		340 × 200
49		570 × 540 × 200	**84**		400 × 220

Deep Basket

A round deep bamboo basket for straining "Miso" bean paste or filtering water from washed vegetables, etc.



Unit Per Pc.

CODE	Diam × Height mm	CODE	Diam × Height mm
17 32 51	340 × 160	**17 32 53**	390 × 210
52	360 × 190		

Plastic Baskets

Cestas Redondas (Escurridor)

プラスチック製水切りざる　塑料圆筐

Round Basket

A plastic made, very light strainer for vegetables, rice, etc. When ordering, specify the diameter required.



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 32 56	200	**17 32 60**	320
57	230	**61**	370
58	260	**62**	420
59	290	**63**	470

Round Vegetable Basket

A round deep plastic strainer for holding fresh vegetables or fruits.



Unit Per Pc.

CODE	Diam × Depth mm	CODE	Diam × Depth mm
17 32 65	295 × 160	**17 32 68**	470 × 250
66	350 × 190	**69**	550 × 300
67	400 × 210		

Deep Square Basket

Square shaped plastic strainer. Ideal for washing vegetables for salad preparation. Deep sized and regular sized baskets are available in the following dimensions.



Unit Per Pc.

CODE	Size mm	CODE	Size mm
17 32 91	230 × 300 × 10	**17 32 93**	360 × 480 × 16.5
92	290 × 390 × 13		

Stainless Steel Baskets

Castas Redondas de Acero Inoxidable

ステンレス製ざる　不锈钢筐

Round Basket

Heavy duty stainless steel round basket for straining water from vegetables after washing or boiling.



Unit Per Pc.

CODE	Diam × Depth mm	CODE	Diam × Depth mm
17 32 71	250 × 109	**17 32 76**	375 × 150
72	275 × 118	**77**	400 × 165
73	300 × 120	**78**	430 × 180
74	330 × 122	**79**	460 × 187
75	350 × 135	**80**	500 × 220

Square Basket

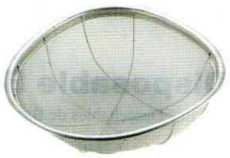
Stainless steel rectangular basket with handle for rinsing.



17 32 86	Basket, stainless steel, square with handle, 355 × 300 × 150 mm	Pc.

Oval Basket

Heavy duty stainless steel oval basket for straining water from vegetables after washing or boiling.



Unit Per Pc.

CODE	L × W × D mm	Ltr	CODE	L × W × D mm	Ltr
17 32 87	445 × 380 × 145	5.4	**17 32 89**	530 × 520 × 185	14.4
88	480 × 470 × 180	9.0	**90**	605 × 575 × 200	12.6

Deep Basket for Rice

Stainless steel made deep type basket with flat bottom for washing rice before boiling.



Unit Per Pc.

CODE	Inner Diam × Depth mm	Ltr	CODE	Inner Diam × Depth mm	Ltr
17 32 95	275 × 165	5.4	**17 32 98**	350 × 215	14.4
96	300 × 180	7.2	**99**	375 × 230	18.0
97	330 × 200	9.0			

21. Japanese Style Kitchen Utensils

Japanese Cooking Knives

Cuchillo de cocina de plato de comida japonés

日本食料理包丁　日本食菜菜刀

Fish Chopping Knife

Heat treated carbon steel blade. Cuts fish with bones into handy pieces.



Unit Per Pc.

CODE	Blade Length mm	CODE	Blade Length mm
17 33 01	120	**17 33 05**	180
02	135	**06**	195
03	150	**07**	210
04	165		

Vegetable Knife

Thin, carbon steel blade knife designed to slice vegetables easily. Please specify the blade length required.



Unit Per Pc.

CODE	Blade Length mm	CODE	Blade Length mm
17 33 11	150	**17 33 14**	195
12	165	**15**	210
13	180		

Fish Slicing Knife

Specially designed to cut thin slices of raw or prepared fish. Please specify the blade length required.



Unit Per Pc.

CODE	Blade Length mm	CODE	Blade Length mm
17 33 21	210	**17 33 23**	270
22	240	**24**	300

Disposable Bamboo Skewers

Pinchos Desechables de Bambú

竹串　一次性竹串肉杆

Disposable skewers for grilling pieces of chicken, meat, etc.



Unit Per Bdl

CODE	Length mm	Q'ty/ Bdl	CODE	Length mm	Q'ty/ Bdl
17 33 28	150	110's	**17 33 29**	250	1,000's
27	210	200's	**30**	280	50's

Shallow Ladles

Cacills de Aluminio　玉杓子　浅底汤勺

Alumite solid or perforated bowl with a wooden handle for all purpose ladling.



Unit Per Pc.

CODE	Bowl Type	Bowl Size	Handle Length
17 33 31	Solid bowl	113 mmφ	330 mm
32	Perforated Bowl	"	"

Wooden Ladles

Cacillos de Madera　木製お玉　木制汤勺

Made of wood and designed to work with cooked beans, stews, etc.



17 33 34	Wooden ladle, 115 × 203 mm	Pc.

Stainless Steel Shallow Ladles

Cacillos de Acero Inoxidble

ステンレス玉杓子　不锈钢浅底汤勺

Light, easy cleaning, all purpose, stainless steel ladle. Available with a solid or perforated bowl. Handle is hooked at the end making it easy to hang in the workplace within hands reach.



Solid　Perfoprated

Unit Per Pc.

CODE	Bowl Type	Bowl Size	Handle Length
17 33 35	Solid	90 mmφ	255 mm
36	Perforated	"	"

Rice Spatulas

Espátula para Arroz

しゃもじ　米饭铲子

A Japanese rice server for preparing, cooking and serving rice.



Unit Per Pc.

Wood		Plastic	
CODE	Length mm	CODE	Length mm
17 33 41	240	**17 33 56**	240
42	270	**57**	295
43	300	**58**	360
44	360	**59**	440
45	450	**60**	500
17 33 46	600	**17 33 50**	600
47	900		
48	1,200		

Wood Paddles *(Spatula)*

Paleta de Madera (Espátula)

木製へら　木制饭勺（方头）

For mixing or stirring food in a stock pot. Following dimensions are for blade width and overall length.



Unit Per Pc.

CODE	Size mm	CODE	Size mm
17 33 51	65 × 300	**17 33 54**	110 × 600
52	68 × 390	**55**	120 × 750
53	110 × 480		

Water Dippers

Cacillos para Agua　水杓子　水舀子

Dippers available are made of all plastic or with a stainless steel or aluminium cup attached to a wooden handle.



Unit Per Pc.

CODE	Material	Capacity ltr	Cup Size Diam. mm
17 33 61	Plastic	1.2	155

(to be continued)

Unit Per Pc.

CODE	Material	Capacity ltr	Cup Size Diam. mm
17 33 62	Aluminium	0.9	130
63	"	1.4	150
17 33 68	Stainless steel	0.5	120
69	"	0.8	130
64	"	1.0	140
65	"	1.4	160

Vegetable Peelers

Pela-verduras　皮引き　蔬菜削皮器

A handy and safe peeler for radish, potatoes, etc. Stainless steel permanent blade with wooden handle.



17 33 66	Vegetable peeler, 175 mm length	Pc.

Vegetable Slice Cutter "Benliner"

Cortadores de Verduras "Benliner"
蔬菜切割器　野菜スライスカッター

A useful cutter with two different shaped blades for cutting carrots, radishes, etc. 85 mm blade length. Size : 315 x 90 mm.



17 33 67	Vegetable slice cutter, "Benliner"	Pc.

Conical Mortars & Wood Pestles

Morteros Cónicos y Majas de Madera
すり鉢とすりこぎ　圆锥舀及木制杵

Conical shaped manual grinder for grinding pastes or dried spices and herbs. Mortar and wood pestle are furnished separately. Specify the diameter of the mortar and if the pestle is required.



Mortar



Pestle

Unit Per Pc.

Mortar		Pestle	
CODE	Diam. mm	CODE	Length mm
17 33 71	270	**17 33 74**	360
72	300	**75**	390
73	330	**76**	450

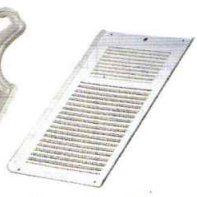
Graters

Ralladores　大根おろし　碾磨板

All purpose grater for manual operation. Made of aluminium, copper or stainless steel.



With Grip End



Square Sheet Type

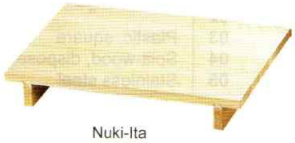
Unit Per Pc.

CODE	Material	Size mm
	With Grip End	
17 33 81	Aluminium	170 × 260
17 33 82	Copper	135 × 250
83	"	160 × 275
84	"	175 × 310
17 33 85	Stainless steel	130 × 240
86	"	160 × 270
87	"	170 × 300
	Square Sheet Type	
17 33 88	Copper	190 × 365
17 33 89	Stainless steel	190 × 335

Sushi Boards "Nuki-Ita"

Tablas para Sushi "Nuki-Ita"
抜き板　寿司板（冲板）

A typical Japanese wooden board for preparing "Sushi" dishes prior to serving.



Nuki-Ita

Unit Per Pc.

CODE	Size mm	CODE	Size mm
17 33 93	480 × 330 × 60	**17 33 94**	600 × 295 × 55

Bamboo Sushi Rollers

Rollos de Bambú para sushi
巻すだれ　竹制寿司轧辊

Made of bamboo and specially designed to roll and prepare Japanese "Sushi" dishes. 240 x 270 mm in size.



17 33 96	Bamboo sushi roller 240 × 270 mm	Pc.

Bleached Cotton Cloths

Paño Blanqueadas de Algodpón
玉川さらし　漂白棉布

Cotton woven rough mesh cloth for filtering. 360 mm in width and 7 mtrs in length folded in one roll.



17 33 98	Bleached cotton cloth, W 360 mm × L7 mtrs/roll	Rls.

Sushi Tubs

Tarros para Sushi
すし桶　寿司桶

Wood tub for mixing sushi rice and vinegar, ingredients, etc.



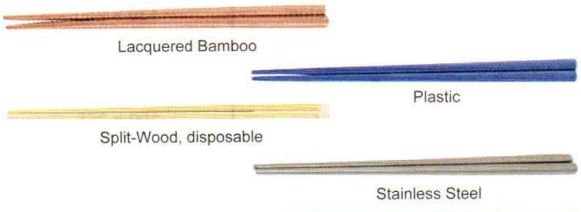
Unit Per Pc.

CODE	Inner Diam. × Depth mm	Ltr	CODE	Inner Diam. × Depth mm	Ltr
17 34 15	310 × 70	1.44	**17 34 19**	435 × 95	3.24
16	335 × 80	1.62	**20**	495 × 110	5.4
17	380 × 80	1.8	**21**	555 × 110	7.2
18	410 × 85	2.7	**22**	605 × 120	9.0

Japanese Style Chopsticks

Palillos Japoneses 箸 日式筷子

Available in lacquered bamboo, plastic, or wooden disposable types. Individually wrapped chopsticks are also available upon request. Stainless steel chopsticks as eco-friendly choice is also available.



CODE	Description	Length mm	Unit
17 34 01	Lacquered bamboo round	220	Pr.
02	" square	225	"
03	Plastic, square	225	"
04	Split-wood, disposable 100 pr/pkt	210	Pkt
05	Stainless steel	223	Pr.

Chopstick Cases

Cajas para Palillos 箸箱 筷子盒

An individual chopstick case. Length approx. 235 mm.



17 34 07	Chopstick case, individual, 235 mm Length	Pc.

Chopstick Stands

Soporte para Palillos (Palillero)
箸立 筷子架

Available in stainless steel or plastic for loose chopsticks.



Unit Per Pc.

Stainless Steel		Plastic	
CODE	D × H mm	CODE	D × H mm
17 34 08	80 × 140	17 34 09	100 × 140

Cooking Chopsticks

Palillos para Cocinar 菜箸 煮菜筷

Long bamboo chopsticks for cooking "Tempura", etc.



17 34 11	Chopsticks cooking bamboo	L 390 mm	Pr.
12	"	L 450 mm	"

Stainless Steel Thermos Food Jars

Termos para Comida de Acero Inoxidable
ステンレスジャー 不锈钢食品保温罐

Stainless steel, simple thermos jar to keep rice, etc. warm. Outside is simulated wood.



Unit Per Pc.

CODE	Rice Capacity ltr	Actual Capacity ltr	Temperature Degree After 6 Hours
17 34 26	3.3	8.2	78°C
27	3.9	9.8	76°C
28	4.2	10.5	80°C
29	5.7	14.2	78°C
30	7.3	18.3	80°C

Drain Grids

Rejillas para Secado 天台 天台

Designed for draining oil fried foods such as Japanese style "Tempura" dishes, etc. Can be placed on top of sheet pans in order to recover oil. Made of galvanized steel wire. Stainless steel made grid furnished with drip pan type is also available.



Grid only



Grid w/Drip Pan

Unit Per Pc.

Grid Only			Grid with Drip Pan		
CODE	Size mm	Material	CODE	Size mm	Material
17 34 46	520 × 370	Steel	17 34 47	375 × 255	Stainless steel
			48	465 × 315	

Green Tea Canisters

Botes para Té 茶筒 绿茶罐

A tin green tea container with a moisture free inner lid.



Unit Per Pc.

CODE	Material	Size mm	Ltr
17 34 51	Tin	Φ110 × H190	1.8
52	"	Φ130 × H210	2.8
17 34 53	Stainless steel	Φ120 × H230	2.5
54	"	Φ140 × H260	4.0

Washing Basins

Cubos para fregar 洗い桶 洗菜盆

Alumite or Stainless Steel

Made of alumite or stainless steel for washing or cleaning vegetables, etc.



Alumite



Stainless Steel w/Handles

Unit Per Pc.

Alumite			Stainless Steel w/Handles		
CODE	Diam × Depth mm	Ltr	CODE	Diam × Depth mm	Ltr
17 34 59	270 × 115	5.3	17 34 76	270 × 90	5.0
60	300 × 128	7.7	77	300 × 100	7.0
61	330 × 140	10.0	78	330 × 110	9.4
62	360 × 160	14.0	79	360 × 120	12
63	420 × 135	18.0	80	390 × 130	15

(to be continued)

Unit Per Pc.

Alumite			Stainless Steel w/Handles		
CODE	Diam × Depth mm	Ltr	CODE	Diam × Depth mm	Ltr
17 34 64	480 × 154	25.0	17 34 81	420 × 140	20
65	540 × 173	36.0	82	450 × 150	23
			83	480 × 160	29
			84	510 × 170	36
			85	550 × 180	42
			86	600 × 190	54

Plastic

Plastic made basin for general purposes.



Unit Per Pc.

CODE	Ltr	Height × Diam. mm	CODE	Ltr	Height × Diam. mm
17 34 71	11	130 × 400	17 34 74	37	190 × 570
72	16	150 × 450	75	60	280 × 600
73	24	170 × 500			

22. Chinese Style Tableware & Cooking Utensils

Chinese Style Tableware

Vajilla de estilo de China 中国式食器 中国式餐具

Porcelain

Porcelain made heavy duty Chinese style tableware.



Rice Bowl Soup Bowl Noodle Bowl



Tea Cup Soup Spoon

Unit Per Pc.

CODE	Item	Size mm	
		Diam	Height
17 36 01	Rice bowl	115	53
17 36 02	Soup bowl	183	60
03	"	205	60
04	"	228	60
17 36 05	Noodle bowl	193	68
17 36 06	Soup spoon	L140	
17 36 07	Tea cup	92	56

Melamine

Chinese style Melamine made plain tableware that resists cracking and chipping and is suitable for cleaning in dishwashers. Easy to handle and store, lustrous colours will not fade.



Noodle Bowl Soup Bowl Octagonal Plate



Small Plate Serving Plate Spoon

Unit Per Pc.

CODE	Item	Size mm	
		Diam	Height
17 36 11	Noodle bowl	197	67
12	Large noodle bowl	205	60
13	Soup bowl	113	54
14	Octagonal plate	180	40
15	Small plate	140	25
17 36 16	Serving plate	300	40
17	"	365	50
18	"	455	65
19	Spoon	L 160	

Chinese Style Chopsticks

Palillos Chinos 中華箸 中式筷子

Plastic or bamboo made Chinese style chopsticks with flat points.



17 36 26	Chopsticks, Chinese style plastic L260 mm	Pr.
27	Chopsticks, Chinese style bamboo L260 mm	"

Chinese Frying Pans

Sartén china 中華鍋 北京锅

Steel (Wok)

Made of heavy steel with half round bottom. A short handle welded to the pan allows you to hold the pan while stir frying. Excellent for preparing Chinese dishes.



Unit Per Pc.

CODE	17 36 31	17 36 32	17 36 33
Diam. mm	300	330	360

Perforated

Suitable for swishing off cooking oil from Chinese food attaching over the ordinary solid type Chinese frying pan. Available material in steel or stainless steel.



Unit Per Pc.

Steel		Stainless Steel	
CODE	Diam. mm	CODE	Diam. mm
17 36 42	240	17 36 46	240
43	270	47	270
44	300	48	300
45	330		

Steel Chinese Cooking Pans

Cacerolas Chinas de Acero
中華鍋　中华锅



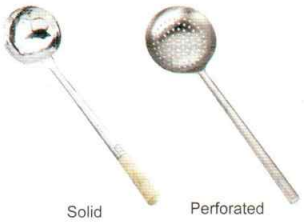
A large sized pan made of heavy steel with riveted handles at both ends. Used for cooking or frying Chinese dishes.

Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
17 36 36	390	**17 36 39**	480
37	420	**40**	510
38	450	**41**	600

Chinese Soup Ladles

Cacillos Chinos para Sopa
木柄中華お玉　中式木柄汤勺



Stainless or steel ladle with wooden handle for Chinese style cooking. Available in solid or perforated styles.

Unit Per Pc.

Stainless Steel			Steel		
CODE	Type	Diam. mm	CODE	Type	Diam. mm
17 36 51	Solid	120	**17 36 49**	Solid	116
52	"	130	**50**	"	129
			17 36 53	Perforated	120
			54	"	130

Chinese Turners

Espátulas Chinas
木柄中華返し　中式木柄铲子



Stainless or steel turner with wooden handle for Chinese style cooking.

Unit Per Pc.

CODE	Material	Width mm	CODE	Material	Width mm
17 36 56	Steel	120	**17 36 58**	Stainless Steel	120
57	"	130	**59**	"	130

Chinese Vegetable Knives

Cuchillos Chinos para Verdura
中華庖丁　中式菜刀



A wide and sharp cutting blade used for preparing large portions of vegetables for Chinese cuisine. Has a carbon steel blade and a wooden handle.

17 36 62	Chinese vegetable knife, 213 mm blade length	Pc.

Chinese Cutting Boards

Tablas para Cortar Chinas　中華まな板　中式菜板

Made of hard wood, or plastic suitable for slicing beef and vegetables for food preparation. For preventing cross contamination of different food groups, various colours are available for plastic cutting boards.



Unit Per Pc.

Wood		Plastic					
390 × 150 mm		400 × 100 mm		450 × 100 mm		500 × 100 mm	
CODE	Colour	CODE	Colour	CODE	Colour	CODE	Colour
17 36 66	Hard wood	**17 36 67**	White	**17 36 68**	White	**17 36 69**	White
		20	Red	**25**	Red	**60**	Red
		21	Blue	**28**	Blue	**61**	Blue
		22	Yellow	**29**	Yellow	**63**	Yellow
		23	Brown	**30**	Brown	**64**	Brown
		24	Green	**55**	Green	**65**	Green

Chinese Cutting Board Stands

Soportes para Tablas de Cortar Chinas
中華まな板立て　中式砧板架



Made of stainless steel, and crossbar below allows storage of other cutting boards.

Unit Per Pc.

CODE	Size (mm)	CODE	Size (mm)
17 36 78	420 × 750	**17 36 80**	520 × 550
79	470 × 750		

Chinese Food Steamers

Recipiente de Cocción al Vapor　中華せいろう　中式食品蒸锅

Bamboo



Made of bamboo and designed for preparing food by steaming. The mid sections and lid can be purchased separately. The water pan is separate order.

Unit Per Pc.

Body			Cover	
CODE	Out Diam. mm	Height mm	CODE	Out Diam. mm
17 36 71	300	55	**17 36 81**	300
72	330	55	**82**	330
73	360	55	**83**	360
74	390	55	**84**	390
75	420	55	**85**	420
17 36 76	450	55	**17 36 86**	450
77	480	55	**87**	480

Aluminium



Used for the same purposes as above but made of aluminium. The steamer body, water pan and lid can also be purchased separately.

Unit Per Pc.

Body			Water Pan		Cover	
CODE	Diam. mm	Height mm	CODE	Diam. mm	CODE	Diam. mm
17 36 90	450	150	**17 37 07**	450	**17 36 95**	450
91	480	150	**08**	480	**96**	480
92	510	150	**09**	510	**97**	510
93	600	150	**10**	600	**98**	600

Stainless Steel

Stainless steel made steamers for preparing steamed food. The lowest pan is for water and the rest upper pans are for food to be steamed. The steamer body and lid can be purchased separately. Furnished with lid.



17 37 01 / 02



17 37 03 - 06

Unit Per Set

CODE	Tiers	Pan Size mm	
		Food	Water
17 37 01	2	290 × 290 × 115	290 × 290 × 100
02	3	"	"
17 37 03	3	300 × 300 × 100	300 × 300 × 125
04	3	330 × 330 × 100	330 × 330 × 125
05	3	360 × 360 × 100	360 × 360 × 125
06	3	390 × 390 × 100	390 × 390 × 125

Remark: 2 tiers are composed of one water pan and one food pan.
3 tiers are composed of one water pan and two food pans.

23. Korean Style Tableware

Korean Style Stainless Steel Tableware

Vajillas Coreanas de Acero inoxidable
韓国式ステンレス食器　韩式不锈钢餐具

Korean style 18-8, polished finish, stainless steel made tableware. Durable for long time use. Easy to handle and store and the luster will not fade.



Rice Bowl with Cover



Soup Bowl



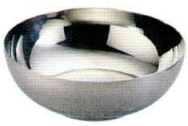
Pickle Bowl with Cover



"MIZUNA" Bowl with Cover



Soy Sauce Bowl



Noodle Bowl



Oval Platter



Gravy Bowl



Chopsticks & Spoon

Unit Per Pc.

CODE	Item	Size mm		Unit
		Diam.	Height	
17 37 51	Rice bowl with cover	115	65	Pc.
17 37 52	Soup bowl	135	53	"
17 37 53	Pickle bowl with cover	97	43	"
17 37 54	"MIZUNA" bowl with cover	85	50	"
17 37 55	Soy sauce bowl	67	35	"
17 37 56	Noodle bowl	192	75	"
17 37 57	Oval platter	201	305	"
58	"	163	252	"
17 37 59	Gravy bowl	97		"
17 37 60	Chopsticks	L197		Pr.
17 37 61	Spoon	L 217		Pc.

24. Measuring Scales

Spring Balance Scales

Peso / Balanza　台ばかり　弹簧秤

For weighing items in bulk. Capacity ranges from 200 grams to 50 kilograms. Available in metric graduation only. Plastic or steel platform trays.



Unit Per Pc.

CODE	Max. Weighing grm or kg	CODE	Max. Weighing kg
17 40 01	200 grm	**17 40 07**	8 kg
02	400 grm	**08**	10 kg
03	800 grm	**09**	12 kg
04	1 kg	**10**	20 kg
05	2 kg	**11**	30 kg
17 40 06	4 kg	**17 40 12**	50 kg

Portable Scales
with Digital Display

Balanzas Portátiles con pantalla digital
デジタル式台ばかり　数字显示便携秤

Alkaline battery powered scales with digital display. Platform size is 220 × 220 mm.



Unit Per Pc.

CODE	Max. Weighing	CODE	Max. Weighing
17 40 16	1.0 kg	**17 40 19**	10.0 kg
17	2.0 kg	**20**	20.0 kg
18	5.0 kg	**23**	30.0 kg

Alarm Timers

Temporizador
アラームタイマー
闹钟计时器





Available in dial type or digital type and will beep at the end of preset cycle. Can be adjusted between 1 second to 60 min. or more.

Unit Per Pc.

CODE	Type	Max. Preset Time
17 40 21	Dial	60 min.
22	Digital	99 min.

Measuring Spoon Sets

Medir juegos de cuchara
計量スプーンセット
计量汤匙套组



Suitable for measuring small portion of granulated or liquefied condiments. Three stainless steel spoons for measuring 2.5 cc, 5 cc and 15 cc are attached to one ring.

17 40 24	Measuring spoon set, stainless steel, 2.5/5/15 cc	Set

Measuring Cups

Medidores Graduados
メジャーカップ
量杯





Stainless steel or plastic made cup for measuring liquid. Units are graduated in liters.

Unit Per Pc.

Plastic		Stainless Steel	
CODE	ltr	CODE	ltr
17 40 26	0.3	**17 40 31**	0.2
27	0.6	**32**	0.5
28	1.0	**33**	1.0
29	2.0	**34**	2.0

25. Galley Cleaning Equipment

Galley Gloves

Guantes de Cocina
炊事用ゴム手袋　炊事用手套



Made from soft, elastic, thin rubber to suit galley use.

Unit Per Pc.

CODE	Size	CODE	Size
17 40 43	S	**17 40 45**	L
44	M		

Oven Mitts

Manoplas para Horno
オーブン用耐熱手袋　烤炉耐热手套



Heavily padded, heat reflective aluminized cloth for extra protection.

17 40 48	Oven mitt, heat protection aluminized cloth	Pr.

Hand Scourers

Estropajos　たわし　棕刷

For removing grease and food build up; also suited for scraping dishes and scrubbing vegetables. Available in various types and materials.

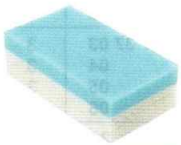


Coir　Steel　Brass　Stainless Steel

17 40 51	Hand scourer, coir small	Pc.
52	" coir large	"
53	" steel	"
54	" brass	"
55	" stainless steel	"

Sponge Cleaners

Esponjas　スポンジクリーナー　海绵刷



Soft, bubbled, plastic sponge for general washing and cleaning purposes.

17 40 58	Sponge cleaner, 150 × 100 × 50 mm	Pc.

Steel Wool

Estropajo de Acero　スチールウール
钢丝绒



For cleaning and scraping stainless steel equipment and almost all other metals. 450 grm per piece.

Unit Per Pkt.

CODE	No.	CODE	No.	CODE	No.
17 40 61	3	**17 40 63**	1	**17 40 65**	00
62	2	**64**	0	**66**	000

Contamination Prevention Sponges

Scotch-Brite

Esponjas que evitan la contaminación　異物混入対策スポンジ　防污海绵



High Durability Net Covered Sponge No. 9300



Sponge with Scrubbing Pad



Resin Fiber Sponge

Unit Per Pc.

CODE	Name	Size mm	Remarks
17 40 67	High durability net covered sponge, No. 9300	80 × 160 × 20	Net covered to prevent deteriorated sponge particles fall out. HACCP International Food Safety Programmes certified.
17 40 68	Sponge with scrubbing pad	75 × 115	One side resin made abrasive particles pad for scrubbing scorched surface. HACCP International Food Safety Programmes certified.
17 40 69	Resin fiber sponge	60 × 125	Made of tough, efficient and long lasting resin fiber. HACCP International Food Safety Programmes certified.

3M Scotch-Brite Cleaners

Estropajos "Scotch-Brite" 3M スコッチブライト 3M 清洗刷

The Scotch-Brite brand family of scouring pads, sponges and accessories are listed below with respective specifications.



No. 96 Scouring Pad



Sponge Ace Scrubbing Sponge



No. 98 Light Duty Cleaning Pad



No. 86 Heavy Duty Commercial Scouring Pad



No. 94 Stropping Pad



No. 6472 Pad Holder



No. 6473 Pad Block





No. 482, 461 Griddle Pad Holder



Left to Right Cleaning Pad No. 8440, 8343, 8242, 8541





No. 82 Griddle Cleaning Pad
No. 46 Griddle Polishing Pad



No. 200 Griddle Screen

Specifications

3M Scotch Brite Hand Pad		
3M No.	Description	Size mm
No. 96	General purpose commercial scouring Nylon pad, cleaning most cooking utensils, green colour	230 × 150
Sponge Ace S Sponge Ace L	Nylon scrubbing sponge, scrubs and cleans walls, tables and counter tops, yellow & green colours	115 × 75 × 33 150 × 90 × 33
No. 98	Light duty Nylon cleansing pad, white & yellow colours	65 × 120, 83 × 140
No. 86	Heavy duty Nylon commercial scouring pad, brown colour	83 × 140
No. 94	Stropping Nylon pad, cleans fryer heating tube assemblies, green colour	635 × 101 × 10
No. 6472	Pad holder ideal for reaching hard to get at areas	95 × 227 × 31
No. 6473	Pad block, useful in confined areas	95 × 227
No. 8440	Polyester cleaning pad, fine white colour	115 × 250
No. 8343	Polyester cleaning pad,medium, red colour	115 × 250
No. 8242	Polyester cleaning pad, coarse, blue colour	115 × 250
No. 8541	Polyester cleaning pad, extra coarse, brown colour	115 ×250
3M Griddle Cleaning System		
No. 82	Heavy duty griddle cleaning pad with tough open web construction for high temperature use, brown colour	114 × 140
No. 482	Above pad holder	—
No. 46	Griddle polishing pad, for low temperature use, grey colour	100 × 150
No. 461	Above griddle pad holder	—
No. 200	Griddle screen, designed for heavy duty cleaning	101 × 139

(to be continued)

How to order

CODE	No.	Item	Unit
17 40 71	96	Scouring Pad 230×150 mm	Pc.
17 40 72		Sponge Ace S	Pc.
73		Sponge Ace L	"
17 40 74	98	Light Duty Cleaning Pad, 65×120 mm	Pc.
70		" 83×140 mm	"
17 40 75	86	Heavy Duty Scouring Pad 83×140 mm	Pc.
76	94	Stropping Pad	"
77	6472	Pad Holder	"
78	6473	Pad Block	"
17 40 79	8440	Cleaning Pad, Fine	Pc.
80	8343	Cleaning Pad, Medium	"
81	8242	Cleaning Pad, Coarse	"
82	8541	Cleaning Pad, Ex. Coarse	"
17 40 83	82	Heavy Duty Griddle Cleaning Pad	Pc.
84	482	H. D. Griddle Cleaning Pad Holder	"
17 40 85	46	Griddle Polishing Pad	Pc.
86	461	Griddle Polishing Pad Holder	"
17 40 87	200	Griddle Screen 20's/pkt	Pkt.

Galley Boots

Botas para Cocina

厨房用ゴム長靴 厨房用胶鞋

Leakproof rubber boots with tread soles for non-slip traction. Normally supplied in white colour.



Unit Per Pr.

CODE	Size cm.	CODE	Size cm.
17 40 91	24.0	**17 40 96**	26.5
92	24.5	**97**	27.0
93	25.0	**98**	28.0
94	25.5	**99**	29.0
95	26.0		

Kitchen Brushes

Cepillo Lava-platos　台所用ブラシ　帯柄洗碗刷

Dishwashing Brush

Cepillo Lava-platos
柄付皿洗いブラシ　帯柄洗盤刷



White bristle hair for dishwashing, general galley, and pantry use. For preventing cross contamination of different food groups, various colours are available for sanitary management. Overall length is 270 mm.

Unit Per Pc.

CODE	Colour	CODE	Coour
17 41 01	White	**17 41 16**	Yellow
13	Red	**17**	Green
14	Blue		

Tumbler Brush

Cepillo Lava-vasos　コップ洗いブラシ
滾筒刷



For cleaning glasses, cups, or other difficult to clean tableware. Made of a sponge brush with a plastic handle. A white bristle tumbler brush is also available.

17 41 03	Sponge head tumbler brush	Pc.
04	White hair tumbler brush	"

Bottle Brush

Cepillo para Botellas　瓶洗いブラシ　瓶刷



Designed for cleaning bottles, etc. where the brush has to be able to fit through narrow spaces.

Unit Per Pc.

CODE	Brush Size	Overall Length
17 41 07	50 × 100 mm	340 mm
08	75 × 140 mm	450 mm

Percolator Brush

Cepillo para Percolador
パーコレーターブラシ　咖啡壺刷



A handy brush to clean the inside of percolator stems. White hair, furnished with twisted wire handle and ring on the handle end.

17 41 11	Brush percolator	Pc.

Scrubbing Brushes

Bamboo "Sasara"

Cepillos fregando, bambú "SASARA"
竹製ササラ　洗刷刷竹



Bamboo bundled brush suitable for scrubbing scorched frying pans, pots, etc..

17 41 15	Scrubbing brush, bamboo, "Sasara", L 240 mm	Pc.

26. Buckets & Garbage Bags

Polycarbonate Buckets

Cubos de Polycarbonate
ポリカーボネートバケツ　聚碳酸酯桶



The strongest resin made bucket from plastic category. Polycarbonate has self extinguish performance if it is kept away from the fire, and has heat resistance between -100 deg. C and +135 deg. C. Normally the bucket comes without cover. Seal type cover is separate order.

Unit Per Pc.

CODE	Diam. × Height mm	Ltr	Remark
17 41 18	294 × 268	13	Bucket only
17 41 19	Seal type cover		

Buckets

Cubos　バケツ　桶



Plastic

Die formed strong plastic buckets. For preventing cross contamination of different areas, various colours are available for sanitary management.

Unit Per Pc.

CODE	Capacity Ltr	Size mm Diam.	Size mm Height	Colour	CODE	Capacity Ltr	Size mm Diam.	Size mm Height	Colour
17 41 21				Blue	**17 41 23**				Blue
00				Green	**17 43 70**				Green
20	8	255	245	Red	**73**	13	300	285	Red
25				Yellow	**74**				Yellow
17 42 00				White	**75**				White
17 41 22				Blue	**17 41 24**				Blue
17 43 66				Green	**17 43 76**				Green
67	10	275	265	Red	**77**	15	335	305	Red
68				Yellow	**78**				Yellow
69				White	**79**				White

Galvanized



Made from Gauge No. 28 galvanized sheet with a reinforced base.

Unit Per Pc.

CODE	Capacity Ltr	Size mm Diam.	Size mm Height	CODE	Capacity Ltr	Size mm Diam.	Size mm Height
17 41 26	8	250	200	**17 41 28**	13	300	230
27	10	280	200	**29**	15	315	260

Stainless Steel

Made from 18-8 stainless steel sheet for all purpose use including use with chemicals.



Bucket



Cover

Unit Per Pc.

Bucket		Cover	
CODE	Ltr	CODE	For Ltr
17 41 31	10	**17 41 35**	10
32	13	**36**	13
33	15	**37**	15
34	20	**38**	20

Dust Pans

Recogedores 塵取 垃圾撮子

Made of strong plastic or galvanized steel. Available in 3 types.



Plastic Flat



Galv.Open



Lobby

Unit Per Pc.

CODE	Description	Size mm
17 41 41	Plastic, flat	320 × 270 × 495
42	Galv. open	240 × 110 × 470
43	Galv. lobby	306 × 114 × 250

Steel Waste Receptacles
with Swing Lid

Recipientes de Desperdicio de Acero Con Tapa de Giro
回転蓋付きスチールくず箱 垃圾箱

A melamine coated steel waste receptacle with free swinging lid.



Unit Per Pc.

CODE	Size mm W × D × H	Ltr	CODE	Size mm W × D × H	Ltr
17 41 44	275 × 190 × 530	19	**17 41 45**	365 × 255 × 595	36

Wastebaskets
(Waste Tubs)

Papeleras くずかご 废纸篓

Baskets can be furnished in plastic or galvanized steel type.



Plastic



Galvanized



Galvanized with Lid

Unit Per Pc.

CODE	Material	Size mm	
		Diam.	Height
17 41 46	Plastic	230	290
49	Galvanized	190	240
50	"	220	290
17 43 99	Galvanized with lid	220	240

Pedal Flip Waste Baskets

Tacho de Basura de Ceremonia de Pedal
ペダル式ごみ箱 脚踏式垃圾筒

The lid will be flipped by stepping on the pedal. Made of stainless steel.



Unit Per Pc.

CODE	Diam.× Height mm	Ltr	CODE	Diam.× Height mm	Ltr
17 41 51	168 × 250	3	**17 41 40**	460 × 710	50
52	205 × 290	5	**17 44 11**	300 × 730	80
53	250 × 395	12	**12**	450 × 810	120
54	290 × 445	20			

Pedal Flip Waste Basket with Extra Inner Bucket

Furnished an extra inner galvanized iron bucket with metal handle for easier throwing out the garbage.



17 41 55	Waste basket, pedal flip, stainless steel, with extra inner galvanized iron bucket, 12 ltr	Pc.

Garbage Cans/Pails with Cover

Cubos de Basura con Tapa ポリペール、ポリバケツ蓋付 帯盖垃圾桶

For collecting any type of garbage from galley, pantry, etc. Made of strong plastic which is easy to keep clean. Three types, a large round type, rectangular base type and a pail like type are available. They are equipped with a lock tight cover to avoid odors from escaping. Galvanized type is also available.



Rectangular Base



Pail like



Large Round



Galvanized

Plastic

Unit Per Pc.

CODE	Type	Capacity Ltr	Size mm
17 41 65	Rectangular Base	31.5	383 × 256 × H464
56		35	375 × 260 × H570
66		42	416 × 278 × H504
67		53	449 × 301 × H545
68		74	503 × 338 × H604
17 41 57	Pail like	22	Φ355 × H340
58		25	Φ370 × H370

(to be continued)

Unit Per Pc.

CODE	Type	Capacity Ltr	Size mm
17 41 59	Large Round	22	Φ340 × H350
60		35	Φ400 × H420
61		45	Φ460 × H560
62		70	Φ490 × H580
63		90	Φ530 × H600
64		120	Φ580 × H700
17 44 01	Gavanized	8	Φ220 × H275
02		18	Φ300 × H310
03		35	Φ360 × H370
04		62	Φ430 × H470
05		80	Φ470 × H520
06		120	Φ470 × H810
07		200	Φ600 × H800

Garbage Containers with Wheels

Recipientes de basuras con ruedas
車輪付き大容量ゴミ箱　大容量带轮垃圾箱

Made of durable polyethylene container or galvanized steel with wheels for transporting waste easier. Various colours are available for garbage separation.



Polyetylene



Galvanized

Polyetylene

Unit Per Pc.

CODE	Ltr	Colour	CODE	Ltr	Colour	CODE	Ltr	Colour
17 41 30	120	Green	17 43 80	660	Yellow	17 43 85	1,100	Yellow
02	240	Yellow	81	"	Blue	86	"	Blue
05	"	Blue	17 41 39	"	Green	87	"	Green
06	"	Green	17 43 82	"	Red	88	"	Red
09	"	Red	83	"	Black	89	"	Black
10	"	Black	84	"	Brown	90	"	Brown
12	"	Brown						

Galvanized

Unit Per Pc.

CODE	Ltr	Colour	CODE	Ltr	Colour
17 43 91	240	Metal	17 43 95	240	Yellow
92	660	"	96	"	Blue
93	1,100	Metal (flat lid)	97	"	Green
94	1,199	Metal (dome lid)	98	"	Red

Dollies

for Garbage Can

Las plataformas móviles para la basura pueden
ごみバケツ用運搬台　垃圾桶搬运车



Easy loading and handling for round garbage can due to three swivel casters. Made of steel, and rimmed frame prevents garbage can slipping off.

Unit Per Pc.

CODE	For Garbage Can		CODE	For Garbage Can	
	Diam. × Height mm	Ltr		Diam. × Height mm	Ltr
17 43 61	360 × 141	45	17 43 64	440 × 171	90
62	370 × 141	60	65	500 × 171	130
63	410 × 141	75			

Plastic Bags

for Garbage Disposal

Bolsas de Plástico para Basura
ポリ袋　垃圾处理用塑料袋



Polythene bag for garbage disposal. Available in a transparent type and black or blue coloured type.

Unit Per Pkt.

CODE	Colour	Size mm	Shts per Pkt.
17 41 71	Transparent	250 × 350	50
72		320 × 380	50
73		520 × 600	10
74		650 × 850	10
75		800 × 900	10
17 41 69	Black	30" × 34"	50
76		500 × 400 × 1,300	50
17 43 04		450 × 500	50
05		760 × 990	50
06		800 × 1,100	50
07		950 × 1,100	20
08		920 × 1,220	1
17 43 09	Blue	30" × 34"	50
10		500 × 400 × 1,300	50

Disposable Paper Bags

Bolsa Desechable de Papel
使い捨て紙袋　一次性纸袋



Bags suitable for storage and refuse disposal. Made of a strong bond ply which withstands tearing and water seepage.

17 41 77	Paper bag, resin coated, 25 ltr 370 × 650 × 125 mm	Pc.

Marine Refuse Sacks

Sacos de Basura (Marino)
生分解性ゴミ袋　生物分解垃圾袋



Paper

Plastic

Convenient, disposal sacks which are biodegradable and therefore in compliance with the international ban on the dumping of plastics.

* Fit conveniently into all standard sized waste bins.
* Are resistant to both water and wet waste for short periods.
* Are a natural product made of 100 % degradable material.

Biodegradable Paper

Unit Per Pkt.

CODE	Size mm	Shts/ Pkt	CODE	Size mm	Shts/ Pkt
17 41 79	525 × 500	50	17 41 80	700 × 1,100	50

Biodegradable Plastic

Unit Per Pkt.

CODE	Size mm	Shts/ Pkt	CODE	Size mm	Shts/ Pkt
17 42 04	525 × 500	50	17 43 28	800 × 900	50
17 42 10	320 × 380	50	17 41 90	700 × 1,100	50
17 41 89	525 × 500	50	17 43 29	920 × 1,220	50

Plastic Bags

Bolsa de Plástico　ポリ袋　塑料袋



Plastic Bag with Fastener

Ordinary transparent plastic bag with fastener which can be easily sealed by sliding over the bag opening between thumb and forefinger. Helps prevent the articles inside from becoming damp and dusty.

Unit Per Pkt.

CODE	Width × Depth mm	Per Pkt	CODE	Width × Depth mm	Per Pkt
17 41 81	85 × 120	200's	**17 41 85**	170 × 240	100's
82	100 × 140	"	**86**	200 × 280	"
83	120 × 170	100's	**87**	240 × 340	"
84	140 × 200	"	**88**	280 × 400	"

Plastic Bag for Food Preservation



Transparent plastic bag for preserving meats, fishes or vegetables individually. No fastener is furnished.

Unit Per Pkt.

CODE	W × L mm	Per Pkt	CODE	W × L mm	Per Pkt
17 41 91	100 × 190	100's	**17 41 96**	200 × 300	100's
92	120 × 230	"	**97**	230 × 340	"
93	130 × 250	"	**98**	260 × 380	"
94	150 × 250	"	**99**	280 × 410	"
95	180 × 270	"			

Plastic Bags Biodegradable with Fastener

Made from biodegradable materials, harmless to the human body and environmentally friendly.

Unit Per Pkt.

For Regular Reservation			For Food Reservation		
CODE	W × L mm	Per Pkt	CODE	W × L mm	Per Pkt
17 42 25	180 × 170	50's	**17 42 64**	120 × 230	100's
35	280 × 270	50's	**66**	150 × 250	100's
			67	200 × 300	50's
			99	200 × 300	100's
			17 43 00	250 × 350	50's

27. Foils & Roll Papers

Cooking Foil

Film de Aluminio para Cocinar
クッキングホイル　炊事箔



Thin aluminium foil sheet for wrapping foods for cooking and refrigerator storage. Each roll has a serrated cutter attached to cut sheets of foil to the required length.

17 42 01	Aluminium cooking foil 300 mm × 25 mtr	Pc.
02	" 450 mm × 30 mtr	"
03	" 450 mm × 150 mtr	"

Cellophane Wrapping Foil

Film Transparente　サランラップ　包装箔



A thin cellophane foil for wrapping any type of food for refrigerator storage. Will keep the food fresh and prevent it from odor when storing. Each packet is equipped with a self cutter.

Unit Per Pc.

CODE	Width × Length mm × mtr	CODE	Width × Length mm × mtr
17 42 06	300 × 20	**17 42 08**	450 × 50
07	300 × 50	**05**	450 × 500
		09	450 × 600

Eco-Friendly Type

Made from eco-friendly materials such as bio-degradable or biomass.

17 42 21	Wrapping foil eco-friendly 450 mm x 300 mtr	Pc.
22	Wrapping foil eco-friendly 450 mm x 600 mtr	"

Wax Paper

Papel Encerado　シーパーラップ　蜡纸



Wax paper for keeping food, especially in refrigerators, without damaging freshness, taste, cleanliness and the vitamin content of the food. Each packet is equipped with a self cutter.

17 42 11	Wax paper, 300 mm × 20 mtr	Pc.

Cooking Paper

Papel para Cocinar
クッキングペーパー　炊事纸



Made from pulp and used for keeping raw meat or raw fish more fresh by wrapping. Also applicable for draining oil from fried foods laying under, or filtering soup.

CODE	W × L	Unit
17 42 12	300 mm × 20 mtr	Rls
17 42 13	265 mm × 240 mm × 80 cuts/Roll	2 Rls/Pkt
14	380 mm × 240 mm × 75 cuts/Roll	"

Foil Dispensers

Dosificadores de papel de plata
フォイルディスペンサー　铝箔盒



Dispenser for plastic wrap and aluminum foil. Stores easily and tangle-free food wrapping by sharp blade cutter furnished on the edge of the dispenser. Holds up to 300 mm width or 500 mm width foil.

Unit Per Pc.

CODE	For Foil Width mm	Size mm	Material
17 43 71	300	364 × 238 × 162	Plastic
72	500	555 × 210 × 175	Stainless steel

Grease Proof Papers

Papel Parafinado　パラフィン紙　防油包装纸



Paraffin waxed paper for wrapping greasy food-stuffs.

17 42 15	Grease proof paper 764 × 1,070 mm 100's/pkt	Pkt.

Teflon Baking Sheets

Semillas de Teflón ベーキングシート
特氟纶烘烤片



Made of very thin teflon sheet with thickness approx. 75μ. Suitable for use in baking to prevent sticking bread or cake over the bake pan.

Size mm	Sheet	10 sheets/Pkt.
280 × 240	17 42 16	17 42 26
385 × 300	17	27
495 × 350	18	28

Tissue Paper

Pañuelos de Papel
ティシュペーパー 纸巾



Economy size tissue paper. 200 shts of folded tissue, ready to take out, in one box. Size: 120 × 252 × 82 mm.

17 42 20	Tissue paper economy size	Box

Eco-Friendly Tissue Paper

Pañuelos de Papel Ecológicos
エコフレンドリーティッシュペーパー
环保纸巾盒



Made from 100% recycled paper pulp, no fluorescent bleach is added, designed to protect environmental resources. Ecologo mark acquired product.

17 43 30	Tissue paper eco-friendly	Box

Paper Towels

Toalla de papel ペーパータオル
纸毛巾



Fold Type Paper Towel

Single fold type disposable paper towel. Sheet size is 230 mm length × 220 mm width, packed in 100 shts.

17 42 23	Paper towel, single fold, 220 × 230 mm, 100's/pkt	Pkt.

Dispenser for Fold Type Paper Towel

Strong plastic or stainless steel made container for folded paper towels. Towel size is 230 × 220 mm.



Plastic



Stainless Steel

Unit Per Pc.

Plastic			Stainless Steel		
CODE	Size mm	Capacity	CODE	Size mm	Capacity
17 42 24	250 × 145 × 138	300's	17 42 29	261 × 135 × 135	300's
			30	296 × 140 × 320	600's

Roll Type Paper Towel

Separated into easy tear sections with perforated lines.



CODE	Paper towel, rolled	Unit
17 42 31	W200 mm × L137 mtr, 12's/C/S	C/S
17 42 34	W280 mm × L11 mtr	Rls
17 42 32	W280 mm × L14 mtr	Rls
17 42 33	W228 mm × L17.6 mtr , 2 Rols/Pkt	Pkt.

Holder for Roll Type Paper Towel

Plastic holder for rolled paper towel.



17 42 36	Holder for paper towel rolled plastic 200 mm	Pc.
17 42 37	Holder for paper towel rolled plastic 280 mm	"
17 42 19	Holder for paper towel rolled steel 280 mm	"

Ecologo Mark Product

Marca Ecologo Producto エコロゴマーク商品 Ecologo 标识产品

The EcoLogo program is one of North America's most respected environmental leadership certification programs. To earn the EcoLogo mark, tissue products must demonstrate significantly reduced environmental impact among five key lifecycle based criteria: resource consumption, energy consumption, wastewater quality, aquatic toxicity and solid waste.

Fold Type Paper Towels



Trifold Paper Towel with signature "Absorbency Pockets" that absorb a lot of water fast, for superior hand drying. Designed to increase 27% in water absorption and reduce waste in your work place (about 40% of post-consumer waste). Available in Economic type and Standard type, differences are thickness and basis weight (GSM). Meet EPA standard and are FSC-Certified.

Unit Per Box

CODE	Type	W × L	Sht/box
17 42 38	Economic	196 × 240 mm	250
39	Standard		

Roll Type Paper Towels



Roll Paper Towel with signature "Absorbency Pockets" which designed to increase 27% in water absorption and reduce waste in your work place. (about 40% of post-consumer waste).

With high capacity in one dispensing enables to reduce maintenance time, run-outs complaints. Available in Economic type and Standard type, differences are thickness and basis weight (GSM). Meet EPA standard and are FSC-Certified.

Unit Per Box

CODE	Type	W × L	Roll/box
17 42 40	Economic	200 mm × 180 mtr	6
48		200 mm × 300 mtr	
17 42 49	Standard	200 mm × 160 mtr	6
50		200 mm × 180 mtr	

Paper Towel Dispensers for Ecologo Paper Towel



Fold Type



Roll Type

Unit Per Pc.

CODE	Type	Capacity	Size (mm)
17 42 54	Fold Type	500 sheets	333 × 384 × 145
55	Roll Type	Up to 300 mtr/roll	321 × 259 × 410
59	Roll Type	Up to 180 mtr/roll	321 × 180 × 340

Toilet Paper

Papel Higiénico　トイレットペーパー　卫生纸

A soft, economy size paper.
100 rolls in one case.

CODE	Number of Plies	Size		Contents	Unit
		Width mm	Length mtr		
17 42 41	1	114	45	100's	C/S
17 42 42	2	114	32.5	4's	Pkt
44	2	"	"	100's	C/S
43	2	"	"	120's	"

Toilet Paper Holders

Porta-rollo de Papel Higiénico　トイレペーパーホルダー　卫生纸支架



17 42 45 Metal



17 42 46 Stainless Steel



17 42 47 Plastic

Unit Per Pc.

CODE	Specification
17 42 45	Metal paper holder, 132 × 90 mm
17 42 46	S. Steel paper holder, 130 × 75 mm
17 42 47	Plastic paper holder, 146 × 70 mm

28. Cabin Cleaning Equipment

Toilet Brushes

Escobillas de W.C.
トイレットブラシ
盥洗室刷子

Sanitary bowl brushes shaped to clean easily under the toilet rim.



Coir



Nylon



Nylon w/ Holder



Nylon/S. Steel Holder

17 42 51	Toilet brush, coir	Pc.
52	Toilet brush, nylon	Pc.
53	Toilet brush, nylon with holder	Set
60	Toilet brush with stainless steel holder	Set

Toilet Plungers

(Plumber's Friends • Force Cups)

Desatascadores de W.C.　ラバーカップ　盥洗室橡皮揣子

A rubber cup with plastic handle for general use. Available two types for western style water closet or Japanese style water closet.



For Japanese Style

For Western Style

Unit Per Pc.

CODE	For Water Closet	Cup Diam. mm
17 42 56	Japanese style	130
57	"	160
17 42 58	Western style	165

Snake Wire Pipe Cleaners

Desatascadores de Tuberia　パイプ清掃機
绳索包皮线管清扫器



Ideal for use on clogged pipes, etc. A snake like flexible coiled non-corrosive 6 mm diam. steel wire with 17 mm diam. spiral head will remove any obstacles. Two sizes of wire length available.

17 42 61	Pipe cleaner, 6 mmφ × 5 Mtr	Pc.
62	" , 6 mmφ × 10 Mtr	"

Hand Snaps

Snaps de Mano　ハンドスナップ　手用抹布



Made of soft white yarn, and used for cleaning or wiping as duster.

17 42 65	Hand snap	Pc.

Yacht Mops

Fregonas　ヨットモップ　游艇抹布





Made of soft white yarn and fastened to the handle end. For preventing cross contamination of different areas, various colours of replaceable heads are available for sanitary management. Length overall is 1,580 mm.

Unit Per Pc.

CODE	Description	Colour
17 42 71	Yacht mop complete	White Yarn
17 42 72	Replaceable head for yacht mop	White
73	"	Red
74	"	Blue
78	"	Yellow
79	"	Green

Spring Clamp Mops

Fregonas con Pinza　スプリングモップ　弾簧夹式抹布

Quick-way type spring clamp eliminates cutting or untangling. Merely slide off the old mop head and slide on the new one, takes just seconds.





17 42 75	Mop complete with spring clamp handle	Pc.
76	Spring clamp mop handle only	"
77	Spring clamp mop head only	"

Mopping Pails with Strainer

Cubos de Fregar con Colador
ストレーナー付きモップバケツ　帯过滤器的拖布桶

A mopping bucket comes with a strainer made with plastic. The strainer helps to trap big particles or debris that the mop caught and dispose them easily.



Complete Set



Mopping Pail



Strainer

17 42 68	Mopping pail with strainer, complete	Set
69	Mopping pail 290 x 320 x 250 mm (15 Ltr)	Pc.
70	Strainer 265 mm	Pc.

Wringer Mop Buckets

Cubos de Fregonas con Escurridor　モップバケツ　抹布绞拧桶

A handy foot pedal device to wring out the mop without bending over. The size is 330 x 340 x 280 mm made of hard plastic or galvanized steel with a steel wringer frame. For preventing cross contamination of different areas, various colours are available for sanitary management.



Plastic



Steel

Unit Per Pc.

CODE	Material	Size (mm)	Colour
17 42 80	Plastic	330 × 340 × 280	-
81			Blue
82			Green
83			Red
84			Yellow
85			White
17 42 98	Steel	285 × 475 × 370	Galvanized

Floor Wipers

Abrillantador de Suelos / Barredora
フィトルモップ　地板拖布

Large mop to sweep dust or wipe up water from floors. Furnished with long handle.



Unit Per Pc.

CODE	17 42 86	17 42 87	17 42 88	17 42 89
Mop Width	240 mm	400 mm	540 mm	860 mm

Rubber Squeegees

Limpia-cristales　水切りモップ　橡胶拖布

Designed for squeezing water off windows, glasses, cabin floors, etc. Available in 3 different blade widths. All types furnished with a 1,200 mm plastic handle.



Refill Blades



Unit Per Pc.

CODE	17 42 91	17 42 92	17 42 93
Blade Width	330 mm	400 mm	480 mm

Refill Blades for Squeegee

Unit Per Pc.

CODE	17 42 90	17 42 94	17 42 95
For Blade Width	330 mm	400 mm	480 mm

Sponge Mops

with Spring Handle

Fregonas de Espoja con Mango　スポンジモップ　海绵拖布

Designed for cleaning galleys and accommodations. To rinse the mop, simply wet the sponge and press the spring lever handle. Sponge width is 180 mm.



17 42 96	Sponge mop with spring handle	Pc.
97	Spare sponge for sponge mop	"

29. Smoking Goods

Safety Matches

Cerillas　マッチ　安全火柴

Contains 12 small boxes in one packet and 100 packets per carton.



17 43 01	Match, safety, 12's/pkt	Pkt.

Economy Safety Match

King size economical match box for domestic use. One box contains about 900 sticks.



17 43 03	Match, safety economy	Box

Ash Trays

Ceniceros 灰皿 烟灰缸

Available in various types from various materials. Most common types are shown below.


Glass Round


Plastic Plain


Plastic Ronson


China Plain


S.S. Plain


S.S w/Cover


S.S. Non Slip


S.S Divide & Drop

Unit Per Pc.

CODE	Description	Diam. mm
17 43 11	Glass round, small	160
12	Glass round, large	185
17 43 13	Plastic plain	145
20	"	180
17 43 14	Plastic Ronson individual	99
17 43 15	China plain	160
17 43 16	Stainless steel plain	160
17 43 17	Stainless steel with cover	160
21	"	200
17 43 18	Stainless steel non slip (Rubber pad)	154
22	"	190
17 43 19	Stainless steel divide & drop	120

Ash Stands

Ceniceros de pié

スモーキングスタンド 烟灰架

From among various types, the most common types of stainless steel models are shown.


Pedestal


Funnel

17 43 25	Pedestal type ash stand, stainless steel, D 260 × H 535 mm	Pc.
17 43 26	Funnel type ash stand, stainless steel, D 180 × H 500 mm	"

30. Flower Vases

Flower Vases

Floreros 花瓶 花瓶

Available in many types of many sizes and materials. When ordering, please specify type, material and size.

How to order: 17 - 43 - 31

Flower vase, material x type x size


Glass


Ceramic

31. Rat Traps, Fly Swatters

Rat Traps

Ratoneras

ネズミ取り

老鼠夹


Cage Type


Adhesive sheet type

17 43 52	Rat trap cage type	Pc.
53	Rat trap ahesive sheet type	"

Fly Swatters

Matamoscs 蝿たたき 苍蝇拍



Handle and frame made of plastic with a metal net. Overall length is 550 mm.

17 43 56	Fly swatter overall length 500 mm	Pc.

Insect Killer Electric

Insecticida Eléctric 電撃殺虫機 电动杀虫剂



An electric insect killer which has electronically charged metal grid and kill flying insects with high voltage. No harmful for people. 110 V/220 V type and portable with battery operated type are available.

17 43 57	Insect Killer Electric Grid, 110V	Pc.
58	Insect Killer Electric Grid, 220V	"
59	Insect Killer Electric Grid, Battery Type	"

32. Electric Cooking Applicances

Home Electrical Appliances

Hornilos Eléctricos 家電用品 家用电器

As a wide variety of models from different manufacturers are available, it is almost impossible to code all these models with their detailed specifications. For this reason coding has been done only for the model names and their respective voltages. In some cases the capacity has also been coded. When ordering, please write for more details or ask our representatives for product catalogues or other information.

Electric Hot Plates

Element Covered

Hornillos Elétricos

電気コンロ 电气平地锅



An electric warmer or portable buffet range. Element is covered by steel plate with natural mica as a protector. Rated capacity: AC 110 V × 1,200 W with a transformer for 300 W, 600 W, 1,200 W.

Unit Per Pc.

CODE	Watt	Voltage	CODE	Watt	Voltage
17 45 01	600W	110V	17 45 03	1,200W	220V
02	1,200W	"			

Electric Kettles

Teteras Eléctricos　電気湯沸し器
电热水壶



Cordless Kettle

A cordless electric pot for boiling water by swivel type power base. The pot can be removed and carried for serving hot water from the base.

Unit Per Pc.

CODE	Capacity	Voltage	CODE	Capacity	Voltage
17 45 04	1.5 Ltr	110V	**17 45 08**	1.5 Ltr	220V
05	1.7 Ltr	"	**09**	1.7 Ltr	"

Electric Kettles (Not Cordless)



Unit Per Pc.

CODE	Capacity	Voltage	CODE	Capacity	Voltage
17 45 11	2.1 Ltr	110V	**17 45 13**	2.1 Ltr	220V
12	3.5 Ltr	"	**14**	3.5 Ltr	"

Electric Thermo Pots

Ollas térmicas eléctricas
電気湯沸かし保温ポット
电热水瓶



Unit Per Pc.

CODE	Capacity	Voltage	CODE	Capacity	Voltage
17 45 21	2.2 Ltr	110V	**17 45 23**	2.2 Ltr	220V
22	2.4 Ltr	"	**24**	2.4 Ltr	"
25	3.0 Ltr	"	**26**	3.0 Ltr	"
27	4.0 Ltr	"	**29**	3.8 Ltr	"
28	5.0 Ltr	"			

Electric Coffee Makers

Cafeteras eléctricas
ドリップ式コーヒーメーカー
电动咖啡壶



Unit Per Set

CODE	Cups	Voltage	CODE	Cups	Voltage
17 45 31	4	110V	**17 45 34**	4	220V
16	5	"	**37**	5	"
17	6	"	**38**	6	"
32	8	"	**35**	8	"
18	10	"	**39**	10	"
33	12	"	**36**	12	"
19	40	"	**40**	40	"

Spare Decanters

for Electric Coffee Maker

Decantadores de repuesto para cafetera eléctrica
ドリップ式コーヒーメーカー用スペアデキャンタ　电咖啡壶的备用滗水器

Unit Per Pc.

CODE	Cup Size	CODE	Cup Size
17 45 41	4	**17 45 42**	8
67	5	**69**	10
68	6	**43**	12

Electric Coffee Percolators

Cafeteras Filtradoras Eléctricas
コーヒーパーコレーター　电热煮咖啡壶



Unit Per Pc.

CODE	Cups	Voltage	CODE	Cups	Voltage
17 45 46	7	110V	**17 45 47**	7	220V

Electric Espresso Machines

Cafeteras Espresso Eléctricas
エスプレッソマシン　电动浓缩咖啡机



17 45 48	Espresso Machine Electric, 110V	Set
49	Espresso Machine Electric, 220V	

Auto-Elect. Toasters

Tostadores Eléctricos
自動トースター　自动电烤炉



Automatic pop-up toaster. 2 slice or 4 slice toasters available in 110 or 220V power capacity. When ordering, please specify the toaster type and voltage required.

Unit Per Pc.

CODE	Slice	Voltage	CODE	Slice	Voltage
17 45 51	2	110V	**17 45 53**	2	220V
52	4	"	**54**	4	"

Electric Oven Toasters

Tostadores - Hornos Eléctricos
オーブントースター　电烤炉



Unit Per Pc.

CODE	Capacity	Voltage	CODE	Capacity	Voltage
17 45 55	850W	110V	**17 45 57**	850W	220V
56	1,000W	"	**58**	1,000W	"

Electric Blenders

Batidora Eléctrica
ミキサー　电力搅拌机



Unit Per Set

CODE	Capacity	Voltage	CODE	Capacity	Voltage
17 45 60	0.7 Ltr	110V	**17 45 63**	1.0 Ltr	220V
61	1.0 Ltr	"	**64**	1.4 Ltr	"
65	1.2 Ltr	"			
62	1.4 Ltr	"			
66	1.9 Ltr	"			

Elect. Juicers & Blenders

Licuadoras y Batidoras Eléctricas
電動ジューサーミキサー
电力榨汁器



Unit Per Set

CODE	Voltage	CODE	Voltage
17 45 71	110V	**17 45 72**	220V

Portable Universal Cooking Mixers

Robot Portátil Universal
卓上型万能調理器
便携式厨房用万能混合机



A quick and efficient portable cooking mixer suitable for preparing cake mix or making butter, soup, and sauce. This mixer also shreds and slices food with the use of interchangeable blade attachments, increasing the range of jobs one can do.

Specifications

Bowl Capacity	6.7 Ltrs
Mixing	Unique Revolving Action
R.P.M.	140-640 r.p.m.
Size	343.5 (H) × 274 (W) × 410 (D) mm
Weight	6.9 kg
Standard Accessories	S. Steel Mixing Bowl 6.7 Ltrs Whipper Whipper Wire (3 pcs) Aluminium Beater

When ordering, please specify the following points.

1) Bowl capacity, 6.7 ltr
2) Power source voltage, volt
3) Functions, if required specially.
4) Manufacturer's name
5) Model name

Unit Per Set

CODE	Voltage	CODE	Voltage
17 45 76	AC 110V	**17 45 77**	AC 220V

Optional Attachment

for Universal Cooking Mixer

Accesorio opcional para batidora universal
卓上型万能調理器用付属品　台式多功能炊具配件

How to order: CODE

NAME of ATTACHMENT for universal mixer with MANUFACTURER'S NAME and MODEL

Unit Per Pc.

CODE	Attachment	Illustration	Description
17 45 78	Liquidiser		1.2 ltr capacity of reinforced plastic goblet. Suitable for liquidizing, emulsifying, making purees, pulverizing, etc.
17 45 79	Mincer		For mincing. Supplied with cutters for fine or coarse mincing.
17 45 80	Slicer		For slicing vegetables. Furnished with 4 kinds of cutter plates.
17 45 81	Sausage Filler		To be used with mincer which is separately supplied. For making sausages
17 45 82	Cream Maker		For making delicious fresh cream or home-made ice cream.
17 45 84	Can Opener		For opening cans of any shape without leaving a jagged edge.

Electric Table Griddles

Parrila Eléctrica
テーブルグリドル
电力桌式平煎锅



Unit Per Set

CODE	Voltage	CODE	Voltage
17 45 91	110V	**17 45 92**	220V

Electric Grill Pans

Cacerolas Eléctricas
電気テーブル鍋　电力烧烤锅



For grilling, boiling or steaming foods. Provided with transparent glass lid.

Unit Per Set

CODE	Voltage	CODE	Voltage
17 45 93	110V	**17 45 94**	220V

Electric Thermo Jars

Sopera Eléctrica　電気ジャー　电力汤锅



Soup Jar

For keeping soups or potage hot by adjustable digital thermostat.

Unit Per Pc.

CODE	Voltage	Capacity	CODE	Capacity	Voltage
17 45 98	110V	4,5 ltr	**17 45 97**	220V	8 ltr
96	"	8 ltr			

Rice Jar

For keeping cooked rice hot.
No boiling mechanism furnished.



Unit Per Pc.

CODE	Voltage	Capacity	CODE	Capacity	Voltage
17 45 85	110V	4 ltr	**17 45 88**	220V	4 ltr
86	"	6 ltr	**89**	"	6 ltr
87	"	8 ltr	**90**	"	8 ltr

Electric Rice Cookers/Steamers

Cocedero Eléctrico de arroz (Hervidor)
電気炊飯器　电饭锅



Unit Per Set

CODE	Capacity	Cups
110V AC		
17 46 01	0.6 ltr	3.5
02	1.0 ltr	5.5
03	1.5 ltr	8.5
04	1.8 ltr	10.0
05	2.8 ltr	15.0
17 46 07	3.6 ltr	20.0
06	4.0 ltr	22.0
220V AC		
17 46 11	0.6 ltr	3.5
12	1.0 ltr	5.5
13	1.5 ltr	8.5
14	1.8 ltr	10.0
15	2.8 ltr	15.0
17 46 17	3.6 ltr	20.0
16	4.0 ltr	22.0

Elec. Rice Cookers/Warmers

Cocedero Eléctrico de arroz (Calentador)
自動炊飯保温器　電子保温飯鍋



Unit Per Set

CODE	Capacity Volume	Voltage	CODE	Capacity Volume	Voltage
17 46 21	1.0 ltr	110V	**17 46 24**	1.0 ltr	220V
22	1.8 ltr	110V	**25**	1.8 ltr	220V
23	2.2 ltr	110V	**26**	2.2 ltr	220V
29	2.7 ltr	110V	**30**	2.7 ltr	220V
27	3.6 ltr	110V	**28**	3.6 ltr	220V

33. Home Electrical Applicances

Electric Refrigerators

Frigorificos　冷蔵庫　电冰箱



Unit Per Set

CODE	Capacity	Voltage	CODE	Capacity	Voltage
17 46 31	48 ltr	110V	**17 46 41**	48 ltr	220V
32	70 ltr	110V	**42**	70 ltr	220V
33	100 ltr	110V	**43**	100 ltr	220V
34	140 ltr	110V	**44**	140 ltr	220V
35	170 ltr	110V	**45**	170 ltr	220V
17 46 36	200 ltr	110V	**17 46 46**	200 ltr	220V
37	230 ltr	110V	**47**	230 ltr	220V
38	260 ltr	110V	**48**	260 ltr	220V
39	300 ltr	110V	**49**	300 ltr	220V

Chest Freezers

Arcón congelador　冷凍ストッカー　冰柜

A cabinet type freezer for bulk storage of frozen items at proper storage temperatures with upper lockable lid.



Unit Per Set

CODE	Capacity Volume	Dimension mm (W × D × H)	CODE	Capacity Volume	Dimension mm (W × D × H)
AC 110 V			**AC 220 V**		
17 46 50	100 ltr	568 × 560 × 845	**17 46 54**	100 ltr	568 × 560 × 845
51	150 ltr	760 × 560 × 845	**55**	150 ltr	760 × 560 × 845
52	200 ltr	980 × 560 × 845	**58**	200 ltr	980 × 560 × 845
53	300 ltr	1,055 × 560 × 845	**59**	300 ltr	1,055 × 560 × 845

Ice Cube Makers

Máquinas de Fabricar Hielo
製氷機　制冰机



Unit Per Set

CODE	Voltage	CODE	Voltage
17 46 56	110V	**17 46 57**	220V

Water Fountains

Fuente de Agua Fría
ウォータークーラー　饮水机



Unit Per Set

CODE	Voltage	CODE	Voltage
17 46 61	110V	**17 46 62**	220V

Dish Washing Machines

Lavavajillas
食器洗い乾燥機　洗碗机



Unit Per Set

CODE	Voltage	CODE	Voltage
17 46 66	110V	**17 46 67**	220V

Electric Vacuum Cleaners

Aspiradoras Eléctricas
掃除機　电力吸尘器



Unit Per Set

CODE	Voltage	CODE	Voltage
17 46 71	110V	**17 46 72**	220V

Handy Vacuum Cleaners

Cyclone Type
(Centrifugal Separation)

The turbofan mounted on the head rotate and inhale floor dust powerfully. Dust extraction capacity: 0.3 ltr,. Weight : approx. 1.3 kg.



Unit Per Set

CODE	Voltage	CODE	Voltage
17 46 83	110V	**17 46 84**	220V

Carpet Shampoo Cleaners

Limpiadora Eléctrica de Alfombra
カーペット洗浄機　地毯冲洗机



Unit Per Set

CODE	Voltage	CODE	Voltage
17 46 76	110V	**17 46 77**	220V

Electric Floor Polishers

Pulidoras eléctricas
電気ポリシャー　电动地板抛光机



Unit Per Set

CODE	Voltage	CODE	Voltage
17 46 81	110V	**17 46 82**	220V

Electric Washing Machines

Lavodoras　洗濯機　电动洗衣机



Twin-Tubs

Unit Per Set

CODE	Voltage	CODE	Voltage
17 47 01	110V	**17 47 02**	220V

Full Automatic



Unit Per Set

CODE	Voltage	CODE	Voltage
17 47 06	110V	**17 47 07**	220V

Front Loading Type



Unit Per Set

CODE	Voltage	CODE	Voltage
17 47 08	110V	**17 47 09**	220V

Electric Laundry Dryers

Secadoras Eléctricas
乾燥機　干燥机



Unit Per Set

CODE	Voltage	CODE	Voltage
17 47 11	110V	**17 47 12**	220V

Electric Pressing Irons

Planchas Eléctricas
電気アイロン　电熨斗



Unit Per Pc.

CODE	Type	Voltage	CODE	Type	Voltage
17 47 21	Dry	110	**17 47 23**	Dry	220
22	Steam/Dry	110	**24**	Steam/Dry	220

Cordless Type

A cordless free style steam/dry iron with detachable water tank, which enables smooth natural movement in any direction.



Unit Per Pc.

CODE	Voltage	CODE	Voltage
17 47 25	110V	**17 47 26**	220V

Ironing Tables

Tablas de Planchar アイロン台 熨衣架



Ironing table with folding tubular steel support legs. The size of the table is about 1,310 mm x 400 mm with an adjustable height of 700 – 860 mm.

17 47 28	Ironing table, 1,310 × 410 mm height adjustable	Pc.

Electric Portable Sewing Machines

Máquinas de Coser Portátil
電動ポータブルミシン
电力便携式缝纫机



Unit Per Set

CODE	Voltage	CODE	Voltage
17 47 31	110V	**17 47 32**	220V

Needles and Threads

for Sewing Machine

Agujas e Hilos para máquina de coser
ミシン針・糸 縫纫机用针和线

Unit Per Pkt. Unit Per Rls.

Sewing Needle			Sewing Thread	
CODE	Needle Size	Pkt	CODE	Thread Length
17 47 41	9	10's	**17 47 51**	100 mtr
42	11	"	**52**	200 "
43	14	"	**53**	500 "
44	16	"	**54**	1,000 "
45	18	"		

Cabin Fans

Ventiladores de Cabina
船室用扇風機
船室用风扇机



Table



Wall

Unit Per Set

CODE	Type	Voltage	CODE	Type	Voltage
17 47 61	Table	110	**17 47 63**	Table	220
62	Wall	"	**64**	Wall	"

Electric Heaters

Radiador eléctrico 電気ヒーター 电加热器

Portable Heater

Suitable for spot heating, such as small cabin. Furnished with dual heat setting selector and humidifier.



Unit Per Set

CODE	Voltage	CODE	Voltage
17 47 71	110V	**17 47 72**	220V

Fan Heater

Suitable for spot heating, such as small cabin. More safety than the conventional bare heat element type heater and the furnace's fan will produce heated and efficient air.



Unit Per Set

CODE	Voltage	CODE	Voltage
17 47 75	110V	**17 47 76**	220V

34. Cooking Machines

Manual Meat Grinders

(Meat Mincers)

Picadora Manual de Carne
ミートチョッパー
手动绞肉机

This meat grinder fits easily to tables or counters by clamp or screws. Operated manually by rotating the grinder handle.



Clamp Type



Screw Down

Unit Per Pc.

CODE	Model No.	Outer Size mm	Plate Diam. mm	Knife Across Flats mm	Remark
17 50 01	5-A	210 × 81 × 255	53	46	Clamp type
02	10-A	300 × 107 × 300	69	61	"
03	12-A	300 × 119 × 168	69	61	Screw down
04	22	265 × 142 × 183	80	72	"
05	32	325 × 170 × 215	100	91	"

Meat Grinder Attachments

Repuestos para Picadora
ミートチョッパー部品
绞肉机附件

Spare knives and plates are available in various sizes for the aforementioned meat grinder.



Knife



Plate

Unit Per Pc.

Knife					
CODE	Model No.	Across Flat mm	CODE	Model No.	Across Flat mm
17 50 06	5-A	46	**17 50 09**	22	72
07	10-A	61	**10**	32	91
08	12-A	61			

(to be continued)

Unit Per Pc.

Plate

CODE	Model No.	Diam.mm	CODE	Model No.	Diam.mm
17 50 11	5-A	53	**17 50 14**	22	80
12	10-A	69	**15**	32	100
13	12-A	69			

Electric Meat Grinders

Picadora Eléctrica de Carne
電動ミートチョッパー　电动绞肉机



An electric motor driven meat mincing machine. The grinding fixture on this machine is covered by a tin plate for safety. A stainless steel feed pan, a wooden stomper, and a cutting knife and plate are provided with the unit.

Unit Per Set

CODE	Voltage	Mince Capacity kg per 10 min.	Watt	Size mm		
				W	D	H
17 50 23	110	10	95	310	165	385
17 50 24	110	12	300	480	180	360
25	220	"	"	"	"	"
17 50 26	220	25	750	580	240	430

Auto-Electric Ham Slicers

Cortadora Eléctrica de Fiambre
全自動ハムスライサー
全自动电动洋火腿切片机



Electric ham/meat slicer. The slicing thickness can be adjusted easily by turning a gauge screw. Makes about 3,200 slices per hour.

Dimensions:
Depth..... 520 mm　Height.....520 mm
Width ..... 460 mm　Weight ....61 kg

Unit Per Set

CODE	Voltage	CODE	Voltage
17 50 31	110V	**17 50 32**	220V

Electric Coffee Mills

Molinilos Eléctricos para Café
電動コーヒーミル　电动咖啡研磨机



This mill will grind approximately 800 grm of coffee beans per minute. The rotating burs can be adjusted by dial to vary the granule size. Supplied complete with a 1 kg plastic hopper.

Unit Per Set

CODE	17 50 42	17 50 43
Volt	AC 110V	AC 220V
Grinding Capacity	800 grm/min.	
Watt	640	
Hz	50/60	
R.P.M.	1,400/1,680	

(to be continued)

Amp	9.0/8.2
Size mm	W330 × D200 × H570
Weight kg	15

Electric Water Boilers

Calentador de Agua Eléctrica
電気湯沸し器　電熱水器



Square Type



Round Type

The body is made of stainless steel to keep clean water. One-touch temperature control system and automatic water supply system serves desirable hot water at any time. Available in two shapes, square and round type, and the square type is suitable for wall mounting. A water level gauge and a thermometer are furnished at the prominent position on the tank. Please ask to your local dealers for more details.

Unit Per Set

CODE	Water Capacity	Size mm W x D x H	Wattage	Voltage	Weight kg
Square Type					
17 50 71	10 Ltr	310 x 190 x 430	1 kW	AC 220/110 V	10
72	20 Ltr	301 x 190 x 515	2 kW	1/3 Ph	11
Round Type					
17 50 73	10 Ltr	240 x 240 x 460	1 kW	AC 220/110 V	5
74	20 Ltr	300 x 300 x 520	2 kW	1/3 Ph	6

Portable Gas Cooking Stoves

Cocina de gas portátiles
カセットコンロ
卡司炉





Butane Fuel

An economical, highly efficient portable gas cooking stove. A portable gas stove is fueled by a self-contained canister of butane fuel. The butane fuel is separate order.

Unit Per Pc.

CODE	Head Output	Size mm W × D × H	Weight
17 50 78	3 kW	336 × 270 × 100	1.6 kg
17 50 79	Butane fuel	68 diam × 198h	250 grm

Microwave Ovens

Microondas　電子レンジ　微波炉



Time saving automatic cooking oven by microwave feeding system. Available in various capacity and functions by each model. Please ask more information through local distributor.

Unit Per Pc.

CODE	Capacity Volume	Voltage	CODE	Capacity Volume	Voltage
17 50 90	17 Ltr	110 V	**17 50 95**	17 Ltr	220 V
91	20 Ltr	110 V	**96**	20 Ltr	220 V
92	23 Ltr	110 V	**97**	23 Ltr	220 V
93	28 Ltr	110 V	**98**	28 Ltr	220 V
94	34 Ltr	110 V	**99**	34 Ltr	220 V

Universal Kitchen Machines

Robos de Cocina "Universal" 万能調理器 万能厨房用机器



A heavy duty electric mixer with a wide variety of applications. Different mixer attachments allow you to prepare different kinds of foods through fine cutting, stirring, mixing, or mincing. The mixer can operate in four speeds and is designed so that all the ingredients in the bowl are mixed evenly.

Furnished with a meat chopper, mixing bowl, wire whip, flat beater, and anchor hook as standard accessories. When ordering, please specify the power source capacity required.

Standard Accessories



Wire Whip



Flat Beater



Anchor Hook

17 51 01	Universal kitchen machine 1) Electric source 2) Capacity	Set

Electric Cooking Range

Cocinas para Uso Mrino

船用電気レンジ 船用电气炉灶



Cast iron hob with heavy duty hotplate. Each hotplate is individually governed by a rotary switch. Oven controlled by direct acting thermostat with reinforced drop down door. All stainless steel finish, and oven has removable shelf hanger and easy clean chamber.

Various manufacturers and brands are available from around the world, and products from one of famous manufacturers are listed for your reference. Please ask for further information with brochures of various models from local manufacturers or suppliers when ordering.

How to order: 17 - 51 - 21

Cooking range, electric

1) *Voltage*
2) *Number of hotplates and electric capacity*
3) *Number of ovens and electric capacity*
4) *Size (If space is limited)*

Unit Per Set

CODE		17 51 22
Numbers of Hot Plate		3
Usable Oven Capacity		W: 600 × D: 530 × H: 325 mm
Oven Shelf Size mm		650 × 530
Oven Rating (kW)		5.5
Hob Burner Rating (kW)		10.5
Standard Electric Supply		400-415V 3 ~ N/50 Hz
Dimensions mm	W	900
	D	850
	H	900
Weight (kg)		227

Electric Cooking Oven

Hornos Eléctricos - Uso Marino

船用電気オーブン 船用电气烘烤炉



Double hinged door with long-lasting heavy duty hinges. Oven controlled by direct acting thermostat. Stainless steel exterior finish allows easier cleaning, and oven has removable shelf hangers and easy clean chamber.

Various manufacturers and brands are available from around the world, and products from one of famous manufacturers are listed for your reference. Please ask for further information with brochures of various models from local manufacturers or suppliers when ordering.

How to order: 17 - 51 - 40

Cooking oven, electric

1) *Voltage*
2) *Number of tier*
3) *Oven capacity Size*
4) *Size (If space is limited)*

Unit Per Set

CODE		17 51 42	17 51 43
Numbers of Tier		Single	Double
Oven Rating (kW)		5.5	11 (5.5 × 2)
Usable Oven Capacity W × D × H mm		650 × 530 × 325	650 × 530 × 325
Oven Shelf Size W × D mm		650 × 530	650 × 530
Standard Electric Supply		400-415V 3 ~ N/50 Hz	
Electric Connection Requirement		1 Phase	1 Phase (×2)
Dimensions mm	W	900	900
	D	850	850
	H	900	1,740
Weight (kg)		150	150

Electric Boiling Table

Mesa Eléctrica 電気湯沸しテーブル

电热炉



Cast iron hob with heavy-duty hotplates. Each hotplate is controlled by individual rotary control. All stainless steel exterior allows easier cleaning, and oven has removable shelf hangers and easy clean chamber.

Various manufacturers and brands are available from around the world, and products from one of famous manufacturers are listed for your reference. Please ask for further information with brochures of various models from local manufacturers or suppliers when ordering.

How to order: 17 - 51 - 50

Boiling table, electric

1) *Voltage*
2) *Number of boiling table*
3) *Size (If space is limited)*

Unit Per Set

CODE		17 51 51
Numbers of Boiling Table		3
Electric Rating (kW)		10.5
Standard Electric Supply		400-415V 3 ~ N/50 Hz
Dimensions mm	W	900
	D	850
	H	900
Weight (kg)		150

Electric Fryers

Freidora Eléctrica　電気フライヤー　船用电炸锅



A wide range of single, double and twin pan options are available. High power elements with rapid recovery time give high volume output. Oil lasts longer as sediment zone with lift-out strainer prevents build-up of carbon and debris. Electronically controlled operating thermostat with overriding safety thermostat. Power on and operational temperature indicator, basket straining support bar.

Various manufacturers and brands are available from around the world, and products from one of famous manufacturers are listed for your reference. Please ask for further information with brochures of various models from local manufacturers or suppliers when ordering.

How to order: 17 - 51 - 61

Fryer, electric

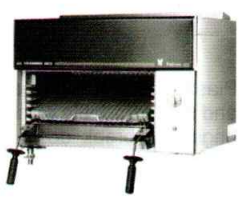
1) *Voltage*
2) *Oil capacity (ltr)*
3) *Electric capacity (kW)*
4) *Size (If space is limited)*

Unit Per Set

CODE		17 51 62	17 51 63	17 51 64
Number of Pan Fryer		1	1	2
Oven Capacity (ltr)		15	24	30 (15 × 2)
Hourly Chip Output (kg)		27	54	54 (27 × 2)
Electric Rating (kW)		17.7	35.75	35.4
Standard Electric Supply		400-415V 3 ~ N/50 Hz		
Dimensions mm	W	300	600	600
	D	850	850	850
	H	900	900	900
Weight (kg)		64	92	116

Electric Steakhouse Grill

Plancha Eléctrica
ステーキ用電気グリル　烧烤箱



Designed to be wall mounted or positioned upon legs on a suitable working surface. Stainless steel exterior with easy clean interior linings, oil collector moves with brander.

Various manufacturers and brands are available from around the world, and products from one of famous manufacturers are listed for your reference. Please ask for further information with brochures of various models from local manufacturers or suppliers when ordering.

How to order: 17 - 51 - 70

Steakhouse grill, electric

1) *Voltage*
2) *Electric capacity (kW)*
3) *Size (If space is limited)*

Unit Per Set

CODE		17 51 71	17 51 72	17 51 73	17 51 74
Electric Rating (kW)		3	4	5.5	7.5
Standard Electric Supply		230V ~ 50 Hz			400-415V 3 ~ N/50 Hz
Dimensions mm	W	580	785	700	900
	D	330	330	540	540
	H	325	325	500	500
Weight (kg)		29	31	49	77

Dish Washers

for Marine Use

Lavavajillas Eléctricas - Uso Marino
船用食器洗浄機　船用洗碗机



Suitable for washing dishware, glassware, and cutlery. Available in various types such as the corner type, straight type, and front open type. However, the most popular type is the undercounter, or free standing front door type (shown in the illustration). When ordering, please specify the points listed below:

How to order: 17 - 51 - 81

1) *Name of machine*
2) *Voltage*
3) *Type*
4) *Used with hot water or cold water*
5) *Washing capacity (Rack/hour)*
6) *Size (If space is limited)*
7) *Further details if any*

For example

17 51 81	Electric dish washer. AC 220V, 3Φ phase undercounter for use with hot water, max height: 1,000 mm	Set

Standard rack size is 502 x 502 mm, but it depends on the model. For a standard space rack, please refer to code 17-29-85 and so on.

35. Large Volume Laundry Machines

Washer Extractors

Front Load

Lavadora con Centrifugadora　脱水洗濯機　船用洗衣机

Various manufacturers and brands are available from around the world, and products from one of famous manufacturers are listed for your reference. Please ask for further information with brochures of various models from local manufacturers or suppliers when ordering.

How to order : CODE

Washer extractor, front load, 110V or 220V with further details:

1) *Name of brand*
2) *Washing capacity (kg)*
3) *Size (If space is limited)*



Unit Per Set

CODE	Voltage	CODE	Voltage
17 55 20	110V	**17 55 22**	220V

Washing Capacity (kg)		7.5	8.5	10.5	13	18	25	33
Drum Capacity (ltr)		75	85	105	130	180	250	330
Revolution (r.p.m.)		528	528	494	494	471	446	427
Motor (kW at 60 Hz)		0.55	0.9	0.9	1.3	1.3	2.0	2.2
Electric Consumption (kW)		0.1	0.136	0.14	0.17	0.177	0.38	0.52
Outer Dimensions mm	W	660	660	720	720	750	830	910
	D	690	730	705	790	880	955	1,040
	H	1,115	1,115	1,200	1,200	1,325	1,410	1,445
Weight (kg)		130	136	160	175	228	287	330

Tumble Dryers

Secadora de Tambor
回転式乾燥機　船用干燥机

Various manufacturers and brands are available from around the world, and products from one of famous manufacturers are listed for your reference. Please ask for further information with brochures of various models from local manufacturers or suppliers when ordering.



How to order : CODE

Tumble dryer, 110V or 220V with further details:

1) *Name of brand*
2) *Drying capacity (kg or lbs)*
3) *Size (If space is limited)*

Unit Per Set

CODE	Voltage	CODE	Voltage
17 55 40	110V	**17 55 42**	220V

Drying Capacity (kg)		5.5	11	16	13.5	23
Drum Capacity (ltr)		130	250	349	286	528
Motor (kW at 60 Hz)		0.2	0.5	0.5	0.37	0.37
Electric Consumption at 60 Hz		5.5	0.75	0.9	0.32	0.8
Outer Dimensions mm	W	595	790	790	710	960
	D	735	900	1,120	1,120	1,180
	H	850	1,740	1,740	1,880	1,995
Weight (kg)		51	185	204	220	332

36. Garbage Disposers

Can Crushers *(Can Compactors)*

Compactadoras de Lata
空き缶処理機　开罐机

Units designed to crush cans before recycling or disposal. Electric or manually operated models are available.



Manual



Electrical

Machines of various capacities are available. When ordering, please specify the model name, the capacity (number of cans crushed per hour), and the dimensions of the machine if space is limited.

Unit Per Set

Manual Operation		Electrical Operation	
CODE	Material	CODE	Voltage
17 55 71	Steel	**17 55 73 74**	AC 110V AC 220V

Garbage Compactors

Compactadoras de Basura　ゴミ圧縮機
垃圾压缩机

An efficient, mobile compactor essential for marine use. It compacts refuse into small, easy to accommodate packages, drastically reducing the need to dump refuse at sea. A hydraulic pump unit creates high compaction forces at low amperage.

The machine cubes general wastes, bales paper, cardboard, bags, and light weight mixed wastes, and boxes organic waste. The inner and outer cabinet linings are made of stainless steel to resist corrosion.



Machines of various capacities are available. When ordering, please specify the model name, the capacity (volume of refuse), and the dimensions of the machine if space is limited.

17 55 84	Garbage compactor, AC 110V with further details	Set
85	Garbage compactor, AC 220V with further details	"

Accessories for Garbage Compactor

Accesorios para el Compactador de Basuras
生ゴミ圧縮機用付属品
垃圾压缩机配件



Plastic bags for garbage compactor. Both regular plastic bags and biodegradable plastic bags are available. Biodegradable bags can break down naturally and more environmentally friendly.

CODE	Name	Capacity of Garbage	Unit
17 55 86	Plastic	70 ltr	Pc.
90	Biodegradable	70 ltr	Pc.

Full Name of Abbreviations

A	AED	Automated External Defibrillator
	AIS	Automatic Identification System
	ARPA	Automatic Radar Plotting Aid
	ASCII	American Standard Code for Inforamation Interchange
B	BC	Bulk Carrier
	B/L	Bill of Lading
C	CFS	Container Freight Station
	CG(R)T	Compensated Gross (Registered) Tonnage
	CIF	Cost, Insurance and Freight
	CRT	Cathode Ray Tube
D	DSC	Digital Selective Calling
	D/W	Deadweight Tonnage
E	ECDIS	Electronic Chart Display and Information System
	EDI	Electronic Data Interchange
	EDIFACT	Electronic Data Interchange for Administration Commerce and Transport
	EHS	Extremely Hazardous Substances
	ENC	Electronic Navigation Charts
	EPDM	Ethylene Propylene Diene Rubber
	EPIRB	Emergency Position-Indication Radio Beacon
F	FEU	Forty Foot Equivalent Unit
	FOB	Free on Board
	FPSO	Floating Production, Storage and Offloading unit
	FRP	Fiber Reinforced Plastic
	FSO	Floating Storage and Offloading unit
G	GPM	Gallon Per Minute
	GPS	Global Positioning System
	G/T	Gross Tonnage
H	Hazmat	Hazardous Material
	HS	Hazardous Substances
I	IGS	Inert Gas System
	INMARSAT	International Maritime Satellite Organization
L	LC	Liquid Crystal
	L/C	Letter of Credit
	LCD	Liquid Crystal Display
	LEL	Low Explosive Limit
	LNG	Liquefied Natural Gas
	LPG	Liquefied Petroleum Gas
	LRIT	Long Range Identification and Tracking System

M	MBF	Minimum Breaking Force
	M/V	Motor Vessel
N	NAVTEX	Navigation Telex
	NBR	Nitrile or Buna N Rubber
	NiMH	Nickel-Metal Hydride (Cells)
	N/T	Net Tonnage
O	OBO	Ore/Bulk/Oil Carrier
	ODA	Official Development Assistance
	OL	Over Limit Alarm
P	PCC	Pure Car Carrier
	PPM	Parts Per Million
	PSA	Port Security Assessment
R	RFI	Radio Frequency Interface
	RO/RO	Roll on/Roll off
S	SART	Search and Rescue Rader Transponder
	SBM	Single Buoy Mooring
	SBT	Segrated Ballast Tank
	SCBA	Self-Contained Breathing Apparatus
	Sea-NACCS	Nippon Automated Cargo Clearance System
	SPM	Single-Point Mooring
	STEL	Short Term Explosure Limit
	SWL	Safety Working Load
T	TEU	Twenty Foot Equivalent Unit
	TFT	Thin Film Transistor
	TSE	Terminal Server Edition
	TWA	Time-Weighted Average
U	UAT	User Acceptance Testing
	UV	Ultraviolet
V	VDR	Voyage Data Recorder
	VHF	Very High Frequency
	VLBC	Very Large Bulk Carrier
	VLCC	Very Large Crude (Oil) Carrier
	VSO	Vessel Security Officer
W	WMD	Weapons of Mass Destruction
	W.O.G.	Water-Oil-Gas
	WS	New Worldwide Tanker Nominal Freight Scale
	WWF	World Wide Fund for Nature

19
Clothing

Gloves



P. 19-1 ~ 2

Boots & Shoes



P. 19-3 ~ 6

Rain Suits



P. 19-7

Working Cloths



P. 19-7 ~ 12

Cotton Working Gloves

Guantes de Trabajo de Algodón 軍手 棉手套

Woven from cotton thread and machine knitted, fitting smooth to the hands. One Size fits all.



Ordinary



Rubber Coated Palm



Non Slip Dots

19 01 01 04	Gloves, cotton working ordinary "	Doz Pr.
19 01 02 03	Gloves, cotton working rubber coated palm Gloves, cotton working non slip dots	Pr. "
19 01 05 14	Gloves, cotton, working, heavier, 600 grm " , 750 grm	Doz "

Vinyl Leather Winter Gloves

Guantes de Vinilo para Inviero

ビニール防寒手袋 防寒皮革手套

Vinyl leather with warm acrylic pile lining on cotton back. Elastic wrist band. M and L Sizes only.



19 01 06 07	Gloves, winter, vinyl leather, Size M " Size L	Pr. "

Woolen Winter Gloves

Guantes de Lana para Invierno

毛糸手袋 防寒羊毛手套

Durable knit blend of acrylic and woolen yarn. Suitable for work on deck in cold conditions.



19 01 08	Gloves, woolen, winter	Pr.

Winter Thermal Gloves

Guantes térmicos de invierno

防寒手袋 冬季保暖手套

Made with polyamide double layer and with rubber coating for grip. Double layer acrylic fleece lining keeps hands warm and suitable for working in cold environment.



Unit Per Pr.

CODE	Size (EU)		CODE	Size (EU)	
19 01 23 24	M L	8 9	19 01 25 26	LL XXL (3L)	10 11

Leather Palm Working Gloves

Guantes de Trabajo de Palma de Cuero

皮手袋 夹皮工作手套

For heavy duty work on deck and in the engine room. Fits soft and loose to the hands.



19 01 09 11	Gloves, working, leather palm "	Doz Pr.

Calf Skin Working Gloves

Guantes de Trabajo Piel Vacuo

子牛皮手袋 小牛皮手套

Made from soft calf skin leather and furnished in suitable designs for all industrial uses.



19 01 12	Gloves, working, calf hide, soft	Pr.

Leather Gauntlet Gloves

Guantes Largos de Cuero

長手袋 长皮手套

With safety cuff for general heavy work.



19 01 13	Gloves, leather, gauntlet	Pr.

Aramid Fibre Gloves

Guantes de Fibra de Aramida

アラミッド繊維手袋 芳族聚酰胺纤维手套

Knitted from Aramid Fibre with high breaking strength, impact resistance, cut resistance, heat resistance and chemical resistance.



19 01 15	Gloves, aramid fibre	Pr.

PVC Palm Working Gloves

Guantes de trabajo con palma de PVC

PVC 補強グローブ PVC 手掌工作手套

PVC padded and reinforced in the palm area for extra durability. Suitable for heavy duty work on deck and in the engine room.



19 01 16	Gloves, working, PVC palm, size S	Pr.
17	Gloves, working, PVC palm, size M	"
18	Gloves, working, PVC palm, size L	"

Natural Rubber Gloves

Guantes de Goma Natural
天然ゴム手袋　天然橡皮手套

For general industrial use.



19 01 21	Gloves, rubber, natural, short	Pr.
22	" long	"

Plastic Gloves Oil/Acid Free

Guantes de Plástico/Resistente Aceites - Acidos
耐油、耐酸ビニール手袋
耐酸、耐油塑料手套

Made from oil and chemical resistant plastic with flannel cloth inside to absorb sweat. Ideal for tank work, etc.



19 01 31	Gloves, plastic, oil/acid resistant, short	Pr.
32	Gloves, plastic, oil/acid resistant, long	"

Disposable Gloves

Guantes Desechables　使い捨て手袋
一次性手套

Made of polythene and suitable for temporary light duty job.



19 01 35	Disposal gloves, plastic, 100 prs/pkt	Pkt

Biodegradable Type

Tipo Biodegradable　生物分解性タイプ
生物降解型

Made of biodegradable materials that can break down naturally and more environmentally friendly.



19 01 34	Disposal gloves, biodegradable	Pr.

Latex Free Gloves

Guantes sin látex　ラテックスフリー手袋
不含乳胶手套

Latex can cause allergic reactions from the material's proteins. Latex free gloves, such as nitrile, vinyl and poly, can help prevent from latex sensitivities or allergies.



19 01 36	Gloves, latex free	Pr.

Disposal Nitrile Gloves

Guante de Nitrilo Desechable
使い捨てニトリル手袋　处理丁腈手套



Single use gloves used in various occasions such as healthcare, laboratory setting, food handling. Nitrile gloves are stronger resistance to a wide range of chemicals including oil, acids, alcohols than latex gloves, and also less likely to cause allergic reaction and more durable than latex gloves.

Unit Per Pkt

CODE	Size (EU)		Per Pkt.	CODE	Size (EU)		Per Pkt.
19 01 37	S	6/7	100	19 01 39	L	8/9	100
38	M	7/8	100	40	LL	9/10	100

Touchscreen-capable Working Gloves

Guantes de Trabajo con Pantalla Táctil
タッチパネル操作可能手袋
触摸屏工作手套



Designed to touch electronic devices such as smartphones or tablets without remove the gloves by using conductive materials on the fingertips or throughout the gloves.

Unit Per Pr.

CODE	Size (EU)		CODE	Size (EU)	
19 01 46	M	8	19 01 48	LL	10
47	L	9	49	XXL (3L)	11

Gloves

for Razor Wire Installation

Guantes para Instalación de Alambre de Cuchillas
レーザーワイヤー取り付け用保護手袋
刀片刺网安装用防护手套



A heavy duty armoured leather gloves for installation of razor wire. Free Size.

19 01 41	Gloves, armoured, for razor wire installation	Pr.

Shoe Sizes Equivalent Table by Number

U.K.	U.S.A.	Europe	Japan (cm)
5	5.5	37	23.5
5.5	6	38	24
6	6.5	39	24.5
6.5	7	40	25
7	7.5	41	25.5
7.5	8	42	26
8	8.5	43	26.5
8.5	9	44	27
9	9.5	45	27.5
9.5	10	46	28
10	10.5	47	28.5
10.5	11	48	29
11	11.5	49	29.5
11.5	12	50	30
12	12.5	51	30.5
12.5	13	52	31
13	13.5	53	31.5
13.5	14	54	32

Rubber Boots

Botas de Goma　ゴム長靴　胶靴



Waterproof rubber construction with cloth lining. Nominal Size is the length from heel to toe.

Short Boots

Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
6.5	**19 11 11**	7	**19 11 41**	40	**19 11 71**	25	**19 02 01**
7	**12**	7.5	**42**	41	**72**	25.5	**09**
7.5	**13**	8	**43**	42	**73**	26	**02**
8	**14**	8.5	**44**	43	**74**	26.5	**10**
8.5	**15**	9	**45**	44	**75**	27	**03**
9	**19 11 16**	9.5	**19 11 46**	45	**19 11 76**	27.5	**19 11 01**
9.5	**17**	10	**47**	46	**77**	28	**19 02 04**
10	**18**	10.5	**48**	47	**78**	28.5	**19 11 02**
10.5	**19**	11	**49**	48	**79**	29	**19 02 05**
11	**20**	11.5	**50**	49	**80**	29.5	**19 11 03**
11.5	**19 11 21**	12	**19 11 51**	50	**19 11 81**	30	**19 02 06**
12.5	**22**	13	**52**	52	**82**	31	**07**
13.5	**23**	14	**53**	54	**83**	32	**08**

Long Boots



Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
6.5	**19 11 25**	7	**19 11 55**	40	**19 11 85**	25	**19 02 11**
7	**26**	7.5	**56**	41	**86**	25.5	**19**
7.5	**27**	8	**57**	42	**87**	26	**12**
8	**28**	8.5	**58**	43	**88**	26.5	**20**
8.5	**29**	9	**59**	44	**89**	27	**13**
9	**19 11 30**	9.5	**19 11 60**	45	**19 11 90**	27.5	**19 11 04**
9.5	**31**	10	**61**	46	**91**	28	**19 02 14**
10	**32**	10.5	**62**	47	**92**	28.5	**19 11 05**
10.5	**33**	11	**63**	48	**93**	29	**19 02 15**
11	**34**	11.5	**64**	49	**94**	29.5	**19 11 06**
11.5	**19 11 35**	12	**19 11 65**	50	**19 11 95**	30	**19 02 16**
12.5	**36**	13	**66**	52	**96**	31	**17**
13.5	**37**	14	**67**	54	**97**	32	**18**

Steel-Toe Rubber Boots

Botas de borracha de segurança

安全ゴム長靴　安全橡胶长靴



Complete waterproof rubber outside lining. Steel-toe provides protection on the job. Completely lined with cotton knit.

Short Boots

Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
5.5	**19 12 01**	6	**19 12 15**	38	**19 12 31**	24	**19 02 21**
6	**02**	6.5	**16**	39	**32**	24.5	**28**
6.5	**03**	7	**17**	40	**33**	25	**22**
7	**04**	7.5	**18**	41	**34**	25.5	**29**
7.5	**05**	8	**19**	42	**35**	26	**23**
8	**19 12 06**	8.5	**19 12 20**	43	**19 12 36**	26.5	**19 02 30**
8.5	**07**	9	**21**	44	**37**	27	**24**
9	**08**	9.5	**22**	45	**38**	27.5	**19 12 46**
9.5	**09**	10	**23**	46	**39**	28	**19 02 25**
10	**10**	10.5	**24**	47	**40**	28.5	**19 12 47**
10.5	**19 12 11**	11	**19 12 25**	48	**19 12 41**	29	**19 02 26**
11	**12**	11.5	**26**	49	**42**	29.5	**19 12 48**
11.5	**13**	12	**27**	50	**43**	30	**19 02 27**

(to be continued)

Long Boots

Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
5.5	**19 12 51**	6	**19 12 65**	38	**19 12 81**	24	**19 02 31**
6	**52**	6.5	**66**	39	**82**	24.5	**38**
6.5	**53**	7	**67**	40	**83**	25	**32**
7	**54**	7.5	**68**	41	**84**	25.5	**39**
7.5	**55**	8	**69**	42	**85**	26	**33**
8	**19 12 56**	8.5	**19 12 70**	43	**19 12 86**	26.5	**19 02 40**
8.5	**57**	9	**71**	44	**87**	27	**34**
9	**58**	9.5	**72**	45	**88**	27.5	**19 12 96**
9.5	**59**	10	**73**	46	**89**	28	**19 02 35**
10	**60**	10.5	**74**	47	**90**	28.5	**19 12 97**
10.5	**19 12 61**	11	**19 12 75**	48	**19 12 91**	29	**19 02 36**
11	**62**	11.5	**76**	49	**92**	29.5	**19 12 98**
11.5	**63**	12	**77**	50	**93**	30	**19 02 37**

Safety Work Boots

Cow Hide

Botas de Seguridad en alta mar

安全皮長靴　安全牛皮长靴



Steel toe working boots made from cow hide with nonslip rubber sole and deep crepe tread.

Without Steel Toe

Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
5.5	**19 13 01**	6	**19 13 15**	38	**19 13 31**	24	**19 02 41**
6	**02**	6.5	**16**	39	**32**	24.5	**42**
6.5	**03**	7	**17**	40	**33**	25	**43**
7	**04**	7.5	**18**	41	**34**	25.5	**44**
7.5	**05**	8	**19**	42	**35**	26	**45**
8	**19 13 06**	8.5	**19 13 20**	43	**19 13 36**	26.5	**19 02 46**
8.5	**07**	9	**21**	44	**37**	27	**47**
9	**08**	9.5	**22**	45	**38**	27.5	**48**
9.5	**09**	10	**23**	46	**39**	28	**49**
10	**10**	10.5	**24**	47	**40**	28.5	**19 13 46**
10.5	**19 13 11**	11	**19 13 25**	48	**19 13 41**	29	**19 02 50**
11	**12**	11.5	**26**	49	**42**	29.5	**19 13 47**
11.5	**13**	12	**27**	50	**43**	30	**48**

With Steel Toe

Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
5.5	**19 13 51**	6	**19 13 65**	38	**19 13 81**	24	**19 02 51**
6	**52**	6.5	**66**	39	**82**	24.5	**52**
6.5	**53**	7	**67**	40	**83**	25	**53**
7	**54**	7.5	**68**	41	**84**	25.5	**54**
7.5	**55**	8	**69**	42	**85**	26	**55**
8	**19 13 56**	8.5	**19 13 70**	43	**19 13 86**	26.5	**19 02 56**
8.5	**57**	9	**71**	44	**87**	27	**57**
9	**58**	9.5	**72**	45	**88**	27.5	**58**
9.5	**59**	10	**73**	46	**89**	28	**59**
10	**60**	10.5	**74**	47	**90**	28.5	**19 13 96**

(to be continued)

Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
10.5	**19 13 61**	11	**19 13 75**	48	**19 13 91**	29	**19 02 60**
11	**62**	11.5	**76**	49	**92**	29.5	**19 13 97**
11.5	**63**	12	**77**	50	**93**	30	**98**

Boots and Shoes

Oil/Acid Resistant

Calazado Resistente Acidos - Aceites 耐油、耐酸長靴、短靴
耐油、耐酸长靴、短靴

Cow hide steel toe boots or shoes with oil and acid resistant rubber tread.





Boots

Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
5.5	**19 14 01**	6	**19 14 15**	38	**19 14 31**	24	**19 02 61**
6	**02**	6.5	**16**	39	**32**	24.5	**62**
6.5	**03**	7	**17**	40	**33**	25	**63**
7	**04**	7.5	**18**	41	**34**	25.5	**64**
7.5	**05**	8	**19**	42	**35**	26	**65**
8	**19 14 06**	8.5	**19 14 20**	43	**19 14 36**	26.5	**19 02 66**
8.5	**07**	9	**21**	44	**37**	27	**67**
9	**08**	9.5	**22**	45	**38**	27.5	**68**
9.5	**09**	10	**23**	46	**39**	28	**69**
10	**10**	10.5	**24**	47	**40**	28.5	**19 14 46**
10.5	**19 14 11**	11	**19 14 25**	48	**19 14 41**	29	**19 02 70**
11	**12**	11.5	**26**	49	**42**	29.5	**19 14 47**
11.5	**13**	12	**27**	50	**43**	30	**48**

Shoes

Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
5.5	**19 14 51**	6	**19 14 65**	38	**19 14 81**	24	**19 02 71**
6	**52**	6.5	**66**	39	**82**	24.5	**72**
6.5	**53**	7	**67**	40	**83**	25	**73**
7	**54**	7.5	**68**	41	**84**	25.5	**74**
7.5	**55**	8	**69**	42	**85**	26	**75**
8	**19 14 56**	8.5	**19 14 70**	43	**19 14 86**	26.5	**19 02 76**
8.5	**57**	9	**71**	44	**87**	27	**77**
9	**58**	9.5	**72**	45	**88**	27.5	**78**
9.5	**59**	10	**73**	46	**89**	28	**79**
10	**60**	10.5	**74**	47	**90**	28.5	**19 14 96**
10.5	**19 14 61**	11	**19 14 75**	48	**19 14 91**	29	**19 02 80**
11	**62**	11.5	**76**	49	**92**	29.5	**19 14 97**
11.5	**63**	12	**77**	50	**93**	30	**98**

Winter Boots

Botas para Invierno
防寒長靴 防寒长靴

One-piece, molded vinyl, pull-on boots. Looks like fine leather, but is completely waterproof with textured vinyl sole and warm polyester pile lining.



Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
5.5	**19 15 01**	6	**19 15 15**	38	**19 15 31**	24	**19 02 81**
6	**02**	6.5	**16**	39	**32**	24.5	**82**
6.5	**03**	7	**17**	40	**33**	25	**83**
7	**04**	7.5	**18**	41	**34**	25.5	**84**
7.5	**05**	8	**19**	42	**35**	26	**85**
8	**19 15 06**	8.5	**19 15 20**	43	**19 15 36**	26.5	**19 02 86**
8.5	**07**	9	**21**	44	**37**	27	**87**
9	**08**	9.5	**22**	45	**38**	27.5	**88**
9.5	**09**	10	**23**	46	**39**	28	**89**
10	**10**	10.5	**24**	47	**40**	28.5	**91**
10.5	**19 15 11**	11	**19 15 25**	48	**19 15 41**	29	**19 02 90**
11	**12**	11.5	**26**	49	**42**	29.5	**92**
11.5	**13**	12	**27**	50	**43**	30	**93**

Safety Work Shoes

Zapatos de Seguridad 安全靴 安全靴

Made from cow hide and has a non slip anti-oil rubber sole with deep crepe tread. Available with or without steel toe.



Without Steel Toe

Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
5.5	**19 16 01**	6	**19 16 16**	38	**19 16 31**	24	**19 03 01**
6	**02**	6.5	**17**	39	**32**	24.5	**02**
6.5	**03**	7	**18**	40	**33**	25	**03**
7	**04**	7.5	**19**	41	**34**	25.5	**04**
7.5	**05**	8	**20**	42	**35**	26	**05**
8	**19 16 06**	8.5	**19 16 21**	43	**19 16 36**	26.5	**19 03 06**
8.5	**07**	9	**22**	44	**37**	27	**07**
9	**08**	9.5	**23**	45	**38**	27.5	**08**
9.5	**09**	10	**24**	46	**39**	28	**09**
10	**10**	10.5	**25**	47	**40**	28.5	**25**
10.5	**19 16 11**	11	**19 16 26**	48	**19 16 41**	29	**19 03 10**
11	**12**	11.5	**27**	49	**42**	29.5	**26**
11.5	**13**	12	**28**	50	**43**	30	**27**
12.5	**14**	13	**29**	52	**44**	31	**28**
13.5	**15**	14	**30**	54	**45**	32	**29**

With Steel Toe

Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
			—			23.5	**19 03 11**
5.5	**19 16 51**	6	**19 16 66**	38	**19 16 81**	24	**12**
6	**52**	6.5	**67**	39	**82**	24.5	**13**
6.5	**53**	7	**68**	40	**83**	25	**14**
7	**54**	7.5	**69**	41	**84**	25.5	**15**
7.5	**19 16 55**	8	**19 16 70**	42	**19 16 85**	26	**19 03 16**
8	**56**	8.5	**71**	43	**86**	26.5	**17**
8.5	**57**	9	**72**	44	**87**	27	**18**
9	**58**	9.5	**73**	45	**88**	27.5	**19**
9.5	**59**	10	**74**	46	**89**	28	**20**
10	**19 16 60**	10.5	**19 16 75**	47	**19 16 90**	28.5	**19 03 30**
10.5	**61**	11	**76**	48	**91**	29	**21**
11	**62**	11.5	**77**	49	**92**	29.5	**19 16 46**
11.5	**63**	12	**78**	50	**93**	30	**19 03 22**
12.5	**64**	13	**79**	52	**94**	31	**23**
13.5	**19 16 65**	14	**19 16 80**	54	**19 16 95**	32	**19 03 24**

Boots and Shoes

Anti-Electro-Static

Calzado Antiestático　静電防止長靴及び短靴　防止静电长靴及短靴

Steel toe anti-electro-static boots/shoes that insulate the wearer from the ground current.





Boots

Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
5.5	**19 17 01**	6	**19 17 15**	38	**19 17 31**	24	**19 03 31**
6	**02**	6.5	**16**	39	**32**	24.5	**32**
6.5	**03**	7	**17**	40	**33**	25	**33**
7	**04**	7.5	**18**	41	**34**	25.5	**34**
7.5	**05**	8	**19**	42	**35**	26	**35**
8	**19 17 06**	8.5	**19 17 20**	43	**19 17 36**	26.5	**19 03 36**
8.5	**07**	9	**21**	44	**37**	27	**37**
9	**08**	9.5	**22**	45	**38**	27.5	**38**
9.5	**09**	10	**23**	46	**39**	28	**39**
10	**10**	10.5	**24**	47	**40**	28.5	**51**
10.5	**19 17 11**	11	**19 17 25**	48	**19 17 41**	29	**19 03 40**
11	**12**	11.5	**26**	49	**42**	29.5	**52**
11.5	**13**	12	**27**	50	**43**	30	**53**

Shoes

Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
5.5	**19 17 51**	6	**19 17 65**	38	**19 17 81**	24	**19 03 41**
6	**52**	6.5	**66**	39	**82**	24.5	**42**
6.5	**53**	7	**67**	40	**83**	25	**43**
7	**54**	7.5	**68**	41	**84**	25.5	**44**
7.5	**55**	8	**69**	42	**85**	26	**45**
8	**19 17 56**	8.5	**19 17 70**	43	**19 17 86**	26.5	**19 03 46**
8.5	**57**	9	**71**	44	**87**	27	**47**
9	**58**	9.5	**72**	45	**88**	27.5	**48**
9.5	**59**	10	**73**	46	**89**	28	**49**
10	**60**	10.5	**74**	47	**90**	28.5	**54**
10.5	**19 17 61**	11	**19 17 75**	48	**19 17 91**	29	**19 03 50**
11	**62**	11.5	**76**	49	**92**	29.5	**55**
11.5	**63**	12	**77**	50	**93**	30	**56**

Boots and Shoes

Oil/Acid Resistant, Anti-Electro-Static

Botas y Zapatos
Resistentes al Aceite/ácido, Antielectrostáticas

耐油、耐酸、静電防止長靴及び短靴　靴子和鞋 耐油 / 酸，防静电

Steel toe with oil/acid resistant, anti-electro-static boots/shoes.





Boots

Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
5.5	**19 18 01**	6	**19 18 15**	38	**19 18 31**	24	**19 18 45**
6	**02**	6.5	**16**	39	**32**	24.5	**46**
6.5	**03**	7	**17**	40	**33**	25	**47**
7	**04**	7.5	**18**	41	**34**	25.5	**48**
7.5	**05**	8	**19**	42	**35**	26	**49**
8	**19 18 06**	8.5	**19 18 20**	43	**19 18 36**	26.5	**19 18 50**
8.5	**07**	9	**21**	44	**37**	27	**51**
9	**08**	9.5	**22**	45	**38**	27.5	**52**
9.5	**09**	10	**23**	46	**39**	28	**53**
10	**10**	10.5	**24**	47	**40**	28.5	**54**
10.5	**19 18 11**	11	**19 18 25**	48	**19 18 41**	29	**19 18 55**
11	**12**	11.5	**26**	49	**42**	29.5	**56**
11.5	**13**	12	**27**	50	**43**	30	**57**

Shoes

Unit Per Pr.

U.K.		U.S.A.		Europe		Japan (cm)	
Size	CODE	Size	CODE	Size	CODE	Size	CODE
5.5	**19 18 61**	6	**19 18 75**	38	**19 18 91**	24	**19 19 05**
6	**62**	6.5	**76**	39	**92**	24.5	**06**
6.5	**63**	7	**77**	40	**93**	25	**07**
7	**64**	7.5	**78**	41	**94**	25.5	**08**
7.5	**65**	8	**79**	42	**95**	26	**09**
8	**19 18 66**	8.5	**19 18 80**	43	**19 18 96**	26.5	**19 19 10**
8.5	**67**	9	**81**	44	**97**	27	**11**
9	**68**	9.5	**82**	45	**98**	27.5	**12**
9.5	**69**	10	**83**	46	**99**	28	**13**
10	**70**	10.5	**84**	47	**19 19 00**	28.5	**14**
10.5	**19 18 71**	11	**19 18 85**	48	**19 19 01**	29	**19 19 15**
11	**72**	11.5	**86**	49	**02**	29.5	**16**
11.5	**73**	12	**87**	50	**03**	30	**17**

Steel Toe Sneakers

Zapatillas de Pumera de Acero
スニーカー型安全靴　鋼頭安全鞋



A slip-on sneakers with steel toe, designed with comfortable, durable to reduce weight and promote flexibility.

Unit Per Pr.

CODE	Size cm	CODE	Size cm
19 03 61	24	**19 03 66**	26.5
62	24.5	**67**	27
63	25	**68**	28
64	25.5	**69**	29
65	26	**70**	30

Safety Shoes High Ankle

Calzado de Seguridad Tobillo Alto
ハイカット安全靴　高帮安全鞋



High ankle safety shoes with steel toes, designed to provide extra support around the ankle to prevent ankle injuries.

Unit Per Pr.

CODE	SIZE			CODE	SIZE		
	EU	UK	USA		EU	UK	USA
19 03 57	39	6	7	**19 03 84**	44	10	11
58	40	6.5	7.5	**96**	45	10.5	11.5
59	41	7	8	**97**	46	11	12
60	42	8	9	**98**	47	12	13
82	43	9	10				

Safety Working Shoes

for Winter

Zapatos de seguridad para el frío
防寒安全靴　防寒安全鞋



A safety working shoes with steel toe suitable for walking in cold climate. The sole is fitted with Aluminium sheet and insole is covered with boa to keep inner of shoes warm.

Unit Per Pr.

CODE	Size cm	CODE	Size cm
19 03 71	25	**19 03 74**	28
72	26	**75**	29
73	27		

Offshore Safety Boots

Antistatic, Acid-, oil-, and alkali-resistant
European Safety Footwear Protection Type: S3

Botas de seguridad offshore
オフショア作業用安全ブーツ　海上安全靴



Antistatic boot with energy absorbing heel, lace up with side zip fastening for easy on/off. Loop in tongue to feed lace through. Aluminium toecap and anti-perforation midsole; non-metallic ballistic Pro Flex. Outlast® lining and thermal insulation regulate temperature.

Lining insulates up to -20°C (-4°F). Acid-, oil-, and alkali-resistant, dual density PU-rubber sole. Outer sole resists heat up to 300°C (572°F). Colour: Black.

Unit Per Pr.

CODE	Size			CODE	Size		
	EU	UK	USA		EU	UK	USA
19 03 76	38	5	6	**19 03 91**	43	9	10
77	39	6	7	**92**	44	10	11
78	40	6.5	7.5	**93**	45	10.5	11.5
79	41	7	8	**94**	46	11	12
80	42	8	9	**95**	47	12	13

Name of Mfr: Scandia Gear, Product Code: 2520.08
S3: 200 joule toecap protection. Closed seat region (fully enclosed heel). Antistatic properties. Energy absorption of seat region. Water penetration and water absorption resistance. Sole penetration resistance. Cleated outsole.

Cotton Working Socks

Calcetines de Algodón
軍足　棉工作袜



Woven from cotton thread and machine knitted. One Size fits all.

19 03 81	Socks, cotton, working, free Size	Doz

Winter Working Socks

Calcetines para el frío
防寒靴下　防寒袜



Made of acrylic thick pile fabric suitable for cold climate. Free Size and standard colour is dark blue.

19 03 83	Socks, acrylic pile fabric, for winter, free Size	Pr.

Thermal Socks

Calcetines térmicos　保温靴下　保暖袜



Made of 45% Merino wool, 45% acrylic, 10% polyamide, and comfortable terry inside. Ergonomic design for reliable support and fit. Excellent heat regulation. Colour: Navy.

Unit Per Pr.

CODE	Size		
	EU	UK	USA
19 03 88	35 / 38	3 / 5	4 / 6
89	39 / 42	6 / 8	7 / 9
90	43 / 46	9 / 11	10 /12

Disposable Shoe Covers

Cobertor para Zapatos Desechables　使い捨て靴カバー　一次性鞋套

Vinyl made transparent disposable shoe covers to help keep both shoes and floor clean and dry. Canvas material and covers for boots are also available.



Vinyl



Canvas



Boots

Unit Per Pr.

CODE	Size	CODE	Size
Vinyl		**Canvas**	
19 03 85	M (23.5-25.5 cm)	**19 03 87**	L: 30 cm × 14.5 cm
86	L (26-28 cm)		
		Boots	
		19 03 99	One size

Rainwear Size Table

Size Symbol	Men's Size cm		
	Height	Chest	Waist
SS	150 - 155	72 - 80	66 - 74
S	155 - 160	78 - 86	66 - 74
M	160 - 165	84 - 92	72 - 82
L	165 - 170	90 - 98	78 - 88
LL	170 - 175	96 - 104	86 - 96
XXL (3L)	175 - 185	102 - 110	94 - 104
4L	- Over above -		

Clothing Size Mnemonic Symbol

L	=	L		
LL	=	XL	=	2L
LLL	=	XXL	=	3L
LLLL	=	XXXL	=	4L

Rain Suits
with Hood

Trajes de Agua con Capucha
上下別フード付雨合羽
带帽子的雨衣套装



3 pcs comprised of the jacket, trouser and hood outfit. Made of flexible cloth lined rubber, vinyl or nylon. They are all fully waterproof and resist aging and abrasion. Available in blue or black.

Unit Per Set

Vinyl		Nylon		Cloth Lined Rubber	
CODE	Size	CODE	Size	CODE	Size
19 04 04	S	**19 04 16**	S	**19 04 18**	S
01	M	**06**	M	**11**	M
02	L	**07**	L	**12**	L
03	LL	**08**	LL	**13**	LL
05	XXL(3L)	**09**	XXL (3L)	**14**	XXL(3L)
10	4L	**17**	4L	**15**	4L

Rain Coats
with Hood

Gabardinas con Capucha
フード付雨合羽　帯帽子的雨衣大衣



A long one-piece raincoat with hood. Available in rubber, vinyl and cloth lined rubber.

Unit Per Pc.

Vinyl		Rubber		Cloth Lined Rubber	
CODE	Size	CODE	Size	CODE	Size
19 04 21	M	**19 04 26**	M	**19 04 31**	M
22	L	**27**	L	**32**	L
23	LL	**28**	LL	**33**	LL
		29	XXL (3L)	**34**	XXL (3L)

Coloured Rain Suits
with Hood

Tajas de Agua Amarillos con Capucha
黄スーツ式雨合羽フード付
带帽子的黄色雨衣套装



High visibility yellow or orange coloured and waterproof raingear.

Unit Per Set

CODE	Size	CODE	Size
Yellow Coloured		**Orange Coloured**	
19 04 36	M	**19 04 41**	M
37	L	**42**	L
38	LL	**43**	LL
39	XXL (3L)	**44**	XXL (3L)

Rain Hats

Sombreros Impermeables
レインハット　雨帽



Made of vinyl film, dark blue coloured, 3 sizes available.

19 04 61	Rain hat,	Size M	Pc.
62	"	Size L	"
63	"	Size LL	"

Straw Hats

Sombreros de Paja
麦わら帽子　草帽



Straw made hats which provides a comfortable shelter against heavy sunshine during work on deck, etc.

19 04 71	Straw hat	Pc.

Baseball Caps

Gorras de béisbol　野球帽　棒球帽



A soft baseball style cap with single brim. Made of Cotton or Polyester, and free Size. Available colour Navy Blue, Red or Black. Please specify material and colour when ordering.

Unit Per Pc.

CODE	Material	CODE	Material
19 04 76	Cotton	**19 04 77**	Polyester

Boilersuits
(Coveralls)

Mono de Trabajo
连衫裤工作服　ボイラースーツ



One piece coverall wear for general working. Made of 100% cotton or cotton polyester mixed.

Unit Per Pc.

Button Type

CODE	Size	CODE	Size	CODE	Size
White		**Grey**		**Khaki**	
19 05 26	XS	**19 05 30**	XS	**19 05 34**	XS
27	S	**31**	S	**35**	S
01	M	**11**	M	**21**	M
02	L	**12**	L	**22**	L
03	LL	**13**	LL	**23**	LL
04	XXL (3L)	**14**	XXL (3L)	**24**	XXL (3L)
05	4L	**15**	4L	**25**	4L
Blue		**Orange**			
19 05 28	XS	**19 05 32**	XS		
29	S	**33**	S		
06	M	**16**	M		
07	L	**17**	L		
08	LL	**18**	LL		
09	XXL(3L)	**19**	XXL(3L)		
10	4L	**20**	4L		

Fastener Type

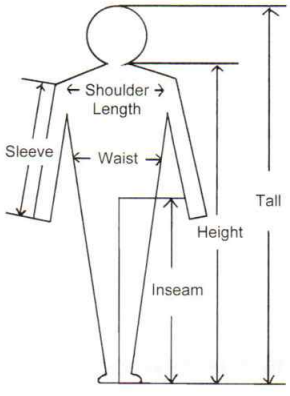
White		**Grey**		**Khaki**	
19 05 36	XS	**19 05 40**	XS	**19 05 97**	XS
37	S	**85**	S	**98**	S
41	M	**51**	M	**61**	M
42	L	**52**	L	**62**	L
43	LL	**53**	LL	**63**	LL
44	XXL(3L)	**54**	XXL(3L)	**64**	XXL(3L)
45	4L	**55**	4L	**65**	4L
Blue		**Orange**			
19 05 38	XS	**19 05 95**	XS		
39	S	**96**	S		
46	M	**56**	M		
47	L	**57**	L		
48	LL	**58**	LL		
49	XXL(3L)	**59**	XXL(3L)		
50	4L	**60**	4L		

Boilersuits Size Table for Asian

Unit:cm

Symbol Size	Tall	Height	Sleeve
S	160	135	51
M	165	142	53
L	170	148	55
LL	175	155	57
XXL (3L)	180	162	59
4L	185	168	61

Symbol Size	Waist	Shoulder Length	In-seam
S	88	44	64
M	92	46	68
L	96	48	72
LL	100	50	76
XXL (3L)	105	52	80
4L	110	54	84



Wear Size Table for European

European Size	Nominal Size	Height cm	Chest cm	Waist cm
44	XS	170 - 176	84 - 88	72 - 76
46	S	170 - 176	88 - 92	76 - 80
48		176 - 182	92 - 96	80 - 84
50	M	176 - 182	96 - 100	84 - 88
52		176 - 182	100 - 104	88 - 92
54	L	182 - 188	104 - 108	92 - 96
56		182 - 188	108 - 112	96 - 100
58	XL	182 - 188	112 - 116	100 - 104
60		188 - 194	116 - 120	104 - 108
62	XXL	188 - 194	120 - 124	108 - 112
64		188 - 194	124 - 128	112 - 116
-	XXXL	188 - 194	128 - 136	116 - 124

(to be continued)

Clothing Size Mnemonic Symbol

L	=	L		
LL	=	XL	=	2L
LLL	=	XXL	=	3L
LLLL	=	XXXL	=	4L

Disposable Boilersuits

Mono de Trabajo Desechable
使い捨てボイラースーツ
一次性连衫裤工作服



Made of specially woven polypropylene fibers. Suitable for use in non-hazardous conditions by engineers, inspectors, painters and others in dirty work areas. Can be laundered and reused several times.

Unit Per Pc.

CODE	Size	CODE	Size
19 05 90	S	**19 05 69**	LL
67	M	**70**	XXL (3L)
68	L	**66**	XXXL (4L)

Disposable Sleeves

Fundas Desechables
使い捨て袖カバー
一次性套管



Guards your arm against splashes. ideal for use in food handling and preparation, industrial maintenance and chemical processing.

Thickness 0.2 mm, length 18" inches

19 05 80	Sleeves disposable, free size	Pr.

Fire Retardant Boilersuits

Mono de Trabajo contra Incendios
防災ボイラースーツ　防火连衫裤工作服



Made of fire-resistant artificial fibre, or fire-resistant treated cotton.

Unit Per Pc.

CODE	Size	CODE	Size
19 05 71	M	**19 05 73**	LL
72	L	**74**	XXL (3L)

Anti-electro-static Boilersuits

Monos de Trabajo antiestátoco
静電防止ボイラースーツ
防静电的连衫裤工作服



Suitable for wear when conditions are likely to produce static electricity.

Unit Per Pc.

CODE	Size	CODE	Size
19 05 75	M	**19 05 77**	LL
76	L	**78**	XXL (3L)

Undressed Uniforms

Uniformes de Calle
船舶職員用略服　船舶职员制服



Undressed uniform for use by officer. 65% Tetoron, 35% Rayon with anti electro static properties.

Unit Per Pc.

Long Sleeve Jacket		Short Sleeve Jacket		Trousers	
CODE	Size	CODE	Size	CODE	Size
19 05 81	M	**19 05 86**	M	**19 05 91**	M
82	L	**87**	L	**92**	L
83	LL	**88**	LL	**93**	LL
84	LLL	**89**	LLL	**94**	LLL

Refrigerator Coats & Trousers

Abrigos y pantalones para el refrigerador
防寒上着・ズボン
冬装长裤 / 裤子



These so called "half coats" and trousers are either manufactured with nylon or cotton material and covered inside with artificial fur in order to produce a warm and sheltering coat and trousers for persons entering refrigerating chambers, standing watch in cold climates, etc. Available in dark green and blue only.

CODE	Size	CODE	Size
Nylon		**Cotton**	
Coat			Unit Per Pc.
19 06 01	M	**19 06 06**	M
02	L	**07**	L
03	LL	**08**	LL
04	XXL (3L)	**09**	XXL (3L)
05	4L	**10**	4L
Trousers			Unit Per Pr.
19 06 16	M	**19 06 26**	M
17	L	**27**	L
18	LL	**28**	LL
19	XXL (3L)	**29**	XXL (3L)
20	4L	**30**	4L

Parkas

Parkas　フード付防風防寒衣
帕克衫



A winter windbreaker half-coat, made of nylon or a similar synthetic fabric; polyester inner lining. Hood is trimmed with acrylic simulated fur.

Unit Per Pc.

CODE	Size	CODE	Size
19 06 34	S	**19 06 13**	LL
11	M	**14**	XXL (3L)
12	L	**15**	XXXL (4L)

Winter Use Boilersuits

Monos de Trabajo para Invierno
防寒ボイラースーツ
防寒连衫裤工作服



Insulated for protection from extreme cold when working outdoors in winter, in refrigerated areas, etc.

Unit Per Pc.

CODE	Size	CODE	Size
19 06 35	S	**19 06 23**	LL
21	M	**24**	XXL (3L)
22	L	**25**	XXXL (4L)

Winter Caps

Corros de Invierno　防寒帽　防寒帽

For protecting the head from cold wind. Available made of knit or leather.



Pointed Crown Knit



Fullface Knit



Leather

19 06 31	Winter cap, pointed crown, knit	Pc.
32	Winter cap, fullface, knit	"
33	Winter cap, leather	"

Neck Warmers

Calientacuellos　ネックウオーマー
保暖脖套



A knitted tubular neck warmer to protect neck from getting chilly. It is free size and reversible. Please specify if any specific colour is required.

19 06 36	Warmer, neck, knitted	Pc.

Winter Jackets & Trousers

Anti-electro-static

Chaquetas y Pantalones de Trabajo/Antiestático
静電防止防寒衣
防静电工作上衣 / 裤子



Winter windbreaker jacket and trousers with anti-electro-static process.

Available colour in beige, navy blue or green. Please specify the size with requested colour when ordering.

Jackets

Unit Per Pc.

CODE	Size	Shoulder cm.	Chest cm.
19 06 37	S	46	119
41	M	48	123
42	L	50	127
43	LL	52	131
44	XXL (3L)	54	135
45	XXXL (4L)	56	139

Trousers

Unit Per Pr.

CODE	Size	Waist cm.	Inseam cm.
19 06 38	S	72 - 79	73
46	M	79 - 85	73
47	L	85 - 90	73
48	LL	90 - 100	73
49	XXL (3L)	100 - 110	73
50	XXXL (4L)	110 - 120	73

Winter Hooded Jackets & Trousers

Chaqueta con Capucha y Pantalones de Invierno
フード付き防寒衣
冬季連帽外套及長褲



Window breaker jacket and trousers furnished with hood. Made of polyester and light and durable under cold weather. Available colour in beige, navy blue or green. Please specify the size with required colour when ordering.

Jackets

Unit Per Pc.

CODE	Size	Shoulder cm.	Chest cm.
19 06 51	M	50	126
52	L	52	130
53	LL	54	134
54	XXL (3L)	56	138
55	XXXL (4L)	58	142

Trousers

Unit Per Pr.

CODE	Size	Waist cm.	Inseam cm.
19 06 56	M	73 - 80	
57	L	80 - 88	
58	LL	88 - 95	76
59	XXL (3L)	95 - 105	
60	XXXL (4L)	105 - 115	

Winter Inner Suits

Ropa nterior de Invierno
防寒インナースーツ
防寒内衣



Made of quilt to protect from extreme cold temperatures by wearing under working suits or boilersuits.

Unit Per Pc.

CODE	Size	Applicable	
		Height cm.	Weight kg
19 06 61	M	167	55
62	L	172	60
63	LL	177	65
64	XXL (3L)	182	70
65	XXXL (4L)	187	75

Moisture Absorption Heating Inner Suits

Ropa interior aislante del frío absorbente de la humedad
吸湿発熱繊維インナースーツ
吸湿发热纤维内衣



Newly developed light and thin innerwear but with high thermal insulation characteristic. Made from mixture of acryl, polyester and rayon.

Available colour: White, Black or Grey.

Unit Per Set

CODE	Size	CODE	Size
19 06 66	M	**19 06 69**	XXL (3L)
67	L	**70**	XXXL (4L)
68	LL		

Long Johns

Ropa Interior para el Frío
防寒下着　長内擄褲



A cotton or cotton-polyester blended fabric underwear for cold weather. Normally supplied in set with long sleeve shirt and long under pants.

Unit Per Set

CODE	Size	CODE	Size
Coloured		**White**	
19 06 87	S	**19 06 88**	S
71	M	**76**	M
72	L	**77**	L
73	LL	**78**	LL
74	XXL (3L)	**79**	XXL (3L)
19 06 75	4L	**19 06 80**	4L

Seamen's Sweaters

Suéter de Marinero
船員用セーター　水手用毛衣

A military type round neck woolen sweater with patches on shoulders and elbows. Normally supplied in Navy Blue colour.



Unit Per Pc.

CODE	Neck Size	Height cm	CODE	Neck Size	Height cm
19 06 81	36	160	**19 06 84**	42	175
82	38	165	**85**	44	180
83	40	170	**86**	46	190

Working Jackets & Trousers

Рабочий комбинезон с короткими рукавами
作業着・作業ズボン
工作上衣 / 裤子

Made from cotton and suitable for light duty work. Please specify required colour when ordering.



Jackets

Unit Per Pc.

CODE		Size	Chest cm.	Sleeve cm.
Grey	**Khaki**			
19 07 01	**19 07 06**	M	108	55
02	**07**	L	112	57
03	**08**	LL	116	59
04	**09**	XXL(3L)	120	61

Trousers

Unit Per Pr.

CODE		Waist cm.	Inseam cm.
Grey	**Khaki**		
19 07 11	**19 07 21**	79	76
12	**22**	82	76
13	**23**	85	76
14	**24**	88	76
15	**25**	90	73
19 07 16	**19 07 26**	95	73

Working Jackets & Trousers

Anti-electro-static

Chaquetas y Pantalones para Invierno / Antiestático
静電防止作業着・作業ズボン
防静电防寒衣服

Made of 65% polyester and 35% cotton blended. Suitable to wear on working around an electrostatic discharge but not preferable. Available in beige or navy blue colours.



Jackets

Unit Per Pc.

CODE		Size	Chest cm.	Sleeve cm.
Beige	**Navy Blue**			
19 07 31	**19 07 36**	M	108	55
32	**37**	L	112	57
33	**38**	LL	116	59
34	**39**	XXL (3L)	120	61

Trousers

Unit Per Pr.

CODE		Waist cm.	Inseam cm.
Beige	**Navy Blue**		
19 07 41	**19 07 51**	79	76
42	**52**	82	76
43	**53**	85	76
44	**54**	88	76
45	**55**	90	73
19 07 46	**19 07 56**	95	73

Working Jackets & Trousers

Summer Use

Chaquetas y Pantalones de Verano
夏用作業着・作業ズボン
夏季工作上衣 / 裤子

Made from cotton and suitable for light duty work, especially in summer season. Please specify required colour when ordering.



Jackets - Half Sleeves

Unit Per Pc.

CODE		Size	Chest cm.
Grey	**Khaki**		
19 07 61	**19 07 66**	M	105
62	**67**	L	110
63	**68**	LL	115
64	**69**	XXL (3L)	120

Trousers

Unit Per Pr.

CODE		Waist cm.	Inseam cm.
Grey	**Khaki**		
19 07 71	**19 07 81**	79	76
72	**82**	82	76
73	**83**	85	76
74	**84**	88	76
75	**85**	90	76
19 07 76	**19 07 86**	95	73

Boilersuits Half-sleeved

Monos de Trabajo de Manga Corta
半袖ボイラースーツ
半袖连衫裤工作服



Made of 100% cotton, and suitable to use in summer season.

Unit Per Pc.

CODE	Size	CODE	Size
White		Blue	
19 07 90	M	19 07 95	M
91	L	96	L
92	LL	97	LL
93	XXL (3L)	98	XXL (3L)
94	XXXL (4L)	99	XXXL (4L)

Working Jackets & Trousers

for Extreme Cold Climate

Chaqueta y pantalones de trabajo para climas sumamente fríos
極寒地用作業着・作業ズボン
高寒地区专用工作服

Suitable for working in extreme cold climate or freezing room. Made of Thinsulate insulation material covered with 100% polyester outer and nap raised tricot inner, with sealability and heat retaining characteristics. Available two patterns of colour, Orange or Blue.



Jackets

Unit Per Pc.

CODE		Size	Shoulder cm.	Chest cm.
Orange	Blue			
19 08 01	19 08 11	M	50	120
02	12	L	52	125
03	13	LL	54	130
04	14	XXL (3L)	56	135
05	15	4L	58	140

Trousers

Unit Per Pr.

CODE		Size	Waist cm.	Inseam cm.
Orange	Blue			
19 08 06	19 08 16	M	72 - 80	75
07	17	L	80 - 88	75
08	18	LL	88 - 101	75
09	19	XXL (3L)	101 - 114	75
10	20	4L	114 - 127	75

Size table for Extreme Cold Climate Working Jacket

Size	M	L	LL	XXL	4L
Length of One's Dress	80	82	84	86	86
Breadth of One's Shoulder	50	52	54	56	58
Length of Sleeve	59	61	63	65	67
Chest Measurement	120	125	130	135	140

Size Table for Extreme Cold Climate Working Trousers

Size	M	L	LL	XXL	4L
Waist	72 - 80	80 - 88	88 - 101	101 - 114	114 - 127
Inside Leg Measurement	75	75	75	75	75

Stripes (Epaulettes)

Rayas (charreteras)
肩章　条纹（肩章）

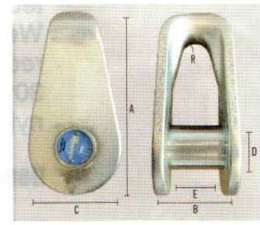
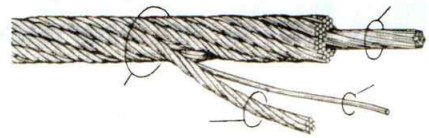
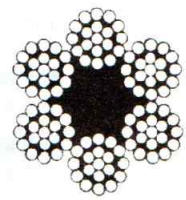
An epaulet with insignia of rank of ship's officers to be fastened to the shoulders. The image is only for reference purpose and actual pattern of rank differ by each company. Sold in pair.



Unit Per Pr.

CODE	Rank	CODE	Rank
19 10 11	2nd El. Engineer	19 10 26	Cook/Steward
12	2nd Engineer	27	El. Engineer
13	2nd Officer	28	Gas Engineer
14	3rd Engineer	29	Master
15	3rd Officer	30	Mechanic
19 10 16	4th Engineer	19 10 31	Messman
17	4th Officer	32	Motorman
18	Able Seaman	33	Oiler
19	Boat Officer	34	Ordinary Seaman
20	Bosun	35	Pumpman
19 10 21	Chief El. Engineer	19 10 36	Steward
22	Chief Engineer	37	Stewardess
23	Chief Officer	38	Waitress
24	Chief Steward	39	Wiper
25	Cook		

21
Rope & Hawsers

Synthetic Ropes / Mooring Rope  P. 21-1 ~ 21	Mooring Links & Shackles  P. 21-22 ~ 24
Synthetic Miscellaneous Rope  P. 21-24 ~ 27	Steel Wire Rope  P. 21-27 ~ 36
Non Rotating Wire Rope  P. 21-36 ~ 43	Stainless Steel Wire Rope  P. 21-43 ~ 46

Requirement of Certificate

Please mention on your request for Ropes and Hawsers, if you require a Certificate for each ropes, and specify which type of certificate: Class / Factory / Manufacturer, etc.

Marine Ropes

Please pay special attention to the following matters when ordering ropes.

1. Breaking strength is a guide line only, based upon the rope size.
2. Specifications are based on tests of new, unused ropes of current manufacture.
3. Once a rope is put into service, it is continuously deteriorating.
4. Manila rope will deteriorate in storage even under ideal conditions.
5. All weights shown in this catalogue are approximate net rope weights.

3-Strand Manila Ropes

Cuerda de Manila 3 Cordones
三つよりマニラロープ　3 股马尼拉绳



A heavy-duty all purpose rope. It provides the necessary tensile strength for safe operations. When ordering, please indicate the correct circumference or diameter of the rope to avoid misdeliveries.

How to order: CODE

Manila rope, 3-strand, DIAM × LENGTH

Unit Per C/L

200mtrs Manila Rope				Breaking Strength kN	220mtrs Manila Rope			
CODE	Size		Weight kg/coil		CODE	Size		Weight kg/coil
	Cir. inch	Diam. mm				Cir. inch	Diam. mm	
21 01 01	1	8	9.40	4.61	**21 01 51**	1	8	10.34
02	1-1/8	9	11.89	5.79	**52**	1-1/8	9	13.08
03	1-1/4	10	14.68	7.06	**53**	1-1/4	10	16.15
04	1-1/2	12	21.14	9.9	**54**	1-1/2	12	23.22
05	1-3/4	14	28.77	13.1	**55**	1-3/4	14	31.65
21 01 06	2	16	37.58	10.9	**21 01 56**	2	16	41.34
07	2-1/4	18	47.56	21.0	**57**	2-1/4	18	52.32
08	2-1/2	20	58.72	25.6	**58**	2-1/2	20	64.59
09	2-3/4	22	71.05	30.5	**59**	2-3/4	22	78.16
10	3	24	84.56	35.9	**60**	3	24	93.02
21 01 11	3-1/4	26	99.24	41.6	**21 01 61**	3-1/4	26	109.16
12	3-1/2	28	115.10	47.8	**62**	3-1/2	28	126.61
13	3-3/4	30	132.12	54.3	**63**	3-3/4	30	145.33
14	4	32	144.32	61.2	**64**	4	32	158.75

3-Strand Polypropylene Mono-Filament Ropes

Cuerda Polipropileno Mono-fillamento
3 Cordones
三つよりポリプロモノロープ　三股丙纶绳



A useful rope for the marine field. This light rope, (gravity 1:091 to water) is stronger than a comparable manila rope, is non water absorbent, non slipping, and provides good flexibility and high durability. A manufacturer's certificate can be provided with the rope if required.

How to order: CODE

Polypro monofilament rope, 3-strand, DIAM × LENGTH

Unit Per C/L

200 mtrs Polypro Mono-Filament				Breaking Strength kN	220 mtrs Polypro Mono-Filament			
CODE	Size		Weight kg. coil		CODE	Size		Weight kg. coil
	Cir. inch	Diam. mm				Cir. inch	Diam. mm	
21 02 01	1	8	6.0	8.53	**21 02 51**	1	8	6.6
02	1-1/8	9	7.6	11.8	**52**	1-1/8	9	8.4
03	1-1/4	10	9.0	12.8	**53**	1-1/4	10	9.9
04	1-1/2	12	13.5	18.4	**54**	1-1/2	12	14.9
05	1-3/4	14	18.2	24.6	**55**	1-3/4	14	20.0
21 02 06	2	16	23.8	31.5	**21 02 56**	2	16	26.2
07	2-1/4	18	30.1	39.1	**57**	2-1/4	18	33.1
08	2-1/2	20	37.1	47.9	**58**	2-1/2	20	40.8
09	2-3/4	22	45.0	56.7	**59**	2-3/4	22	49.5
10	3	24	53.5	66.5	**60**	3	24	58.9
21 02 11	3-1/4	26	62.7	77.2	**21 02 61**	3-1/4	26	69.0
12	3-1/2	28	72.8	88.7	**62**	3-1/2	28	80.1
13	3-3/4	30	83.5	108	**63**	3-3/4	30	91.9
14	4	32	95.0	127	**64**	4	32	104.0
15	4-1/4	34	107	142	**65**	4-1/4	34	118.0
21 02 16	4-1/2	36	120	157	**21 02 66**	4-1/2	36	132.0
17	4-3/4	38	134	171	**67**	4-3/4	38	147.0
18	5	40	148	191	**68**	5	40	163.0

(to be continued)

3-Strand Nylon Ropes

Cuerda de Nylon 3 Cordones
三つよりナイロンロープ　三股尼龙绳



Made of continuous filament while yarn woven into a three strand rope. The fibres are elastic, moisture proof, and highly abrasion resistant. Standard coil length is 200 or 220 mtr. Ropes of other lengths must be made to order.

How to order: CODE

Nylon rope, 3-strand, DIAM x LENGTH

Unit Per C/L

200 mtrs				Breaking Strength kN	220 mtrs			
CODE	Size		Weight kg/coil		CODE	Size		Weight kg/coil
	Cir. inch	Diam. mm				Cir. inch	Diam. mm	
21 05 01	1	8	7.7	14.7	**21 05 51**	1	8	8.5
02	1-1/8	9	9.8	17.7	**52**	1-1/8	9	10.8
03	1-1/4	10	12.1	21.6	**53**	1-1/4	10	13.3
04	1-1/2	12	17.7	29.4	**54**	1-1/2	12	19.5
05	1-3/4	14	24.1	39.2	**55**	1-3/4	14	26.5
21 05 06	2	16	31.0	50.0	**21 05 56**	2	16	34.1
07	2-1/4	18	39.2	61.8	**57**	2-1/4	18	43.1
08	2-1/2	20	48.5	75.5	**58**	2-1/2	20	53.4
09	2-3/4	22	58.5	90.2	**59**	2-3/4	22	64.4
10	3	24	69.9	108	**60**	3	24	76.9
21 05 11	3-1/4	26	81.6	123	**21 05 61**	3-1/4	26	89.8
12	3-1/2	28	95.9	139	**62**	3-1/2	28	105
13	3-3/4	30	109	162	**63**	3-3/4	30	120
14	4	32	124	181	**64**	4	32	136
15	4-1/4	34	140	206	**65**	4-1/4	34	154
21 05 16	4-1/2	36	157	226	**21 05 66**	4-1/2	36	173
17	4-3/4	38	175	255	**67**	4-3/4	38	193
18	5	40	194	275	**68**	5	40	213

Mooring Ropes

AMENDMENTS TO SOLAS: SAFE MOORING OF SHIPS

Cuerdas de amarre Enmiendas a solas: amarre seguro de buques
係船索に関する SOLAS 条約の改正
系泊绳索 对《公约》的修正：船舶安全系泊

The Marine Safety Committee approved amendments to SOLAS Regulation II-1/3-8 at MSC.102 and it will come into force for new building ships constructed on or after 1 January 2024. These amendments showed new requirements for mooring arrangement and equipment including lines to be designed with appropriate conditions. It aims to emphasize the importance of proper mooring arrangement design, the selection of suitable mooring equipment and fittings for safe mooring operations.

The amendments to SOLAS Regulation II-1/3-8 refer to an update to MSC.1/Circ.1175/Rev.1 titled "Revised Guidance on Shipboard Towing and Mooring Equipment" and two new Guidelines:

MSC.1/Circ.1619: *Guideline on the Design of Mooring Arrangements and the Selection of Appropriate Mooring Equipment and Fittings for Safe Mooring*, will apply to ships

constructed on or after 1 January 2024 and give an approach to the design of mooring arrangements and selection of mooring equipment and fittings which should be combined with principles of ergonomics and usability.

MSC.1/Circ.1620: *Guideline for Inspection and Maintenance of Mooring Equipment Including Lines*, which shows guidance and recommendation for the inspection and maintenance of mooring equipment that is already in service. It includes specific criteria for identifying worn-out lines and tales should be removed from service before failure, and criteria for selection of replacement mooring lines and tails.

Definitions (excerpt of MSC.1/Circ.1619 Annex p.1~2)

2.1 Line Design Break Force (LDBF) means the minimum force that a new, dry, spliced, mooring line will break at. This is for all synthetic cordage materials.

2.9 Ship Design Minimum Breaking Load (MBL_{SD}) means the minimum breaking load of new, dry, mooring lines for which shipboard fittings and supporting hull structures are designed in order to meet mooring operations.

The selection of mooring lines should take into account (excerpt of MSC.1/Circ.1619 Annex p.6)

5.2.3.4 the Line Design Break Force (LDBF) to be 100% to 105% of the MBL_{SD}

5.2.4 To avoid overload on mooring winches, fittings and mooring lines, consideration should be given to select mooring winches with brake capacity of less than the ships design minimum breaking load of the mooring line or with adjustable brake capacity.

Load limits (excerpt of MSC.1/Circ.1619 Annex p.7)

5.2.8.4 The WLL of mooring lines should be used as user operating limiting values, not to be exceeded. The WLL is expressed as a percentage of MBL_{SD} and should be used as a limiting value in operational mooring analyses. Steel wires have a WLL of 55% of MBL_{SD} and all other cordage(synthetic) have a WLL of 50% of the MBL_{SD}

8-Strand Polypropylene Mono-Filament Hawsers

Estacha Polipropileno Mono-Filamento 8 Cordones
八つ打ちポリプロモノホーサー　八股丙纶大缆绳

Often called a cross or square rope. Suited well for use as a mooring rope because it does not kink, slip, absorb water, and is easy to handle.

Supplied in standard cut lengths of 200 mtr/110 fathoms or 220 mtr/120 fathoms. Ropes of other lengths must be made to order.

When ordering, please specify whether eyes should be spliced on one or both ends of the rope, and if the eyes should be covered with canvas or leather.

Manufacturers certificate is attached to each rope. Lloyd's, ABS, and NK certificates are available upon request.

How to order: CODE

Hawser, polypropylene monofilament, 8-strand, DIAM x LENGTH

Mooring hawsers will be normally supplied with standard size of eye-splice at both ends.

Unit Per C/L

200 mtrs				Breaking Strength kN	220 mtrs			
CODE	Size		Weight kg/coil		CODE	Size		Weight kg/coil
	Cir. inch	Diam. mm				Cir. inch	Diam. mm	
21 03 01	6	48	202	277	**21 03 51**	6	48	222
02	6-1/4	50	222	296	**52**	6-1/4	50	244
03	6-1/2	52	240	321	**53**	6-1/2	52	264
04	6-7/8	55	268	355	**54**	6-7/8	55	295
05	7	56	276	367	**55**	7	56	304
21 03 06	7-1/2	60	323	418	**21 03 56**	7-1/2	60	355
07	8	65	360	471	**57**	8	65	396
08	8-1/2	68	405	526	**58**	8-1/2	68	446
09	8-11/16	70	435	556	**59**	8-11/16	70	479
10	9	73	455	600	**60**	9	73	500
21 03 11	9-1/4	75	499	632	**21 03 61**	9-1/4	75	549
12	9-1/2	77	525	664	**62**	9-1/2	77	578
13	9-7/8	80	560	712	**63**	9-7/8	80	616
14	10	81	583	728	**64**	10	81	641
15	10-1/2	85	641	797	**65**	10-1/2	85	705
21 03 16	11-1/8	90	719	886	**21 03 66**	11-1/8	90	791
17	11-3/4	95	800	979	**67**	11-3/4	95	880
18	12	97	836	1,010	**68**	12	97	920
19	12-3/8	100	888	1,079	**69**	12-3/8	100	977
20	13	104	967	1,157	**70**	13	104	1,064
21 03 21	13-5/8	110	1,084	1,275	**21 03 71**	13-5/8	110	1,192
22	14	113	1,144	1,344	**72**	14	113	1,258
23	14-7/8	120	1,282	1,500	**73**	14-7/8	120	1,410
24	15	121	1,303	1,520	**74**	15	121	1,433

8-Strand Polypropylene Split-Film Hawsers

Estacha Polipropileno Sprit-Film 8 Cordones Trenzadas
八つ打ちポリプロスプリットフィルムホーサー　八股丙纶复丝大缆绳

Known as a cross braided or square hawser. This rope is unique as a mooring hawser because it does not kink, slip, or absorb water, is durable and easy to handle.

When ordering, please indicate if one or both ends of the rope should be eye spliced and covered with canvas or leather. Also, please specify if a manufacturer's certificate will be required.

How to order: CODE

Hawser, polypropylene split-film, 8-strand, DIAM x LENGTH

Unit Per C/L

200 mtrs				Breaking Strength kN	220 mtrs			
CODE	Size		Weight kg/coil		CODE	Size		Weight kg/coil
	Cir. inch	Diam. mm				Cir. inch	Diam. mm	
21 04 01	6	48	202	267	**21 04 51**	6	48	222
02	6-1/4	50	222	288	**52**	6-1/4	50	244
03	6-1/2	52	240	309	**53**	6-1/2	52	264
04	6-7/8	55	268	345	**54**	6-7/8	55	295
05	7	56	276	353	**55**	7	56	304
21 04 06	7-1/2	60	313	404	**21 04 56**	7-1/2	60	344
07	8	65	360	457	**57**	8	65	396
08	8-1/2	68	406	500	**58**	8-1/2	68	446
09	8-11/16	70	435	530	**59**	8-11/16	70	479
10	9	73	455	574	**60**	9	73	500
21 04 11	9-1/4	75	499	605	**21 04 61**	9-1/4	75	549
12	9-1/2	77	524	637	**62**	9-1/2	77	577
13	9-7/8	80	560	686	**63**	9-7/8	80	616
14	10	81	568	706	**64**	10	81	625
15	10-1/2	85	630	775	**65**	10-1/2	85	693
21 04 16	11-1/8	90	715	866	**21 04 66**	11-1/8	90	787
17	11-3/4	95	790	965	**67**	11-3/4	95	869
18	12	97	815	1,000	**68**	12	97	897
19	12-3/8	100	880	1,059	**69**	12-3/8	100	968

8-Strand Nylon Hawsers

Estachas de Nylon 8 Cordones
八つ打ちナイロンホーサー　八股线尼龙缆绳



Designed for sea berth mooring, towing, and other heavy-duty jobs. This rope will not kink and is highly durable.

When ordering, please indicate the number of eye spilces and if a canvas or leather cover is required for the eyes. Also, please indicate if a certificate is required.

How to order: CODE

Hawser, nylon, 8-strand, DIAM x LENGTH

Mooring hawsers will be normally supplied with standard size of eye-spilce at both ends.

Unit Per C/L

200 mtrs					220 mtrs			
CODE	Size		Weight kg/coil	Breaking Strength kN	CODE	Size		Weight kg/coil
	Cir. inch	Diam. mm				Cir. inch	Diam. mm	
21 06 01	6	48	281	382	**21 06 51**	6	48	309
02	6-1/4	50	304	422	**52**	6-1/4	50	334
03	6-1/2	52	330	451	**53**	6-1/2	52	363
04	6-7/8	55	368	500	**54**	6-7/8	55	405
05	7	56	382	508	**55**	7	56	420
21 06 06	7-1/2	60	438	588	**21 06 56**	7-1/2	60	482
07	8	65	513	687	**57**	8	65	564
08	8-1/2	68	563	745	**58**	8-1/2	68	619
09	8-11/16	70	596	785	**59**	8-11/16	70	656
10	9	73	648	834	**60**	9	73	713
21 06 11	9-1/4	75	683	902	**21 06 61**	9-1/4	75	751
12	9-1/2	77	721	951	**62**	9-1/2	77	793
13	9-7/8	80	777	1,030	**63**	9-7/8	80	855
14	10	81	796	1,049	**64**	10	81	876
15	10-1/2	85	874	1,147	**65**	10-1/2	85	961
21 06 16	11-1/8	90	980	1,275	**21 06 66**	11-1/8	90	1,078
17	11-3/4	95	1,092	1,412	**67**	11-3/4	95	1,201
18	12	97	1,138	1,461	**68**	12	97	1,252
19	12-3/8	100	1,210	1,549	**69**	12-3/8	100	1,331
20	13	104	1,309	1,667	**70**	13	104	1,440
21 06 21	13-5/8	110	1,464	1,844	**21 06 71**	13-5/8	110	1,610
22	14	113	1,545	1,942	**72**	14	113	1,700
23	14-7/8	120	1,742	2,167	**73**	14-7/8	120	1,916
24	15	121	1,771	2,206	**74**	15	121	1,948

Double Braided Hawsers

Estachas de Doble Trenzado

ダブルブレードホーサー

双股尼龙双层编织缆绳



Rope construction designed with a braided inner core which is covered with another braided outer sheath. Usually made of nylon, polypropylene multifilament, and polyester, or a combination of those materials.

The rope can be provided with either a nylon or polypropylene inner core and a polyester outer sheath.Standard length of the coil is 200 or 220 mtr. When ordering, please specify the coil length and the material brand required.

The Illustration of Double Braided Construction

Features of Double Braided Hawsers

- 30% higher breaking strength than the 3 or 8 strand rope.
- 30% less stretching/elongation than the 3 or 8 strand ropes.
- Superior abrasion resistance.
- High flexibility and easy handling.

Outer Braided Cover: Nylon
Inner Braided Core : Nylon

How to order: CODE

Hawser, nylon, double braided, DIAM x LENGTH

Unit Per C/L

200 mtrs					220 mtrs			
CODE	Size		Weight kg. coil	Breaking Strength kN	CODE	Size		Weight kg. coil
	Cir. inch	Diam. mm				Cir. inch	Diam. mm	
21 07 01	5	40	208	373	**21 07 31**	5	40	229
02	5-1/4	42	227	405	**32**	5-1/4	42	250
03	5-5/8	45	261	460	**33**	5-5/8	45	287
04	6-1/4	50	320	559	**34**	6-1/4	50	352
05	6-7/8	55	386	669	**35**	6-7/8	55	425
21 07 06	7-1/2	60	459	787	**21 07 36**	7-1/2	60	505
07	8	65	538	917	**37**	8	65	592
08	8-11/16	70	624	1,049	**38**	8-11/16	70	686
09	9-1/4	75	723	1,216	**39**	9-1/4	75	795
10	9-7/8	80	824	1,373	**40**	9-7/8	80	906
21 07 11	10-1/2	85	924	1,530	**21 07 41**	10-1/2	85	1,106
12	11-1/8	90	1,037	1,716	**42**	11-1/8	90	1,141
13	11-3/4	95	1,157	1,902	**43**	11-3/4	95	1,273
14	12-3/8	100	1,279	2,108	**44**	12-3/8	100	1,407

Outer Braided Cover: Polypropylene + Polyester
Inner Braided Core : Polypropylene

How to order: CODE

Hawser, polypropylene/Polyester mixed, double braided, DIAM x LENGTH

Unit Per C/L

200 mtrs					220 mtrs			
CODE	Size		Weight kg. coil	Breaking Strength kN	CODE	Size		Weight kg. coil
	Cir. inch	Diam. mm				Cir. inch	Diam. mm	
21 08 16	5	40	190	343	**21 08 85**	5	40	209
17	5-1/4	42	210	376	**86**	5-1/4	42	231
18	5-5/8	45	241	429	**87**	5-5/8	45	265
19	6-1/4	50	309	518	**88**	6-1/4	50	340
20	6-7/8	55	380	620	**89**	6-7/8	55	418
21 08 21	7-1/2	60	450	730	**21 08 90**	7-1/2	60	495
22	8	65	521	850	**91**	8	65	573
23	8-11/16	70	605	964	**92**	8-11/16	70	666
24	9-1/4	75	689	1,120	**93**	9-1/4	75	758
25	9-7/8	80	786	1,270	**94**	9-7/8	80	865
21 08 26	10-1/2	85	877	1,410	**21 08 95**	10-1/2	85	965
27	11-1/8	90	995	1,580	**96**	11-1/8	90	1,095
28	11-3/4	95	1,112	1,760	**97**	11-3/4	95	1,223
29	12-3/8	100	1,243	1,940	**98**	12-3/8	100	1,367

Outer Braided Cover: Polyester (Tetoron)
Inner Braided Core : Nylon

How to order: CODE

Hawser, polyester/nylon, double braided, DIAM x LENGTH

Unit Per C/L

200 mtrs					220 mtrs			
CODE	Size		Weight kg. coil	Breaking Strength kN	CODE	Size		Weight kg. coil
	Cir. inch	Diam. mm				Cir. inch	Diam. mm	
21 09 01	5	40	243	385	**21 09 31**	5	40	267
02	5-1/4	42	268	423	**32**	5-1/4	42	295
03	5-5/8	45	308	482	**33**	5-5/8	45	339
04	6-1/4	50	380	589	**34**	6-1/4	50	418
05	6-7/8	55	460	706	**35**	6-7/8	55	506
21 09 06	7-1/2	60	547	834	**21 09 36**	7-1/2	60	602
07	8	65	642	970	**37**	8	65	706
08	8-11/16	70	745	1,118	**38**	8-11/16	70	820
09	9-1/4	75	855	1,275	**39**	9-1/4	75	941
10	9-7/8	80	973	1,442	**40**	9-7/8	80	1,070
21 09 11	10-1/2	85	1,098	1,618	**21 09 41**	10-1/2	85	1,208
12	11-1/8	90	1,231	1,804	**42**	11-1/8	90	1,354
13	11-3/4	95	1,372	2,000	**43**	11-3/4	95	1,509
14	12-3/8	100	1,520	2,167	**44**	12-3/8	100	1,672

High Performance Mooring Ropes 8-Strand Dan Line Super Polypropylene Ropes

Estachas Polipropileno "Dan Line Super" 8 Cordones

ダンラインスーパーロープ　八股超强化纤维缆绳

The durability of this rope does not decrease as the strength of the load is increased. It is suitable to use for high tension work loads, for mooring, or as a towing line.



* 30 % higher breaking strength than polypropylene.
* Light weight: with a specific gravity of 0.91, it will float in water.
* Will become elongated when necessary to absorb shocks.
* Has superior abrasion resistance.

How to order: CODE

Hawser, polypropylene, Dan-Line Super, 8-strand, DIAM x LENGTH

Unit Per C/L

200 mtrs				Breaking Strength kN	220 mtrs			
CODE	Size Cir. inch	Size Diam. mm	Weight kg. coil		CODE	Size Cir. inch	Size Diam. mm	Weight kg. coil
21 10 01	5	40	152	229	**21 10 26**	5	40	167
02	5-1/4	42	167	253	**27**	5-1/4	42	184
03	5-5/8	45	191	288	**28**	5-5/8	45	210
04	6	48	218	326	**29**	6	48	240
05	6-1/4	50	236	352	**30**	6-1/4	50	260
21 10 06	6-1/2	52	256	379	**21 10 31**	6-1/2	52	282
07	6-7/8	55	286	422	**32**	6-7/8	55	315
08	7	56	296	436	**33**	7	56	326
09	7-1/2	60	340	497	**34**	7-1/2	60	374
10	8	65	399	579	**35**	8	65	439
21 10 11	8-1/2	68	437	631	**21 10 36**	8-1/2	68	481
12	8-11/16	70	463	667	**37**	8-11/16	70	509
13	9	73	504	721	**38**	9	73	554
14	9-1/4	75	531	760	**39**	9-1/4	75	584
15	9-7/8	80	605	859	**40**	9-7/8	80	666
21 10 16	10	81	620	880	**21 10 41**	10	81	682
17	10-1/2	85	683	964	**42**	10-1/2	85	751
18	11-1/8	90	765	1,069	**43**	11-1/8	90	842
19	11-3/4	95	853	1,187	**44**	11-3/4	95	938
20	12-3/8	100	945	1,314	**45**	12-3/8	100	1,040
21 10 21	13-5/8	110	1,140	1,579	**21 10 46**	13-5/8	110	1,254
22	14-7/8	120	1,360	1,853	**47**	14-7/8	120	1,496

* 3-strand ropes available if required.

Tipto® Eight 8-Strand Mooring Ropes

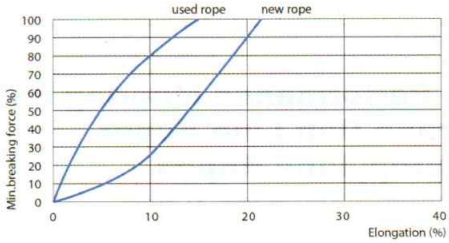
Estachas "Tipto® Eight" 8 Cordones
ティプト・エイト・ロープ
Tipto®Eight 八股缆绳



A high-performance mooring rope, TIPTO®EIGHT's strength, abrasion resistance and energy absorption ensure a long service life and low cost of ownership. The rope's small diameter and low weight make handling easier on board. As a floating rope, the risk of getting the rope caught in the ship and tug propeller is minimal, thus avoiding costly downtime.

Specifications

Specific Gravity	0.93 (floating)	Melting Point	Approx. 140°C
UV-resistance	Very Good	Construction	8-strand plaited
Abrasion Resistance	Very Good	Colour	Yellow
Chemical Resistance	Good	Marker Yarn	Orange
Elongation	See graph	Water Absorption	0%



How to order: CODE

Mooring rope, Tipto®Eight, 8-strand, DIAM x LENGTH

Unit Per Mtr.

CODE	Circ. Inch	Diam. mm	M.B.F. (kN) ISO2307	M.B.F. (kN) Spliced	Weight 100 mtr kg
21 10 54	5	40	269	242	75.6
55	5-1/2	44	321	289	92.4
56	6	48	378	340	109
57	6-1/2	52	441	397	128
58	7	56	508	457	149
21 10 59	7-1/2	60	578	520	171
60	8	64	651	586	194
61	8-1/2	68	731	658	220
62	9	72	814	733	246
63	10	80	992	893	305
21 10 64	11	88	1,180	1,062	369
65	12	96	1,400	1,260	438

Name of Mfr.: Lankhorst Ropes

Karat® Maxi Plus Mooring Ropes 8-strand

Estachas "Karat® Maxi Plus" 8 Cordones
カラットマキシ プラスロープ　卡拉特八股缆绳



Karat® Maxi Plus has very high strength/ weight ratio which allows substantial size reductions and ease in handling. It has the following performance features, *Highest strength of the conventional permanently floating mooring ropes, *High abrasion resistance, *No loss of strength when wet, *High energy absorption, *Very low snap-back effect, *Manufactured acc. to ISO and OCIMF MEG4 Guideline, *EStalon™ is a polyester/polypropylene melt mixture, *Eurolefin™ in the outer yarn. Ropes are tested and certified by Lloyd's Register type approval.

When ordering, please specify the diam and length of the rope and if one or both ends of the rope should be eye spliced.

Specifications

Melting Point	185°C	Spec, Gravity	0.99
Water Absorption	0%	Reduction of MBL when wet	0%
Bending Ratio, Dynamic ISO 3730			9:1
Elongation, new rope			18.50%
Elongation, broken-in ropes (15-20 operations)			14.39%
On request: Larger diameter, different colour, 12-strand			

How to order: CODE

Mooring rope, Karat® maxi plus, 8-strand, DIAM x LENGTH

Unit Per Mtr.

CODE	Circ.Inch	Diam.mm	LDBF kN	Weight/ 100 mtr kg
21 10 71	5	40	344	80
72	5-1/2	44	411	97
73	6	48	483	115
74	6-1/2	52	560	136
75	7	56	644	157
21 10 76	7-1/2	60	731	181
77	8	64	827	206
78	8-1/2	68	927	232
79	9	72	1,033	260
80	10	80	1,243	321
21 10 81	11	88	1,384	389
82	12	96	1,637	463
83	13	104	1,833	544
84	14	112	2,111	630

Name of Mfr.: Eurorope Marine A/S

Atlas Mooring Ropes 6-Strand Cross-laid



Estachas Cruzado "Atlas" 6 Cordones
六つ打ちアトラスロープ
六股交织 Atlas 缆绳

Atlas rope is a synthetic fiber rope formed from 100 % nylon monofilament and continuous filament yarns. It has a greater tendency to elongate than steel ropes and therefore is less susceptible to breakage from shock tension strain. Also, compared to steel ropes, it requires much less maintenance and is considerably lighter and easier to handle, facilitating rapid mooring.

Atlas rope is generally easy to handle and can be spliced easily allowing for any type adjustment or moderation to be done on board. This rope has excellent resistance to abrasion and will become more flexible and easier to handle with extensive use. Standard length is 220 mtr. When ordering, please specify the diam and length of the rope and if one or both ends of the rope should be eye spliced. Relative density: 1.14.

How to order: CODE

Mooring rope, Atlas, 6-strand cross-laid, DIAM x LENGTH

Unit Per C/L

CODE	220 mtr/120 fms Size		Weight kg/mtr	Breaking Strength	
	Cir Ich	Diam. mm		kN	tf
21 11 01	5	40	1.00	304.1	31.0
02	5-1/2	44	1.25	412.0	42.0
03	6	48	1.48	490.5	50.0
04	6-1/2	52	1.61	529.7	54.0
05	7	56	2.00	652.4	66.5
21 11 06	7-3/4	62	2.35	775.0	79.0
07	8	64	2.45	794.6	81.0
08	8-1/2	68	2.80	922.1	94.0
09	8-3/4	70	3.10	1,010.4	103.0

Karat® Winchline™ 6-Strand Mooring Ropes

Estachas "Karat Winchline" 6 Cordones
六つ打ちカラット・ウインチラインロープ　卡拉特六股缆绳



Combined the unique characteristics of the high strength Karat®-fibres with a 6-strand "wire rope" lay. The outer layer of each strand comprises a special combination of Nylon monofilaments and Nylon multifilaments. This rope is specially designed to be used on self-tensioning winches and is DNV Type Approval. Special characteristics are high resistance to deformation, no crushing or jamming on winch, high abrasion resistance, excellent fatigue properties giving longer lifetime, and maintenance free. When ordering, please specify the diam and length of the rope and if one or both ends of the rope should be eye spliced.

Specifications

Melting Point	250°C	Spec. Gravity	1.1
Water Absorption	2%	Reduction of MBL when wet	1%
Bending Ratio, Dynamic ISO 3730			12:1
Elongation, new rope			25%
Elongation, broken-in ropes (15-20 operations)			18%

How to order: CODE

Mooring rope, Karat® winchline™, 6-strand, DIAM x LENGTH

Unit Per Mtr.

CODE	Size		Breaking Strength kN	Weight/ 100 mtr kg
	Circ. Inch	Diam. mm		
21 11 11	5	40	324	104
12	5-1/2	44	412	121
13	6	48	491	144
14	6-1/2	52	530	169
15	7	56	657	197
21 11 16	7-1/2	60	706	225
17	8	64	804	257
18	8-1/2	68	922	290
19	9	72	1,059	325
20	10	80	1,236	401

Name of Mfr.: Eurorope Marine A/S

Buoyant Winchline™ 6-Strand Mooring Ropes



Estachas "Buoyant Winchline" 6 cordones
六つ打ちブイヤントウィンチライン
浮水 Winchline™ 六股缆绳

A unique fibre rope with a 6-strand "wire rope lay". The outer layer of each strand comprises a special combination of Nylon monofilaments and PP multifilaments. Buoyant Winchline™ is designed to be permanently floating and to be used on self tensioning winches. Special characteristics are light weight (floats), high resistance to deformation, no crushing or jamming on winch, high abrasion resistance, excellent fatigue properties giving longer lifetime, high strength which gives better safety, and maintenance free.

When ordering, please specify the diam and length of the rope and if one or both ends of the rope should be eye spliced.

Specifications

Melting Point	250/165°C	Spec, Gravity	0.99
Water Absorption	2%	Reduction of MBL when wet	1%
Bending Ratio, Dynamic ISO 3730			12:1
Elongation, new rope			23%
Elongation, broken-in ropes (15-20 operations)			15%

How to order: CODE

Mooring rope, Buoyant winchline™, 6-strand, DIAM x LENGTH

Unit Per Mtr.

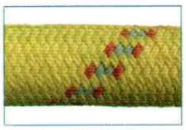
CODE	Size		Breaking Strength kN	Weight/ 100 mtr kg
	Circ. Inch	Diam. mm		
21 11 85	5	40	308	99
86	5-1/2	44	391	115
87	6	48	466	137
88	6-1/2	52	503	161
89	7	56	625	187
21 11 90	7-1/2	60	671	214
91	8	64	764	244
92	8-1/2	68	876	276
93	9	72	1,007	309
94	10	80	1,174	381

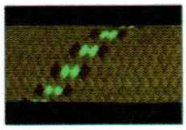
Name of Mfr.: Eurorope Marine A/S

Tipto® Winchline 7-strand Fibre Mooring Ropes

Cable de Amarre de Fibra "Tipto-Winchline", 7 Trenzas
七つ打ちティプトウインチライン・ロープ　Tipto 絞車繊縄

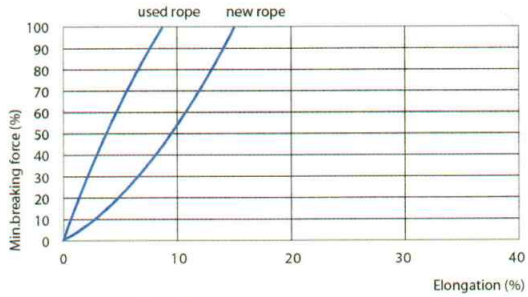
A dedicated floating winch line for self-tensioning winches. This load-bearing 7 strand core combines high strength and relatively low elongation. The non-loadbearing braided jacket includes phosphorescent tracer yarn allowing the rope to glow during the hours of darkness, increasing dockside visibility and creating a pleasing visual effect of the moored vessel for your passengers. The jacket also provides protection of the core for longer service life. The mooring efficiency of the vessel is enhanced by the ease of handling of the rope due to its low weight and ability to float. Tipto® Winchline does not lose its strength when wet.





Specifications

Specific Gravity	0.93 (Floating)	Construction	7-strand +jacket
		TCLL Value	72.7%
UV-resistance	Very Good	Colour	Yellow
Abrasion Resistance	Very Good	Marker Yarn	Orange
Chemical Resistance	Good	Water-absorption	0%
Elongation	See graph	On Request	Larger Diameter
Melting Point	Approx. 140°C		



How to order: CODE

Mooring rope, Tipto® Winchline, 7-strand, DIAM x LENGTH, LENGTH OF SPLICE if necessary

Unit Per Mtr.

CODE	Diam. mm	M.B.F. (kN)		Weight 100 mtr/kg
		ISO2307	Spliced	
21 17 73	36	248	223	74
74	42	340	306	98
75	46	425	383	115
90	48	472	425	125
76	50	512	461	133
21 17 77	54	598	538	150
91	56	640	576	160
78	58	682	614	167
92	60	730	657	184
93	62	780	702	190
21 17 79	64	850	765	203
80	68	934	841	221
94	70	990	891	240
81	74	1,100	990	256
82	80	1,270	1,143	355
21 17 83	82	1,350	1,215	380
95	84	1,420	1,278	395

Name of Mfr.: Lankhorst Ropes

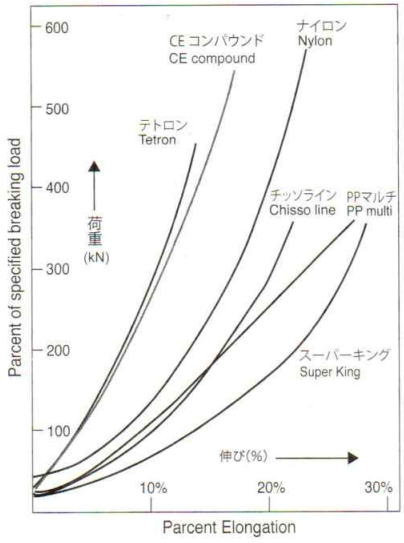
CE Compound Mooring Ropes

Estachas Compuesto "CE"
CE コンパウンドムアリングロープ　CE 合成繊縄

Newly developed mooring rope, made from complex material, which offers excellent abrasion resistance and fatigue resistance. Due to the lighter specific gravity than water, will float and is easier to handle.

N.K. (Nippon Kaiji Kyokai) certificate will be attached.

Load Elongation Curve



Unit Per Mtr.

CODE	Size		Weight kg/200 mtr	Medium Strength kN
	Circ. Inch	Diam mm		
21 15 01	3-3/4	30	104	140
02	4	32	119	158
03	4-3/8	35	141	185
04	5	40	185	246
05	5-5/8	45	234	306
21 15 06	6	48	266	352
07	6-1/4	50	288	375
08	7	55	349	458
09	7-1/2	60	415	522
10	8	65	487	607
21 15 11	8-11/16	70	566	706
12	9-1/4	75	649	818
13	10	80	739	917
14	10-1/2	85	834	1,044
15	11-1/18	90	935	1,148
21 15 16	11-3/4	95	1,042	1,272
17	12-3/8	100	1,155	1,410
18	13-3/4	110	1,398	1,666
19	15	120	1,664	1,991

Name of Mfr.: Obama Rope Mfg.

Marine Power 12-Strand Mooring Ropes

Cable de Amarre con 12 Trenzas
マリンパワーロープ　船用 12 股繊縄



Made by combination of polyester multi-filament and special polypropylene mono-filament which braided with 6 pairs of two strands together. The braided surface is smoother than

conventional 8-strand rope makes more better durability in abrasion.

The 12 strands rope produced 20% higher tensile strength than conventional 8-strand of rope and longer pitch about 1.5 times than strander diameter makes excellent characteristics in handling.

Ordering can be made by indicate clearly the following items ; Size (Diameter), length (Standard length 200 mtr – the length of rope will be requested by customer) and size of eye-splice (Whether eyes should be spliced on one or both ends of the rope).

How to order: CODE

Mooring rope, Marine Power,12-strand, DIAM x LENGTH

Unit Per Mtr.

CODE	Circ. Inch	Diam mm	Breaking Strength kN	Weight / 200 mtr kg
21 15 31	3-3/4	30	175	102
32	4	32	198	116
33	4-1/4	34	222	131
34	4-1/2	36	247	146
35	4-3/4	38	274	163
21 15 36	5	40	302	181
37	5-1/4	42	331	199
38	5-5/8	45	378	229
39	6-1/4	50	462	283
40	6-7/8	55	553	342
21 15 41	7-1/2	60	653	407
42	8	65	760	477
43	8-11/16	70	875	554
44	9-1/4	75	997	636
45	9-7/8	80	1,130	723
21 15 46	10-1/2	85	1,260	816
47	11-1/8	90	1,410	915
48	11-3/4	95	1,560	1,020
49	12-3/8	100	1,720	1,130

Name of Mfr.: Tesac

Mooring Ropes 8-Strand "Marine-Combi-Rope"

Cable de Amarre con 8 Trenzas "Marine Combi Rope"

マリンコンビロープ　8股线系船缆 "海上混合钢索"



Made by mixing of polyester multi-filament (White colour) and special polypropylene mono-filament (Orange color) which braided with 8 pairs of strands together. By the mixing of these two elements makes well balanced in floating, abrasion and cost saving.

The color of white polyester and orange of polypropylene mono-filament can be seen clearly in the water. One of the strongest ropes among water-floating product in 8-strand rope category.

Ordering can be made by indicate clearly the following items; Size (Diameter), length (Standard length 200 mtr - the length of rope will be requested by customer) and size of eye-splice (Whether eyes should be spliced on one or both ends of the rope).

How to order: CODE

Mooring rope, Marine-Combi Rope, 8-strand, DIAM x LENGTH

Unit Per Mtr.

CODE	Size		Minimum Breaking Strength kN	Weight / 200 mtr kg
	Circ. Inch	Diam mm		
21 15 51	5	40	246	181
52	5-5/8	45	308	229
53	6-1/4	50	376	283
54	6-7/8	55	451	342
55	7-1/2	60	532	407
21 15 56	8	65	619	477
57	8-11/16	70	713	554
58	9-1/4	75	813	636
59	9-7/8	80	919	723
60	10-1/2	85	1,030	816
21 15 61	11-1/8	90	1,150	915
62	11-3/4	95	1,270	1,020
63	12-3/8	100	1,400	1,130
64	13-5/8	110	1,680	1,370
65	14-7/8	120	1,990	1,630

Name of Mfr.: Tesac

Mooring Ropes

Polypropylene/Polyester Composite Rope "Bell Mix Rope"

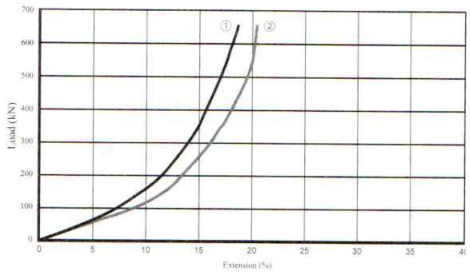
Cable de Amarre/Cable compuesto de Polipropileno y Poliéster

混紡ロープ "ベルミックスロープ"　繫船索 聚丙烯 / 聚酯纖維混合繩

A composite rope with Polypropylene and Polyester with the following remarkable characteristics ; Low elastic elongation, stronger resistance to cut and abrasion, easy to handle and process of eye-splice, etc. The rope keeps same strength whichever in air or in sea, and it floats. There are three types of braided construction as illustrated below. Standard length is 200 mtr. When ordering, please specify the diam and length of the rope, and one or both ends of the rope should be eye spliced.

	12-strand (2 × 6) Southern Cross
	12-strand (1 × 12) Southern Braid

Load Elongation Curve



① Bell Mix Southern Braid (1×12)
Rope diam. 60 mm, B/S 660 kN

② Bell Mix Southern Cross (2×6)
Rope diam. 60 mm, B/S 653 kN

Properties: Melting Point
Polypropylene 163ºC , Polyester 240ºC

12-strand (2 × 6) Southern Cross

How to order: CODE

Mooring rope, Polypropylene / Polyester composite, Bell Mix, 12-strand Southern Cross, DIAM X LENGTH, WITH FURTHER SPECIFICATION INCLUDING END PREPARATION & KINDS OF CERTIFICATE

Unit Per Mtr.

CODE	Size		B/S kN	Weight kg/200 mtr
	Circ. Inch	Diam mm		
21 15 81	5	40	305	183
82	5-5/8	45	382	232
83	6-1/4	50	467	286
84	6-7/8	55	559	346
85	7-1/2	60	660	412
21 15 86	8	65	763	483
87	8-11/16	70	884	560
88	9-1/4	75	1.010	643
89	9-7/8	80	1.140	731

Name of Mfr.: NAROC ROPE TECH.

12-strand (1 × 12) Southern Braid

How to order: CODE

Mooring rope, Polypropylene / Polyester composite, Bell Mix, 12-strand Southern Braid, DIAM X LENGTH, WITH FURTHER SPECIFICATION INCLUDING END PREPARATION & KINDS OF CERTIFICATE

Unit Per Mtr.

CODE	Size		B/S kN	Weight kg/200 mtr
	Circ. Inch	Diam mm		
21 15 91	5	40	305	183
92	5-5/8	45	382	232
93	6-1/4	50	467	286
94	6-7/8	55	559	346
95	7-1/2	60	660	412
21 15 96	8	65	763	483
97	8-11/16	70	884	560
98	9-1/4	75	1,010	643
99	9-7/8	80	1,140	731

Name of Mfr.: NAROC ROPE TECH.

Mooring Rope Size Guide to Ship's Weight for Bell Mix (Polypropylene / Polyester Composite Rope)

Ship's Type and Weight	Kind of Rope and Size
Chemical Tanker (12,000 t - 33,000 t) Products Carrier (45,000 t - 47,000 t)	Southern cross (2 × 6) 55 mm - 65 mm dia Southern braid (1×12) 60 mm - 65 mm dia.
Cape Size Bulk Carrier (180,000 t - 207,000 t)	Southern cross (2×6) 70 mm - 75 mm dia Southern braid (1×12) 70 mm - 75 mm dia.
Panamax Size Bulk Carrier (76,000 t - 82,000 t)	Southern cross (2×6) 70 mm dia Southern braid (1×12) 70 mm dia
Pure Car Carrier (6,400 UNITS)	Southern cross (2×6) 75 mm dia. Southern braid (1×12) 75 mm dia.

Remark:
This information is suggested by NAROC ROPE TECH., and please acknowledge that the actual applications in your ships case will be different depending on the ship structure, ship designing department, and the condition of the port of call.

Mooring Ropes

High Strength Nylon "Unilon"

Cable de Nilón Altamente Reforzado "Union"
ユニロンロープ　高耐受力尼龍繫船索 "Unilon"

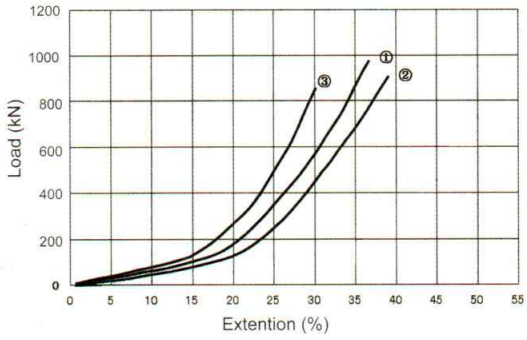
Compared to former nylon ropes, Unilon rope produces 30% higher strength, providing substantially better service life. It keeps softness even after long period of operation, and keeps endurance to direct ray, inclement climate, and cold climate.

Available three types of construction as illustrated below. Standard length is 200 mtr. When ordering, please specify the diam and length of the rope, and one or both ends of the rope should be eye spliced.


12-strand (2 × 6) Southern Cross


Doubel Braided

Load Elongation Curve



①Unilon Double Braid　Rope diam. 60 mm. B/S 958 kN
②Unilon Southern Cross (2×6)　Rope diam. 60 mm. B/S 890 kN
③UnimixG Doubel Braid　Rope diam. 60 mm, B/S 835 kN

Properties: Union (UnimixG), Gravity 1.14 (1.21), Melting point 180°C

12-strand (2 × 6) Southern Cross

How to order: CODE

Mooring rope, high strength Nylon, Unilon, 12-strand southern cross, DIAM × LENGTH, WITH FURTHER SPECIFICATION INCLUDING END PREPARATION & KINDS OF CERTIFICATE

Unit Per Mtr.

CODE	Size		B/S	Weight
	Circ. Inch	Diam mm	kN	kg/200 mtr
21 19 11	5	40	417	200
12	5-5/8	45	519	253
13	6-1/4	50	635	313
14	6-7/8	55	763	378
15	7-1/2	60	890	450
21 19 16	8	65	1,040	528
17	8-11/16	70	1,200	613
18	9-1/4	75	1,370	703
19	9-7/8	80	1,540	800

Name of Mfr.: NAROC ROPE TECH.

Double Braided Rope Unilon

How to order: CODE

Mooring rope, high strength Nylon, Unilon, double braided, DIAM × LENGTH, WITH FURTHER SPECIFICATION INCLUDING END PREPARATION & KINDS OF CERTIFICATE

Unit Per Mtr.

CODE	Size		B/S	Weight
	Circ. Inch	Diam mm	kN	kg/200 mtr
21 19 21	5	40	449	206
22	5-5/8	45	557	261
23	6-1/4	50	679	322
24	6-7/8	55	814	389
25	7-1/2	60	958	463
21 19 26	8	65	1,120	543
27	8-11/16	70	1,290	630
28	9-1/4	75	1,490	723
29	9-7/8	80	1,660	823

Name of Mfr.: NAROC ROPE TECH.

Double Braided Rope UnimixG

How to order: CODE

Mooring rope, low extension Nylon Unilon G and Polyester, double braided, DIAM X LENGH, WITH FURTHER SPECIFICATION INCLUDING END PREPARATION & KINDS OF CERTIFICATE

Unit Per Mtr

CODE	Size		B/S	Weight
	Circ. Inch	Diam mm	kN	kg/200 mtr
21 19 31	5	40	449	206
32	5-5/8	45	557	261
33	6-1/4	50	679	322
34	6-7/8	55	814	389
35	7-1/2	60	958	463
21 19 36	8	65	1,120	543
37	8-11/16	70	1,290	630
38	9-1/4	75	1,490	723
39	9-7/8	80	1,660	823

Name of Mfr.: NAROC ROPE TECH.

Mooring Rope Size Guide to Ship's Weight for Unilon (High Strength Nylon Rope)

Ship's Type and Weight	Kind of Rope and Size
Cape Size bulk Carrier (180,000 t - 207,000 t)	Double braided 65mm - 70 mm dia Cross (2 × 4) 70 mm - 75 mm dia
Panamax Size Bulk Carrier (76,000 t - 82,000 t)	Southern Cross (2 x 6) 65 mm– 70 mm dia
Pure Car Carrier (7,500 UNITS)	Double braided 75 mm dia Southern Cross (2 x 6) 75 mm dia
Container Ship (20,000 TEU)	Souther cross (2 × 6) 80 mm dia Double braied 80 mm dia
Container Ship (5,980 TEU)	Southern cross (2 × 6) 75 mm dia Double braided 70 mm dia - 75 mm dia
Container Ship (1,800 - 2,400 TEU)	Double braided 60 mm - 65 mm dia

Remark:
This information is suggested by NAROC ROPE TECH., and please acknowledge that the actual applications in your ships case will be different depending on the ship structure, ship designing department, and the condition of the port of call.

Mooring Lines 8-strand Eurofloat® Premium

Cuerda de Amarre a 8 Trenzas Eurofloat
ユーロフロートプレミアムロープ
八股繫泊索

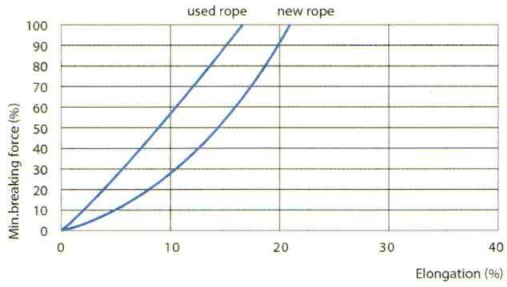


A floating high performance rope constructed from high strength polyolefin and polyester yarns. It is manufactured to the latest EN and ISO standards, and complies with OCIMF recommendations. The floating characteristic makes it a safe rope to work with, while its high TCLL value ensures excellent fatigue resistance.

Tested in compliance with OCIFM MEG4: 32 – 88 mm
DNV type approved product: 32 – 112 mm

Specifications

Specific Gravity	0.98 (Floating)	Construction	8-strand plaited
		Elongation	See graph
UV-resistance	Good	T.C.L.L Value	74.18%
Abrasion Resistance	Very Good	Colour	White
Chemical Resistance	Good	Marker Yarn	Two green markers
Melting Point	Approx. 165°C/ 260°C	Water-absorption	0.1%



Unit Per Mtr.

CODE	Circ. Inches	Diam. mm	M.B.F.(kN)		Weight kg/100 mtr
			ISO2307	Spliced/LDBF	
21 16 85	4	32	207	186	53
86	4-1/2	36	259	233	67
87	5	40	324	292	85
88	5-1/2	44	377	339	99
89	6	48	456	410	120
21 16 90	6-1/2	52	534	481	141
91	7	56	613	552	162
92	7-1/2	60	701	631	188
93	8	64	799	719	216
94	8-1/2	68	900	810	245
21 16 95	9	72	1,000	900	275
96	9-1/2	76	1,098	988	305
97	10	80	1,205	1,085	339
98	11	88	1,470	1,323	411
99	12	96	1,735	1,562	490

Name of Mfr.: Lankhorst Ropes

Euroflex® 8-strand Plaited Fibre Mooring Ropes

Cable de Amarre de Fibra Chapada, 8 trenzas, "Euroflex"
ユーロフレックスロープ
Euroflex 八股纤维缆绳

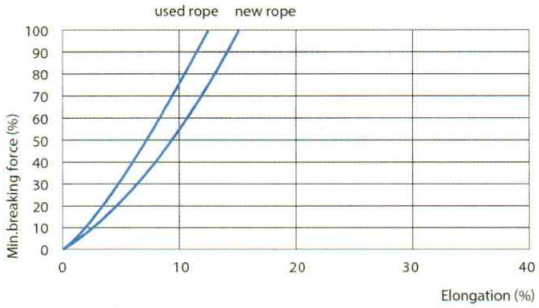


An excellent handling properties, softness and flexibility, combined with high energy absorption capability and abrasion resistance, one of the best option available today for mooring and towing for both shipping and offshore operations.

Tested in compliance with OCIMF MEG4: 40 – 88 mm
DNV type approved product: 24 – 144 mm

Specifications

Specific Gravity	1.14	Melting Point	Approx. 165°C/ 265°C
UV-resistance	Good		
Abrasion Resistance	Very Good	Construction	8-strand plaited
Chemical Resistance	Good	Colour	White
Elongation	See graph	Marker Yarn	Yellow
		Waterabsorp	<0.5%



How to order: CODE

Mooring rope, Euroflex, 8-strand, DIAM x LENGTH, LENGTH OF SPLICE, if necessary

Unit Per Mtr.

CODE	Circ. Inches	Diam. mm	M.B.F.(kN) ISO2307	M.B.F.(kN) Spliced/LDBF (OCIMF MEG4)	Weight kg/100 mtr
21 17 51	5	40	432	389	102
52	5-1/2	44	518	466	124
53	6	48	612	551	148
54	6-1/2	52	714	643	173
55	7	56	823	741	201
21 17 56	7-1/2	60	941	847	231
57	8	64	1,061	955	263
58	8-1/2	68	1,197	1,077	296
59	9	72	1,334	1,201	332
60	9-1/2	76	1,481	1,333	370
21 17 61	10	80	1,628	1,465	411
70	10-1/2	84	1,785	1,607	452
62	11	88	1,964	1,768	497
63	12	96	2,321	2,089	590
64	13	104	2,699	2,429	689
21 17 65	14	112	3,119	2,807	803
66	15	120	3,549	3,194	923
67	16	128	4,022	3,620	1,050
68	17	136	4,515	4,064	1,187
69	18	144	5,040	4,536	1,334

Name of Mfr.: Lankhorst Ropes

Nika-Cord® 8 Strand Ropes

Cuerda de 8 hilos ニカコードロープ 8股绳 Nika-Cord®



Constructed using double twisted yarns of NIKA-steel® fibers, a special melt mixture of high quality European raw materials (Polypropylene, High Density Polyethylene, UV stabilizer and other improving elements).

They exhibit much higher tenacity and abrasion resistance than most conventional monofilament and flat Polypropylene and Polyolefin fibers.

The double twisting process offers improved performance in dynamic and shock loading conditions while maximizing the resistance against internal and external abrasion.

Constructed according to ISO 10572 and they comply with the latest regulations and recommendations of OCIMF for the safe mooring of tankers.

Applications: Mooring, Anchoring, Messenger Lines, Tow Lines, Tails

* Specific gravity : 0.92 (Floating)
* Melting point : 165 °C
* Elongation at breaking : 18%
* Chemical resistance to alkali : Good
* Chemical resistance to organic solvent : Excellent
* Chemical resistance to acid : Excellent
* Strength loss in NaOH and H_2SO_4 in high concentration and temperature

8-strands (4X2)

Unit Per C/L

CODE	Diam. mm	Breaking Load Tons	Weight kg (220 m)
21 17 13	28	14.5	78
14	32	18.5	101
27	36	23.0	128
01	40	27.9	158
02	44	33.3	194
21 17 03	48	39.2	229
04	52	45.7	268
05	56	52.4	312
06	60	59.4	359
07	64	67.0	407
21 17 28	68	75.3	462
08	72	83.6	515
29	76	92.5	576
09	80	101.5	638
30	84	111.4	704
21 17 10	88	121.3	772
11	96	142.7	915
12	104	165.2	1,090

Name of Mfr.: Katradis Marine Ropes Industry SA

Nikaforce® Polypropylene Mooring Ropes

Cable de Amarre de Polipropileno, "Nikaforce"
ニカフォース・ポリプロピレン・ロープ Nikforce 丙纶大缆绳

NIKAFORCE® ropes exhibit:

- Exceptional strength to weight ratio
- High breaking load exceeding Cordage Institute specification CI 1901 and EN ISO 10572*1 specs.
- High abrasion resistance
- U.V. stabilization to 160 KLY (Suitable for Florida, U.S.A. & Dubai, UAE sunshine).
- High shock & dynamic load absorption, with filaments of equal thickness and tensile strength.
- Electronically controlled even load distribution.
- Ease of handling.

*1 EN ISO 10572 has replaced EN 14687 standard

Only virgin bright white European raw materials used. Filament tensile strength exceeds EN and ISO specifications. Recommended working load limit: 20% of the minimum breaking load. Approved by ABS, B.V., L.R.S., G.L.
Ropes are also according to the latest regulations and recommendations of OCIMF for the safe mooring of tankers. Ordering can be made by indicating clearly the following items; Preferable number of strands (8-strands, 12 strands or 24 strands), Size (Diameter), Length (Standard length 220 mtr – the length of rope will be specified by customer) and size of eye-splice (Whether eyes should be spliced on one or both ends of the rope).

Applications : Mooring, Anchoring, Towing, Tails.
Melting Point : 165°C
Elongation at Breaking : 15%
Specific Gravity : 0.92 (Floating)

12-strands (12X1)

Unit Per C/L

CODE	Diam. mm	Breaking Load Tons	Weight kg (220 m)
21 17 15	40	31	158
16	44	38	194
17	48	44	229
18	52	50	268
19	56	57	312
21 17 20	60	64	359
21	64	73	407
22	72	92	515
23	80	111	638
24	88	130	772
21 17 25	96	153	915
26	104	174	1,090

Name of Mfr.: Katradis Marine Ropes Industry SA

24-strands (12X2)

Unit Per C/L

CODE	Diam. mm	Breaking Load Tons	Weight kg (220 m)
21 17 31	40	31	158
32	44	38	194
33	48	44	229
34	52	50	268
35	56	57	312
21 17 36	60	64	359
37	64	73	407
38	72	92	515
39	80	111	638
40	88	130	772
21 17 41	96	153	915
42	104	174	1,090

Name of Mfr.: Katradis Marine Ropes Industry SA

Improved Mixed "NIKASTEEL®" 12/24 Strand Ropes, Polyester/ NIKA STEEL Combination

Cable de amarre mejorado ニカスティール・ムアリングロープ 系泊缆



Constructed using specially twisted yarns of NIKA-Steel® fibers with High Tenacity Polyester fibers (in a 60% - 40% w/w combination respectively) in the outer layers of the strand. Each strand is composed of mixed NIKA-Steel®/ HT Polyester yarns in the outer layers and NIKA-Steel® yarns in the core layer.

Their mechanically balanced structure, accordant to EN ISO 10556, protects the strands' outer layers against abrasion while achieving high breaking strengths.
Produced according to international standards such as EN ISO 10556.
Comply with the latest regulations and recommendations of OCIMF for the safe mooring of tankers.

APPLICATIONS: MOORING – ANCHORING – TAILS

Specific gravity: 0.99 (Floating)
Average Polyester w/w percentage: 25%
Melting point: 165°C (NIKA-STEEL®) / 265°C (PES)
Elongation at breaking: 15%-18%
Chemical resistance to ALKALI: VERY GOOD
Chemical resistance to ORGANIC SOLVENT: VERY GOOD
Chemical resistance to ACID: EXCELLENT.
Strength loss in NaOH and H_2SO_4 in high concentration and temperature

12-strands (12X1)

Unit Per C/L

CODE	Diam. mm	Breaking Load Tons	Weight kg (220 m)
21 19 58	28	17.5	90
59	32	23	130
60	36	28	146
61	40	34	174
62	44	40	211
21 19 63	48	47	253
64	52	53	299
65	56	62	342
66	60	69	396
67	64	79	458
21 19 89	68	88	515
68	72	98	572
90	76	110	638
69	80	121	706
91	84	132	774
21 19 70	88	144	842
71	96	169	1,020
72	104	196	1,177

Name of Mfr.: Katradis Marine Ropes Industry SA

24-strands (12X2)

Unit Per C/L

CODE	Diam. mm	Breaking Load Tons	Weight kg (220 m)
21 19 74	28	17.5	90
75	32	23	130
76	36	28	146
77	40	34	174
78	44	40	211
21 19 79	48	47	253
80	52	53	299
81	56	62	342
82	60	69	396
83	64	79	458
21 19 92	68	88	515
84	72	98	572
93	76	110	638
85	80	121	706
94	84	132	774
21 19 86	88	144	842
87	96	169	1,020
88	104	196	1,177

Name of Mfr.: Katradis Marine Ropes Industry SA

Mooring Ropes "Timm Master 12 SBA"

Cuerda de amarre "TIMM Master 12 SBA".
ムアリングロープ "TIMM マスター 12 SBA"
系泊绳索 "TIMM Master 12 SBA"



The safest conventional mooring rope, which reduces dangerous snap backs by utilizing the innovative solution of Timm Snap Back Arrestor (SBA™) technology. If the load bearing construction breaks, the SBA™

will absorb the snap back forces, resulting in a reduction of snap back. As a result of the construction and the rope having high tenacity polyester in the outer layer of the strands, Timm™ Master 12 SBA™ has excellent abrasion resistance. The color scheme is designed to give a visual anti-twist indicator to easily spot undesirable twists in the rope. Timm Master 12 SBA™ being floating and resistant to UV, with one of the best strength-to-weight ratios on the market, it serves as a lightweight and reliable solution, suitable for all vessel types.

The SBA technology is currently being certified by DNV. All Timm Master 12 SBA™ ropes are compliant with OCIMF MEG 4, SIRE 2.0, RightShip RISQ2.0, SOLAS, Intertanko.

Material	75% Polyolefin / 25% HT Polyester
Eyes	1.8m mesh braid protected eyes
Colour	Blue and white anti-twist colour indicators
Melting Point	165°C
Density [kg/m³]	0.99 (floating)
Line Construction	12-strand braided
Elongation	18% at break

Unit Per Mtr.

CODE	Diameter [mm]	LDBF from: [kN]	LDBF up to: [kN]	LDBF from: [metric ton]	LDBF up to: [metric ton]
21 13 71	36	203	255	20.7	26
21 13 72	40	256	315	26.1	32.1
21 13 73	45	316	397	32.2	40.5
21 13 76	51	398	508	40.6	51.8
21 13 78	55	509	590	51.9	60.2
21 13 79	57	591	632	60.3	64.4
21 13 81	62	633	746	64.5	76.1
21 13 82	67	747	869	76.2	88.6
21 13 83	73	870	1,028	88.7	104.8
21 13 84	77	1,029	1,142	104.9	116.5
21 13 86	81	1,143	1,261	116.6	128.6

Name of Mfr.: Wilhelmsen Ships Service

Mooring Rope Arrangement for Tankers in accordance with OCIMF Mooring Equipment Guidelines (MEG4)

Disposición de la cuerda de amarre para petroleros de acuerdo con las directrices del OCIMF sobre equipos de amarre (MEG4)

OCIMF ガイドライン（MEG4）に準拠したタンカー向け係船索について

根据 OCIMF 系泊设备准则（MEG4）进行的油轮系泊绳索布置

Ship design Minimum Breaking Load (ship design MBL)
The MBL of new dry mooring lines for a ship's mooring system meets environmental criteria restraint requirements. Ship design MBL is the core parameter for sizing and designing all other components of the mooring system within defined tolerances.

Line Design Break Force (LDBF)
New & dry mooring lines have a declared breaking force specified by the manufacturer. LDBF of selected lines should be 100%-105% of ship design MBL. Nylon lines are tested wet and spliced.
Wet testing should be specified for the LDBF for nylon (polyamide) mooring lines.

Working Load Limit (WLL)
WLL is the maximum load for mooring lines based on environmental criteria. It is expressed as a percentage of ship design MBL and used as a limit in design and operations. Steel wire ropes have a WLL of 55%, while all other cordage (synthetic) has a WLL of 50% of the ship design MBL.
Ship design MBL simplifies analysis and comparison, despite manufacturer differences.

Design Basis Load (DBL)
The design load on a fitting, calculated by multiplying the ship design MBL by the Factor (GF).

Tail Design Break Force (TDBF)
TDBF (The Tail Design Break Force) for tails should be higher than LDBF due to increased wear. The TDBF of tails should be 125%-130% of ship design MBL. TDBF is tested and defined in the wet condition and accounts for any material strength loss when wet. Increasing TDBF beyond this may not enhance fatigue life and can compromise system integrity. Grommet configurations have rated break forces, but D/d ratios from common joining methods may not achieve them. Users should seek tail manufacturer guidance.

Tail configurations
Prefer single leg tails, but grommets have advantages in certain operations. If smaller diameter needed, use double the stiffness of single leg.

Tail Connections (Joining Shackles)
Tail connections: Through the use of mechanical connecting devices (i.e. joining shackles) or directly with the use of a cow hitch. Considerations for each method explained below.

Connection devices
Tail connections: Metal devices used for steel wire and HMSF lines. If alternative materials may be considered, follow the guidance. No standard safety factors between SWL and minimum yield strength or Ultimate Tensile Strength (UTS)/ failure values.

Most manufacturers will supply connection devices with a safety factor of three (breaking load three times the SWL). Joining shackles' SWL should be equal to or greater than the mooring lines' WLL.

SWL should not exceed working load range. WLL values for wires and synthetic lines differ (55% and 50% of ship design MBL respectively). Matching shackle SWL to WLL is not necessary. Minimum safety factor of three is recommended. Consider mooring system design to minimize connecting device failure risk.

All values are percentage values of the ship design MBL.

	Lines					
Mooring Line Type/Component	Wire	Synthetic	HMSF	Polyamide (Nylon)	Synthetic Tail	Joining Shackle
Shackle SWL (Synthetic)						50
Shackle SWL (Wire)						55
Working Load Limit (WLL)	55	50	50	50		
Ship design MBL	100	100	100	100	100	100
Replace	75	75	75	75	75	
Line Design Break Force (LDBF)	100	100	100	100	125	
LDBF (Max)	105	105	105	105	130	

Ultra High Molecular Weight Polyethylene (UHMWPE) Fiber Mooring Ropes 12-Strand "AmSteel®-Blue", Dyneema SK78

Cable de Amarre con 12 Trenzas de Fibras de Polietileno de Ultra Macro Peso Molecular (UHMWPE) "AmSteel-Blue"

超高密度分子重量ポリエチレン繊維ロープ　アムステル・ブルー

12 股迪尼玛超强拉力大缆绳





AmSteel®-Blue is a proven cost-saving replacement for wire rope in key applications where strength, weight and safety are important.

Recognized worldwide as the standard for single braid HMPE ropes, AmSteel®-Blue is easily spliced and inspected. These features, with the superior wear and tension fatigue of Dyneema® SK-78 fiber and Samthane coating, are combined in a torque-free 12-strand single braid design. The result is an industry-leading braided synthetic rope that outlasts wire rope and has proven operator cost saving benefits.

AmSteel®-Blue, at only 1/7th the weight of wire, requires less committed crew for most operations, significantly reduces mooring times and tug costs, and improves crew safety. The reduced weight, high strength and low stretch also make it ideal for tug assist/maneuvering lines, resulting in quick, efficient connections and controlled response. AmSteel®-Blue is proven to provide longer service life and reduced costs when compared to wire in a variety of applications.

Standardized working pendants are available for mooring and tug assist lines. It is recommended for split drum winch applications, not recommended for use on H-bitts, capstans or cleats if surging or rendering the rope is required.

Standard length is 200 mtr. When ordering, please specify the diam and length of the rope, and one or both ends of the rope should be eye spliced.

Features:
- Uses Dyneema SK-78
- A Size for size strength replacement for wire rope at only 1/7th the weight
- Torque-free, very flexible, easy to handle
- Similar elastic elongation to wire rope
- Easily inspected or field spliced
- Floats

Applications
- Primary vessel mooring lines
- Face and wing wires for push tugs
- Emergency and seismic tow lines

Technical Specifications
Specific Gravity: 0.98 (Floats)
Elastic Elongation %: At % of break strength
10%.....0.46%, 20%..... 0.70%, 30%..... 0.96%
Splicing Procedures Required:
Eye splice - 12 strand/Class II rope
End for end splice - 12 strand/Class II rope

How to order: CODE
Mooring rope, 12-strand, "AmSteel®-Blue", Dyneema SK-78, DIAM × LENGTH, WITH FURTHER SPECIFICATION INCLUDING END PREPARATION & KIND OF REQUIRED CERTIFICATE

Unit Per Mtr.

CODE	Size		Circ. Inch	Strength ISO/BS EN919 MBS* Metric Tonnes	Weight kg per 100 mtr
	Dia. Inch	mm			
21 16 01	1/4	6	3/4	3.9	2.4
02	5/16	8	1	6.2	4.0
03	3/8	9	1-1/8	8.9	5.1
04	7/16	11	1-1/4	10.8	6.7
05	1/2	12	1-1/2	15.4	8.8
21 16 06	9/16	14	1-3/4	18.4	11.8
07	5/8	16	2	24.0	15.2
08	3/4	18	2-1/4	29.2	19.8
10	7/8	22	2-3/4	41.2	29.2
11	1	24	3	49.4	32.4
21 16 12	1-1/16	26	3-1/4	60.8	40.9
13	1-1/8	28	3-1/2	67.1	47.5
14	1-1/4	30	3-3/4	74.8	53.9
15	1-5/16	32	4	84.0	62.2
27	1-3/8	34	4-1/8	93.0	67.0
21 16 16	1-1/2	36	4-1/2	103.0	76.9
17	1-5/8	40	5	128.0	97.0
28	1-11/16	42	5-1/4	139.0	106.0
18	1-3/4	44	5-1/2	152.0	117.0
19	2	48	6	178.0	129.0
21 16 20	2-1/8	52	6-1/2	207.0	162.0
21	2-1/4	56	7	244.0	173.0
22	2-1/2	60	7-1/2	267.0	220.0
23	2-5/8	64	8	300.0	248.0
24	2-3/4	68	8-1/2	333.0	278.0
21 16 25	3	72	9	377.0	307.0
26	3-1/4	80	10	457.0	357.0

Remark: *MBS denotes Minimum Breaking Strength. For the most up to date specifications visit SamsonRope.com
Name of Mfr.: Samson

Tug and Mooring Lines, 8-strand

Blend of Polyester & Dyneema SK-75, "Quantum-8™"

Cuerda de Tirar y Amarrar a 8 Trenzas

8本撚りムアリングライン　八股拖船及繫泊索



Quantum-8 was developed to meet customer requests for a light-weight, high-strength, torque-free rope that can float and grip a winch or capstan. Quantum-8 is a unique upgrade. This patented construction utilizes Samson's exclusive DPX™ fiber technology. Samson's proven DPX fiber technology has the best abrasion and cut resistance of all high performance fibers, so rope durability is excellent. Quantum-8 has multiple marine uses.

It can be used as a high performance tug working line, a floating tug stem line, a typhoon or vessel mooring line, an offshore messenger or pick-up line.

Quantum-8 has an orange urethane coating for high visibility as well as additional abrasion resistance.

Standard length is 200 mtr. When ordering, please specify the diam and length of the rope, and one or both ends of the rope should be eye spliced.

Features
* A blend of polyester and HMPE
- Good grip on capstans and H-bitts
- Excellent single drum spooling capabilities

Applications

- Wire replacement
- Secondary mooring lines
- Berge and dredge working lines
- Tracer tug winch lines
- General working lines
- Heavy lift slings
- Rig tow lines
- Lowering/Lifting lines

Technical Specifications

- Specific Gravity: 1.0 (Floats in seawater)
- Elastic Elongation %: At % of break strength
  10%.....0.97%, 20%.....1.15%, 30%.....1.29%
- Splicing Procedures Required:
  Eye splice - 8 strand/Class II rope
  End for end splice - 8 strand/Class II rope

How to order: CODE

Tug and mooring line, 8-strand,Polyester/Dyneema SK-75, Quantum 8, DIAM × LENGTH, WITH FURTHER SPECIFICATION INCLUDING END PREPARATION & KINDS OF CERTIFICATE

Unit Per Mtr.

CODE	Size			Strength ISO/BS EN919	Weight
	Dia.		Circ. Inch	*MBS*/Metric Tonnes	kg/100M
	Inch	mm			
21 18 01	1	24	3	29.0	34.2
02	1-1/8	28	3-1/2	38.6	43.3
03	1-1/4	30	3-3/4	51.7	53.4
04	1-5/16	32	4	58.5	59.1
06	1-1/2	36	4-1/2	83.0	79.8
21 18 07	1-5/8	40	5	99.8	95.8
08	1-3/4	44	5-1/2	115.0	113
09	2	48	6	146.0	152
10	2-1/8	52	6-1/2	163.0	165
11	2-1/4	56	7	179.0	173
21 18 12	2-3/8	57	7-1/8	200.0	204
13	2-1/2	60	7-1/2	220.0	225
14	2-5/8	64	8	240.0	247
15	2-3/4	68	8-1/2	263.0	271
16	3	72	9	311.0	324
21 18 17	3-1/4	80	10	363.0	378

Remark: *MBS denotes Minimum Breaking Strength. For the most up to date specifications visit SamsonRope.com
Name of Mfr.: Samson

Tug and Mooring Lines, 12-strand

Blend of Polyester & HMPE, "Quantum-12™"

Cuerda de Tirar y Amarrar a 12 Trenzas
12 本撚りムアリングライン　十二股拖船及繫泊索





Much like Quantun-8, Quantun-12 is a lightweight, high strength, floating rope that can grip a capstan or H-bitt. The DPX fiber provides superior abrasion and cut resistance, but with a higher coefficient of friction than similar high performance ropes such as AmSteel®-Blue. The 12-strand construction provides added flexibility, improved handling and easy spliceability. Green Samthane coating provides excellent visibility and additional abrasion resistance.

Standard length is 200 mtr. When ordering, please specify the diam and length of the rope, and one or both ends of the rope should be eye spliced.

Applications

- Wire replacement
- Offshore messenger or pick-up line
- For use on H-bitts, capstans and winches
- General working lines
- Rig row lines

Technical Specifications

- Specific Gravity: 0.99 (Floats)
- Elastic Elongation %: At % of break strength
  10%.....0.65%, 20%.....0.75%, 30%.....0.90%
- Splicing Procedures Required:
  Eye splice - 12 strand/Class II rope
  End for end splice - 12 strand/Class II rope

How to order: CODE

Tug and mooring line, 12-strand, Polyester/Dyneema SK-75, Quantum-12, DIAM × LENGTH, WITH FURTHER SPECIFICATION INCLUDING END PREPARATION & KINDS OF CERTIFICATE

Unit Per Mtr.

CODE	Size			Strength ISO/BS EN919	Weight
	Dia.		Circ. Inch	*MBS*/Metric Tonnes	kg/100M
	Inch	mm			
21 18 31	1	24	3	37.4	31.2
32	1-1/8	28	3-1/2	47.6	37.9
33	1-1/4	30	3-3/4	59.4	46.1
34	1-5/16	32	4	66.2	49.1
35	1-5/8	40	5	103.0	74.4
21 18 36	1-3/4	44	5-1/2	120.0	90.5
37	2	48	6	158.0	118.0
38	2-1/8	52	6-1/2	180.0	133.0
39	2-1/4	56	7	203.0	149.0
40	2-3/8	57	7-1/8	228.0	167.0
21 18 41	2-1/2	60	7-1/2	255.0	186.0
42	2-5/8	64	8	284.0	205.0
43	2-3/4	68	8-1/2	309.0	231.0
44	3	72	9	366.0	366.0
45	3-1/4	80	10	428.0	317.0

Remark: *MBS denotes Minimum Breaking Strength. For the most up to date specifications visit SamsonRope.com
Name of Mfr.: Samson

Winch Lines with 100% Dyneema

"Turbo-RC™"

Cuerda para Cabrestante con Dyneema al 100% "Turbo-RC"
ウインチライン 100% Dyneema "Turbo-RC"　絞車繩





Turbo-RC has the firmness and low stretch of wire, yet only 1/6th the weight. The durable 'turbo' braided jacket is very cut and abrasion resistant, and protects the 12-strand single braid strength-member core.

Turbo-RC spools on winches easily, does not rust or "fish hook" like wire rope, and it floats. Turbo-RC is specially designed for improved service life in applications where creep results from long-term static loads. Both cover and core are

coated with a Samthane coating.

A standard cover repair kit is available and easy to field apply. This product design requires a specialized splicing technique. Standard length is 200 mtr. Please specify the diam and length of the rope, and one or both ends of the rope should be eye spliced.

Features
- Excellent single drum spooling capabilities
- Lightweight handling
- Superior drum compression resistance
- Retains hard round shape during use
- Protective cover with Dyneema provides superior wear characteristics

Applications
- Single or split drum winch primary mooring lines for various vessels
- Wire replacement in commercial fishing trawl systems
- "Tugger" winch lines for AHVs
- Deep water lifting projects

Technical Specifications
- Specific Gravity: 0.98
- Elastic Elongation %: At % of break strength 10%.....0.30%, 20%.....0.50%, 30%.....0.80%
- Splicing Procedures Required: Eye splice - Product specific

How to order : CODE

Mooring line, with 100% Dyneema, "Turbo-RC", DIAM x LENGTH, WITH FURTHER SPECIFICATION INCLUDING END PREPARATION & KINDS OF CERTIFICATE

Unit Per Mtr.

CODE	Size			Strength ISO/BS EN919	Weight
	Dia.		Circ. Inch	*MBS*/Metric Tonnes	kg/100M
	Inch	mm			
21 18 51	1	24	3	44.0	37.9
52	1-1/8	28	3-1/2	56.7	47.8
53	1-1/4	30	3-3/4	68.0	59.5
54	1-3/8	34	4-1/8	83.9	73.7
55	1-1/2	36	4-1/2	95.3	88.5
21 18 56	1-5/8	40	5	113.0	99.7
57	1-3/4	44	5-1/2	138.0	127.0
58	2	48	6	166.0	150.0
59	2-1/8	52	6-1/2	177.0	164.0
60	2-1/4	56	7	204.0	187.0

Remark: *MBS denotes Minimum Breaking Strength. For the most up to date specifications visit SamsonRope.com

Name of Mfr.: Samson

Mooring Lines, 12-strand

Polyester Jacketed "Turbo-EPX™"

Manguera de cubierta de poliéster "Turbo-EPX"

ポリエステルカバーホーサー "Turbo-EPX" 聚酯外罩 "Turbo-EPX"





Lightweight, high strength, round and firm winch rope.

Turbo-EPX is a unique jacketed product This durable jacket provides grip and protects the strength member core from degradation. The core and jacket of Turbo-EPX work in harmony, preventing excess cover slack during mooring operations, which translates into longer service life. This construction creates a firm, round, torque-free rope, much like wire rope, but at 1/6th the weight. Turbo-EPX delivers excellent performance on all types of winches and offers much better resistance to flex and tension fatigue than wire. Coating improves service life, reduces snagging, enhances abrasion resistance, and prevents contamination. Standard length is 200 mtr.

Features
- Good grip on winch drums
- Heat resistant
- Lightweight for safer and easier handling
- Superior winch performance with firm, round construction

Applications
- Wire replacement - jacketed
- Deepwater lowering and lifting lines
- Primary mooring lines
- Winch based tug working lines
- Wire replacement - tug working pendant

Technical Specifications
- Specific Gravity: 1.13
- Elastic Elongation %: At % of break strength 10%.....0.30%, 20%.....0.50%, 30% 0.80%
- Splicing Procedures Required: Eye splice - Product spcific

How to order: CODE

Mooring line, 12-strand, Polyester jacketed, "Turbo-EPX" DIAM × LENGTH, WITH FURTHER DETAILS INCLUDING END PREPARATION & KINDS OF CERTIFICATE

Unit Per Mtr.

CODE	Size			Strength ISO/BS EN919	Weight
	Dia.		Circ. Inch	*MBS*/Metric Tonnes	kg/100M
	Inch	mm			
21 18 71	1	24	3	44.0	42.4
72	1-1/8	28	3-1/2	56.7	52.5
73	1-1/4	30	3-3/4	68.0	66.1
74	1-5/16	32	4	74.8	70.4
75	1-3/8	34	4-1/8	83.9	76.5
21 18 76	1-1/2	36	4-1/2	95.3	96.7
77	1-5/8	40	5	113.0	116.0
78	1-3/4	44	5-1/2	138.0	141.0
79	2	48	6	166.0	174.0
80	2-1/8	52	6-1/2	177.0	187.0
21 18 81	2-1/4	56	7	204.0	214.0

Remark: *MBS denotes Minimum Breaking Strength. For the most up to date specifications visit SamsonRope.com

Name of Mfr.: Samson

Mooring Line, Tug Line & Pendant High-Tenacity Polyester Line

"HTP-12™"

Cable de amarre, cable de tirar y colgadero de poliéster de alta resistencia "HTP-12"

12 本拠りムアリングライン、タグライン、ペンダント "HTP-12"

十二股系缆、拖缆、HTP-12 浮筒链



HTP-12 is a 12-strand construction that provides optimum performance in static bending situations, making HTP-12 ideal for use where small D/d ratios are common. Made with high-tenacity polyester fiber, HTP-12 provides good flex-fatigue resistance and shock absorption.

Standard Length is 200mtr, and also suitable as a high performance mooring pendant.

Applications

- Vessel Mooring
  - General Working Line
  - Pendant
- Tug
  - Mainline
  - Pendant
  - Shock Line
- Offshore
  - Lifting Slings
  - Synthetic Extension Pendants
  - Winch Line
  - Working Line

Features and Benefits

- Good flex-fatigue resistance
- Easy to inspect
- Good shock absorption
- Easy to splice

Technical Specifications

Fiber: High-tenacity polyester

- Specific Gravity: 1.38
- Elastic Elongation Percentage: At % break strength 10%.....1.70%, 20%.....3.40%, 30%.....5.80%

Splicing Procedures Required: Round Plait Class I

How to order: CODE

Mooring line, 12-strand, high-tenacity polyester line, "HTP-12", DIAM x LENGTH, WITH FURTHER SPECIFICATION INCLUDING END PREPARATION & KINDS OF CERTIFICATE

Ordering Mooring Pendant, please specify; Mooring pendant, HTP-12, Type (Single leg or Strop), Diameter Size(mm), Overall Length, Both ends Fabrication (eg. 2mtr soft eye on each end), Minimum Breaking Strength, WITH KINDS OF REQUIRED CERTIFICATE

Unit Per Mtr.

CODE	Size			ISO 2307 Strength* MBS/Meetric Tonnes	Weight kg/100m
	Dia.		Circ. Inch		
	Inch	mm			
21 18 82	1-1/2	36	4-1/2	41.6	107
83	1-5/8	40	5	51.3	138
84	1-3/4	44	5-1/2	62.1	165
85	1-7/8	46	5-5/8	65.8	176
86	2	48	6	75.8	22.5
21 18 87	2-1/8	52	6-1/2	83.9	251
88	2-1/4	56	7	97.5	299
89	2-3/8	57	7-1/8	105	317
90	2-1/2	60	7-1/2	110	344
92	2-5/8	64	8	121	384
21 18 93	2-3/4	68	8-1/2	134	424
94	2-7/8	70	8-5/8	144	464
95	3	72	9	150	491
96	3-1/8	76	9-1/2	164	545
97	3-3/16	78	9-9/16	180	612
21 18 98	3-7/16	84	10-5/16	195	665

Remark: *ISO 2307:1995 strength specifications are for unspliced ropes. For the most up to date specifications visit SamsonRope.com

Name of Mfr.: Samson

Tug and Mooring Lines, "Strong Line™"

Línea de remolque y amarre, "Strong Line™"
タグライン＆係船索 "ストロングライン"
拖船和系泊缆绳 "Strong Line™"

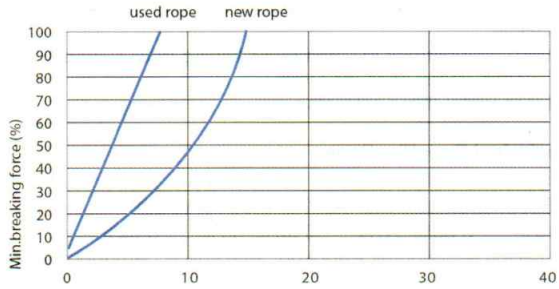


STRONGLINE™ has a rope construction comprising a parallel core with a braided protective cover. The parallel core produces a far higher strength rope than might be expected for a rope of this diameter and material. The protective cover ensures a long service life due to its excellent resistance against abrasion. Regular maintenance can significantly lengthen the rope service life. STRONGLINE™ can be recycled. The main applications of STRONGLINE™ are towing and mooring.

DNV type approved product: 32 – 112 mm

Specifications

Specific Gravity	1.38	Construction	Parallel cores with jacket
Material	Polyester		
UV-resistance	Excellent	TCLL Value	64.9%
Abrasion Resistance	Excellent	Colour	White
Chemical Resistance	Good	Maker Yarn	Orange
Elongation	See graph	Water-absorp.	< 1%
Melting Point	Approx. 265°C		



Unit Per Mtr.

CODE	Diam. mm	M.B.F.(kN)		Weight kg/100 mtr
		ISO2307	Spliced	
21 16 29	32	392	353	76.5
30	36	489	440	95
43	40	592	533	131
44	44	709	638	147
45	48	833	750	175
21 16 46	52	967	870	189
47	56	1,106	995	227
48	60	1,256	1,130	256
49	64	1,411	1,270	284
50	68	1,578	1,420	307
21 16 70	72	1,744	1,570	367
84	76	1,922	1,730	390
21 17 43	80	2,100	1,890	417
44	88	2,500	2,250	493
45	92	2,722	2,450	528
21 17 46	96	2,922	2,630	560
47	100	3,167	2,850	630
48	104	3,433	3,090	662
49	112	4,056	3,650	788

Name of Mfr.: Lankhorst Ropes

Primary Mooring Lines for FSRU

EverSteel™-X, 100% Dyneema®

Linea de atraque principal para FSRU
浮体式 LNG 受け入れ基地用係留索
浮式液化天然气接收站用系泊缆



EverSteel-X is the first line to be designed specifically for FSRU (Floating Storage Regasification Unit) mooring applications, using Dyneema Max DM20 technology to achieve superior creep performance and flex-fatigue resistance. It is a torque-free 12-strand single braid that is optimized in strength-to-size and strength-to-weight ratios. Size-for-size, it has the same strength as steel, but it's so light, it floats.

With the addition of a Samson proprietary coating, EverSteel-X is designed for long-term, continuous load conditions, and will last for long-term FSRU mooring applications. These features point to EverSteel-X as the best choice for FSRU mooring.

Features
- Superior creep performance
- Size-for-size as strong as wire
- Durable and lightweight
- Made with Dyneema® DM20 fiber
- Flex-fatigue resistant
- Floats in water

Application
- Long-term primary mooring line

Technical Specifications
- Specific Gravity: 0.98
- Elastic Elongation %: At % of break strength
  10%.....0.30%, 20%..... 0.55%, 30% 0.80%

Splicing Procedures Required: 12-strand/Class II rope

How to order: CODE

Mooring rope, EverSteel-X, 12-strand, Dyneema Max. DM-20, for FSRU mooring application, DIAM x LENGTH, WITH FURTHER SPECIFICATION INCLUDING END PREPARATION & KIND OF REQUIRED CERTIFICATE

Unit Per Mtr.

CODE	Circ. Inch	Size		Strength ISO 2307 Metric Tonnes	Weight kg/100 mtr
		Inch	mm		
21 18 26	5	1-5/8	40	119	92.6
27	5-1/4	1-11/16	42	142	97.9
28	5-1/2	1-3/4	44	154	107
29	6	2	48	178	124
30	7-1/2	2-1/2	60	278	198

*For the most up to date specifications visit SamsonRope.com.
Name of Mfr.: Samson

Mooring Tails
(Forerunner, Pendants)

Calabrotes テイルロープ 缆绳尾

Reasons for Using Mooring Tails

When using mooring ropes, especially for tanker vessels or large vessels, there is a general desirability for the additional elasticity provided by mooring tails. The additional elasticity reduces the loads induced in mooring wires or HMPE lines under dynamic conditions by permitting the ship to respond more favorably to various combinations of wind, wave, and current forces, as well as to ships passing by in close proximity. Tails also tend to distribute the loadings more evenly in the mooring lines in the same service.

The additional elongation of the mooring line system permitted by the tail reduces the risk associated with poor line tending and the frequency and precision of line tending, particularly in berths where large tidal variations in high loading- unloading rates. Tails are also valuable at berths requiring short breast or spring leads as they provide the same effect as long all-wire line systems. And lastly, they facilitate the handling of wire lines by boatman and mooring gangs.

There are two configurations of tail ropes commonly used on board.

Single-Leg

Standard length is 11 mtr overall length with a 2 mtr soft eye for the outboard end and a 1 mtr soft eye for the inboard end. 22 mtr may also be requested depending on extreme berth conditions.



Grommet(Strop)

Standard length is 11 mtr overall length with 2 mtr and 1 mtr soft eyes formed by seizings. The body of the strop is also seized together 3 mtr from each eye lashing. 22 mtr may also be requested depending on extreme berth conditions.



When ordering, please specify the following:

(A) Material of rope (PP/PE mixed Line, Nylon, Polyester, etc.)

(B) Construction of rope (8-strand/12-strand/double braided etc.)

(C) Diam or Circ of the ropes

(D) Length of the ropes and the desired eye sizes on each end.

(E) Ship Design Minimum Breaking Load (SDBL) and required Tail Design Break Force (TDBF) based on the criteria according to OCIMF Mooring Equipment Guidelines. (MEG4)

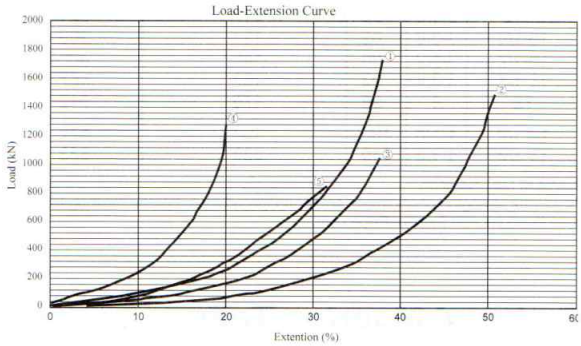
The TDBF of tails should be 125%-130% of ship design MBL. TDBF is tested and defined in the wet condition and accounts for any material strength loss when wet.

How to order : 21 - 11 - 37

Mooring tail, Material x Construction x Diam or Circ x Length x Eye Overall Size

Load Elongation Curve (60m/m)

Load Elongation Curve (60 m/m) （荷重伸度曲線） 負重張力曲線



Mooring Pendants
MP-1™

Ramal de fondeo 非自転性係留用ペンダントロープ 防旋转系泊吊绳



MP-1 is a non-rotational rope with excellent abrasion and wear resistance for use as a pendant in vessel mooring applications. It has been proven to provide superior abrasion resistance and strength retention with extensive use.

MP-1 utilizes a polyester/polyolefin blend that provides a 10% lower linear density (lbs./ft.) compared to traditional 100% polyester fiber pendant constructions. This decreased weight makes for easier handling by crew members in mooring situations. MP-1 is verified by ABS according to MEG4.

Features:
- 10% lighter than 100% polyester ropes
- High strength,
- Low elongation,
- Hockle-resistant
- Non-rotational,
- Durable,
- Flexible

Technical Specifications
Specific Gravity: 1.2
Elastic Elongation %: At % of break strength
10%.....1.30%, 20%.....1.95%, 30%.....3.05%

Splicing Procedures Required:
Eye splice – 8 strand/Class I rope
End for end splice – 8 strand/Class I rope

How to order : 21 - 11 - 60
Mooring pendant, MP-1, with the following information
Type : Single leg or Grommet Strop
Size : 72 mm (3 inch circumference)
Overall Length : 11 mtrs (36 feet)
Fabrication : 2 mtr (6.5 feet) soft eye one end, and a 1 mtr (3.2 feet) soft eye the other end
Minimum Strength : 104 tons
SPECIFY CLASS CERTIFICATION IF REQUIRED

Unit Per Mtr.

Circ. Inch	Size Diam.		Strength ISO 2307	Weight/100 mtr
	Inch	mm	Metric Tonnes	Kilograms
7	2-1/4	56	62.1	177
7-1/2	2-1/2	60	78.9	222
8	2-5/8	64	85.6	241
8-1/2	2-3/4	68	93.3	265
9	3	72	106	293
9-1/2	3-1/8	76	117	321
10-1/8	3-3/8	82	133	369
10-1/2	3-1/2	86	146	409
11-1/4	3-3/4	92	162	467
12	4	96	176	512
12-1/2	4-1/8	100	191	577
13-1/2	4-1/2	110	223	683

Name of Mfr.: Samson
*ISO2307 strength specifications are for unspliced rope. For the most up to date specifications visit SamsonRope.com.

8-strand Mooring Tails

Euroflex®

Cola dde Amarre con 8 Trenzas "Euroflex"
ムアリングテール "Euroflex" 船用八股缆绳尾

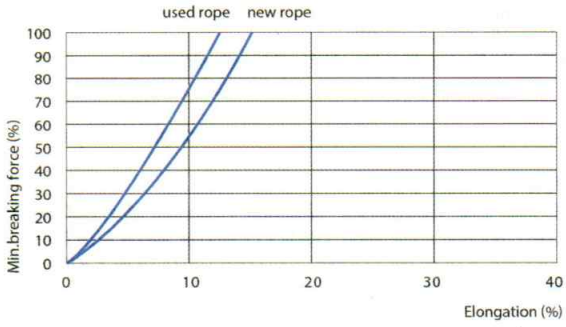


The Euroflex® mooring tails surpass nylon tails in quality. Moreover, the rope does not lose a large portion of its dry MBF when wet. As the strength is higher than that of nylon, a smaller diameter of rope can be used, providing better handling. Made of polyester and polyolefin composite yarns, the standard length is 11 m (effective working length). For those circumstances where more stretch is required, 22 mtr length is available. Both versions are fitted with two protected and spliced eyes of 2 mtr and 1 mtr respectively.

Tested in compliance with OCIMF MEG4: 55 – 88 mm
DNV type approved product: 55 – 88 mm

Specifications

Specific Gravity	1.14	Construction	8-strand plaited
UV-resistance	Good	TCLL Value	78.8%
Abrasion Resistance	Very Good	Colour	White
Chemical Resistance	Good	Marker Yarn	Yellow
Elongation	See graph	Water-absorption	<0.5%
Melting Point	Approx. 165°C/ 265°C		



Performance
Effective Working Length: 11 m

Diameter mm	MBF kN		Weight 11 mtr/kg
	ISO2307	Spliced/LDBF (OCIMF MEG4)	
48	612	551	23.7
56	823	741	34.2
60	941	847	39.3
62	1,000	900	42.0
64	1,061	955	44.7
68	1,197	1,077	50.3
72	1,334	1,201	56.4
76	1,481	1,333	66.6
80	1,628	1,465	70.4
82	1,701	1,531	73.2
83	1,742	1,568	75.0
84	1,785	1,607	81.4
88	1,964	1,768	89.5
96	2,321	2,089	106.2

Effective Working Length: 22 m

Diameter mm	MBF kN		Weight 11 mtr/kg
	ISO2307	Spliced/LDBF (OCIMF MEG4)	
60	941	847	64.7
72	1,334	1,201	93.0
80	1,628	1,465	119.2
88	1,964	1,768	144.1
96	2,321	2,089	171.1

Diameter, weight and MBF (as well as other mechanical and physical properties) are determined acoording ISO 2307. The MBF refers to the breaking strength of the rope without splices or any other form of termiantion that can be formed with or without the use of accessories/fittings. The figures in red refer to the Line Design Breaking Force (LDBF) in spliced dry condition and products are manufactured, tested and documented according to OCIMF guideline MEG4 Appendix B.
Name of Mfr. : Lankhorst Ropes

How to order: 21 - 11 - 39
Mooring tail, Euroflex, 8-strand, DIAM x FINISHED LENGTH, EYE SPLICING SIZE

8-strand Mooring Tails

Karat® Maxi Plus

Colas de amarre de 8 cabos, Karat® Maxi Plus
カラットマキシ ムアリングテール
8 股系泊尾缆



KARAT® MAXI has very high strength/weight ratio which allows substantial size reductions and ease in handling. It has the following performance features, *the same properties but offer a higher TDBF and much better abrasion resistance, *Higher strength than the conventional floating tails, *No loss of strength when wet, *High energy absorption, *Manufactured acc. to ISO and OCIMF MEG4 Guideline, *EStalon™ is a polyester/polypropylene melt mixture, Eurolefin™ in the outer yarn. The standard length is 11 mtrs, but other lengths are available upon request. Ropes are tested and certified by Lloyd's Register type approval.

Specifications

Melting Point:	185°C
Specific Gravity:	0.99
Water absorption:	None
Reduction of TDBF when wet:	None
Elongation, new tail:	14-16%

On request: larger diameter,different color, 12 stand

Diameter (mm)	Circumference (inch)	Weight	TDBF	
		kg/100 m	(tonnes)	(kN)
40	5"	80.00	35.10	344.00
44	5-1/2"	97.00	41.90	411.00
48	6"	115.00	49.20	483.00
52	6-1/2"	136.00	57.10	560.00
56	7"	157.00	65.60	644.00
60	7-1/2"	181.00	74.50	731.00
64	8"	206.00	84.30	827.00
68	8-1/2"	232.00	94.50	927.00
72	9"	260.00	105.30	1,033.00
76	9-1/2"	291.00	116.00	1,138.00
80	10"	321.00	126.70	1,243.00
84	10-1/2"	333.00	133.90	1,314.00
88	11"	389.00	141.10	1,384.00
96	12"	463.00	166.90	1,637.00
104	13"	544.00	187.00	1,834.00
112	14"	630.00	215.00	2,109.00

How to order: 21 - 11 - 61

Mooring tail rope, Karat® maxi plus, 8-strand, DIAM X FINISHD LENGTH, EYE SPLICING SIZE

Synthetic Emergency Tow-Off Pendants "Vulcan"

Colgadero sintético de remolque de emergencia Vulcan
非常時曳航用繊維ロープ 急拖航纤维缆绳



Emergency tow-off pendants (ETOPs), commonly referred to as "fire wires," provide a means of towing the ship away from the dock in the event of a fire. Samson developed Vulcan, a synthetic alternative to traditional wire rope fire wires. Vulcan is significantly lighter and eliminates "fish hooks," which are broken wires that protrude from the wire rope and result in hand injuries. Maintenance costs are also reduced when using synthetic ropes compared to wire ropes. Vulcan is made with aramid fiber and has a proprietary fire-resistant coating that meets the OCIMF-required breaking strength after exposure to flames and a high-temperature environment.

Features and Benefits;

- 60 to 70% (2/3rd) lighter than wire
- Abrasion resistant
- Easily stored when not in use
- Easy to adjust
- Heat and flame resistant
- Lightweight
- No lubrication necessary
- Reduced mooring–related injuries and claims
- Specific Gravity: 1.39

How to order: 21 - 18 - 99

Emergency Tow-Off Pendant, "Vulcan", DIAM(SEE BELOW TABLE) x LENGTH, WITH FURTHER SPECIFICATION INCLUDING END PREPARATION & KIND OF REQUIRED CERTIFICATE

Heated Rope Strengths

Rope Dia (mm)	Weight 100 mtr/kg	AVG Strength (kg)	Min. Strength (kg)	ISO2307 Strength (Metric Tons)
24	44.6	33,600	30,200	33.6
30	91.7	61,700	55,500	61.7
32	103	68,000	61,200	68
42	159	95,700	86,100	95.7
46	186	112,000	101,000	112
52	222	139,000	125,000	139
56	250	149,000	134,000	149
60	286	170,000	153,000	170

Remark: ISO strength specifications are for unspliced strength. For the most up to date specifications visit SamsonRope.com
Name of Mfr.: Samson

Chafe Protections

for Mooring Line

Protección contra Roces para Cuerda de Amarre
係留索用シェーフプロテクション 繫泊索防磨保護

Chafe protection maximizes the service life of the ropes, protecting ropes from abrasion and cutting damage. All chafe options can be factory-installed on your ropes prior to shipment from the mfr's plants, or are available in bulk for field installation by certified personnel.

When replacing wire ropes with synthetics, it is important to prepare or repair the surfaces of deck equipment damaged by the wire rope. Chocks, fairleads, bollards, bitts or other hardware contacting the rope need to be smooth and free of rust to ensure the synthetic ropes achieve longest service life possible.

The followings are typical examples of Chafe protections:

Dynalene

Dynalene is a unique product that protects the strength member from abrasion, yet allows the rope to be easily inspected for both internal and external fiber wear. Braided from cut and abrasion resistant Dyneema fiber, Dynalene is permanently spliced over the rope, and acts as a sacrificial cover protecting the rope from abrasion and wear in mooring and offshore applications.
Dynalene is fully repairable in the field, does not absorb water, and floats. It is easy to install anywhere on the rope.

* Fixed or adjustable for easy positioning
* Light weight / Floats
* Easy inspection without removing
* Excellent durability

Available in;
Small (fits 7/8" to 1-1/4" dia rope)
Medium (fits 1-5/16" to 1-5/8" dia rope)
Large (fits 1-3/4" to 3" dia rope)
Extra large (fits 3-1/4" to 4" dia rope)



DC Gard

DC Gard is a tightly braided cover construction of Dyneema fiber that is spliced onto the strength member to protect it from wear and abrasion in specific areas. Designed for use in applications where frequent handling and use put a premium on rope protection and resistance to snagging, DC Gard provides the maximum protection for synthetic fiber ropes.

* Fixed or adjustable for easy positioning
* Light and flexible / Floats
* Can be removed for rope inspection
* Cut resistant
* Superior durability

Available in ;
Size C: (fits 1" to 1-1/4" ropes)
Size D: (fits 1-5/16" to 1-3/4" ropes)
Size E: (fits 1-7/8" to 2-1/2" ropes)
Size F: (fits 2-5/8" to 3-1/8" ropes)



DC Moor-Gard S

With a 100% HMPE fiber cover construction as DC Gard, DC Moor-Gard is a tubular sleeve solution that provides sliding protection from wear and abrasion. Standard length is 10' and the ends are coated with urethane.

* Fixed or adjustable for easy positioning
* Light an flexible / Floats
* Easily removed for rope inspection
* Cut resistant
* Superior durability

Size E (fits 1" to 1-3/4" ropes)
Size F (fits 1-7/8" to 2-14" ropes)
Size G (fits 2-3/8" to 3-1/4" ropes)



How to order: 21 - 18 - 91

Chafe protection, Dyneema fiber, TYPE OF CHAFE PROTECTION (Dynalene, DC Gard, or DC Moor-Gard) FIXED OR ADJUSTABLE TYPE, SIZE OF ROPE TO BE INSTALLED, Length of coverage desired.

Eye Protectors for Hawser

Protectores oculares para Hawser
ホーサー用アイプロテクター
缆绳护眼装置

Designed to cover the synthetic hawser's "eye" to protect from friction on the surface of steel bitt at shore side. Basically, eye covers are preinstalled at factory and difficult to replace when get damaged, but this product will easily cover and remove around the eye with Velcro tape. Material is Polyester.

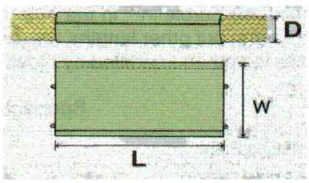


Unit Per Pc.

CODE	Size	Applicable Rope Size
21 18 46	S	40 mm - 52 mm
47	M	53 mm - 69 mm
48	L	70 mm - 90 mm

Hawser Protectors

Protector de calabrotes
ホーサープロテクター
缆绳保护装置



Designed to cover the synthetic hawser to protect from friction on the surface of steel chock, enable hawser to make long-term use. Easily attached and removed around hawser and can be fixed around chocks by the hook and loop fastener. Normally the width will be determined by rope diameter and please specify the length when ordering.

Properties: Melting Point, Polyester, 240°C

How to order: CODE

Please specify;
- The product name of Hawser rope/Structure/Diameter
- Length of protector

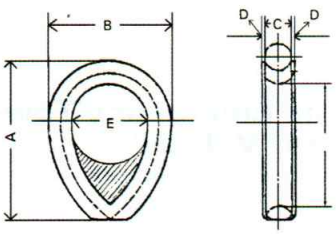
Unit Per Pc.

CODE	Hawser rope diameter (mm)	Width (mm)
21 46 21	41 ~ 50	250
21 46 22	51 ~ 60	300
21 46 23	61 ~ 70	350
21 46 24	71 ~ 80	400
21 46 25	81 ~ 90	450
21 46 26	91 ~ 100	500

Hawser Thimbles for Mooring

Manguito de protección de estachas
ホーサー用シンブル　系泊缆保护套

Reinforced with Triangular Plate



How to order: CODE

Hawser thimble, ungalvanized, heavy duty, for rope diam mm with triangle plate

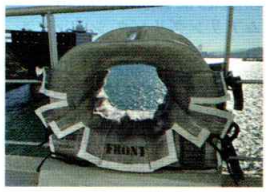
Unit Per Pc.

CODE	Diam. of rope	A	B	C	D	E
21 46 01	50	240	180	50	10	115
02	55	260	200	55	10	125
03	60	280	220	60	12	135
04	65	300	240	65	13	145
05	70	340	270	70	14	165
21 46 06	75	360	280	75	16	165
07	80	380	300	80	16	175
08	90	400	320	90	16	190
09	100	400	320	100	16	200

Closed Chock Covers

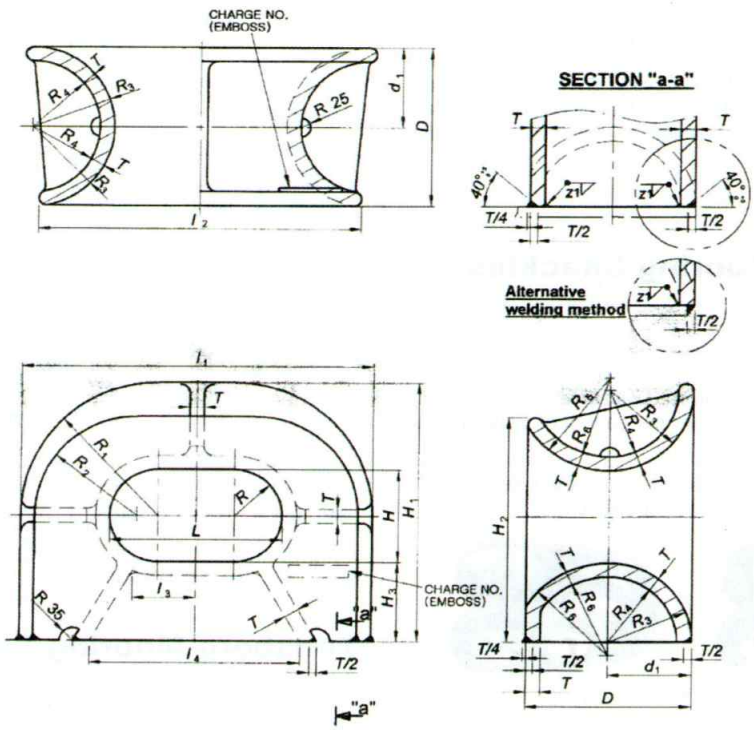
Tapas de Calzo Cerradas

チョックカバー　封闭式底座盖



Designed to cover the closed chock to protect mooring ropes from friction with the surface of steel chock. Mainly used for tankers or large bulk carriers which use UHMPE rope for mooring. Easily installed and removed around chock by Velcro tape, and mostly used UHMPE or polyester material.

*Not applicable for bulwark chocks.



Nominal size (L × H × D)	L1	L2	L3	L4	H1	H2	H3	R	R1	R2	R3	R4	R5	R6	D1	K	T	Max. SWL (ton)	Rope Dia.
250 x 200 x 214	488	453	76	265	427	368	108	100	219	160	108	86	150	128	108	15	22	23	18
300 x 250 x 286	614	565	89	330	551	481	144	125	282	212	144	118	180	154	144	15	26	40	24
350 x 250 x 286	716	660	114	403	601	525	168	125	308	232	168	138	200	170	168	15	30	56	28
400 x 250 x 381	820	754	139	475	652	553	192	125	335	236	192	156	250	214	192	20	36	70	32
450 x 250 x 381	870	804	164	524	652	553	192	125	335	236	192	156	250	214	192	20	36	72	32
500 x 250 x 381	920	854	189	574	652	553	192	125	335	236	192	156	250	214	192	20	36	76	32
400 x 250 x 428	870	796	139	500	701	609	216	125	360	268	216	178	250	212	216	25	38	90	36
450 x 250 x 428	920	846	164	550	701	609	216	125	360	268	216	178	250	212	216	25	38	93	36
500 x 250 x 428	970	896	189	600	701	609	216	125	360	268	216	178	250	212	216	25	38	95	36
500 x 400 x 428	970	896	176	600	851	769	216	200	435	343	216	178	250	212	216	25	38	91	36
500 x 250 x 525A	1068	1000	190	652	796	676	264	125	409	266	264	224	320	280	264	25	40	117	44
500 x 400 x 525A	1068	1000	193	652	948	825	264	200	484	361	264	224	320	280	264	25	40	118	44
500 x 250 x 525B	1074	1000	176	652	801	680	264	125	412	291	264	218	320	274	264	25	46	144	44
500 x 400 x 525B	1074	1000	179	652	951	830	264	200	487	366	264	218	320	274	264	25	46	141	44

How to order: 21 - 18 - 49

Closed Chock Cover, SPECIFY MATERIALS, NOMINAL SIZES (L X H X D) OF CLOSED CHOCK

Mooring Links and Shackles

Grilletes de Enlave (Unión)
ムアリングリンク シャックル　缆绳尾连接卸克

Specially designed to connect the forerunner of a synthetic rope with a wire rope when mooring. These links are important in preventing any friction or coiling in the connection between the wire rope and the mooring tail and they make the mooring process a great deal easier.

According to OCIMF Mooring Equipment Guideline (MEG4)

Most manufacturers will supply connection devices with a safety factor of three (breaking load three times the SWL). Joining shackles' SWL should be equal to or greater than the mooring lines' WLL.

SWL should not exceed working load range. WLL values for wires and synthetic lines differ (55% and 50% of ship design MBL respectively). Matching shackle SWL to WLL is not necessary. Minimum safety factor of three is recommended. Consider mooring system design to minimize connecting device failure risk.

Boss Link - Mooring Shackles

Grilletes (Eslabón) Tipo Boss　ボスリンクシャックル　缆绳尾连接卸克

A stainless steel mooring link (anti-corrosive), used as connection between steel wire ropes or HMPE fiber ropes and mooring tails. Can be delivered with or without roller. The shackles are proof-tested under the control of DNV GL and carry DNV GL type approval.

Recommended working load limit: 50% of the specified MBL
Normal working load: 20% of the specified MBL



With Bolt

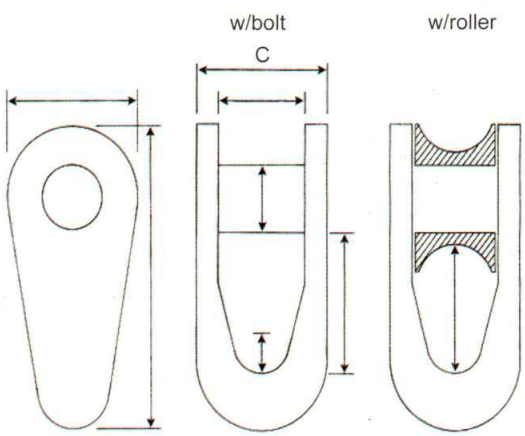


With Roller

Suitable Rope Size

Timm Boss Link 120T/140T
for mooring tail 6-10" circ. 48mm – 80mm diameter

Timm Boss Link 165T/180T/250T
for mooring tail 10-14" circ. 80mm – 112 mm diameter



With Bolt

Unit Per Pc.

CODE	21 11 41	21 11 45	21 11 42	21 11 46	21 11 47
Model	120 T	140 T	165 T	180 T	250 T
Size mm					
A	134	134	150	150	150
B	283	283	325	325	325
C	127	127	165	165	165
D	100	100	120	120	120
E	64	64	75	75	75
F	134	134	150	150	150
G	32	32	34	34	34
MBL Ton	120	140	165	180	250
ABL Ton	148.1	148.1	187.1	187.1	269
Weight	11.6	11.6	19.6	19.6	19.6

Name of Mfr.: Eurocable Holland B.V.

With Roller

Unit Per Pc.

CODE	21 11 43	21 11 48	21 11 44	21 11 49	21 11 50
Model	120 T	140 T	165 T	180 T	250 T
Size mm					
A	134	134	150	150	150
B	283	283	325	325	325
C	127	127	165	165	165
D	100	100	120	120	120
E	64	64	75	75	75
F2	124	124	138	138	138
G	32	32	34	34	34
MBL Ton	120	140	165	180	250
ABL Ton	148.1	148.1	187.1	187.1	269
Weight	15.4	15.4	24.8	24.8	24.8

Name of Mfr.: Eurocable Holland B.V.

Tonsberg Mooring Links

Grilletes (Eslabón) "Tonsberg"
トンズバーグリンク
缆绳尾连接卸克



Galvanized steel mooring link of compact design typically utilised as connection between wire rope and fibre tail. Stocked in four sizes 90T, 120T, 180T and 250T. 300T can be supplied on special request. Steel wire rope around the body-fibre rope around the bolt. Each link is proof-tested and certified by DNV Type Approval, compliant to OCIMF MEG4 Guidelines.



Unit Per Pc.

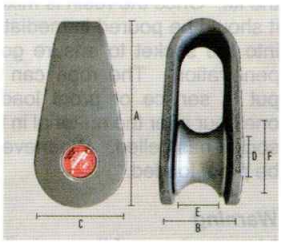
CODE	Type	Dimensions mm						Proof Lodad tons	Breaking Load tons	Weight kg
		A	B	C	D	E	R			
21 11 51	90T	285	115	136	65	75	22	30	90	11.2
52	120T	324	142	150	75	90	28	40	120	16.9
53	180T	350	184	160	85	120	30	60	180	25.0
54	250T	363	196	174	85	120	35	83	250	29.1

Name of Mfr.: Eurorope Marine A/S

Mandal Fairlead Shackles

Grilletes Tipo Mandal
マンダルフェアリードシャックル　缆绳尾连接卸克

Stainless steel mooring shackle with sleek shape designed to pass easily through fairleads. Available in two sizes 90M and 120M. Steel wire rope around the sheave - fibre rope around the body. Each shackle is proof tested and certified by DNV Type Approval, compliant to OCIMF MEG4 Guidelines.





Unit Per Pc.

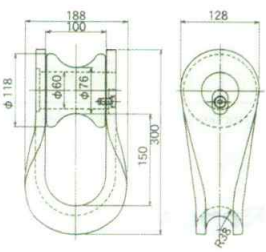
CODE	Type	Dimensions mm						Proof Lodad tons	Breaking Load tons	Weight kg
		A	B	C	D	E	R			
21 11 56	90M	255	97	120	67	68	34	30	90	7.8
57	120M	300	122	130	82	90	45	40	120	13.3

Name of Mfr.: Eurorope Marine A/S

H & W Mooring Shackles

Grilletes de Amarre H & W　H & W シャックル　H & W 系泊锚

Made of alloy steel designed to satisfy the crucial needs of vessel for a sage mooring operation with high reliability and economical efficiency. Light weight, high durability, and applicable for forerunner size from 72 mm to 100 mm. Shackles are tested and certified by NK.





Unit Per Pc.

CODE	Dimensions mm						S.W.L tons	Nom. B/S tons	Weight Kg
	A	B	C	D	E	R			
21 11 58	300	132	128	76	100	50	68.5	173	13.5

Name of Mfr.: Kansai Industrial Co. Ltd.

Soft Mooring Shackles "Link-It"

Grillete de Amarre Blando "Link-It
ボタンノット式係船索用ソフトシャックル
"リングイット"
软式系泊卸扣 "Link-It



A button-knot soft shackle made from Samson's AmSteel®-Blue, providing an easy to use, lightweight connection method. Replacing steel shackle or other connection types, Link-It will not corrode or rust, has short connection lengths, and can even be used as an overload indicator. Link-It comes with an attached tag with rating information included.

Fiber: HMPE Specific Gravity: 0.98 (floats) Construction: 12-strand Colour: Blue	Applications Include: > Pendant/mainline connection > Pendant eye handle > Messenger/pendant connection > Emergency bridle connection > Drum termination > Backer/mainline connection

Minimum Strength Rating* Pounds/Mt	Overall Shackle Length (Closed) Inches/ mtr	Number of Loops	Base Rope Diameter Inches/ mm	Minimum Bend Diameter Inches/ mm	Knot Diameter Inch/mm
63,700 lb/28.9 mt	11/0.3	1	1/2 / 12	1.3/33	2.6/66
127,000 lb/57.5 mt	11/0.3	2	1/2 / 12	1.3/33	2.6/66
163,000 lb/73.8 mt	20/0.5	1	7/8 / 22	2.2/55.9	4.6/117
204,000 lb/92.4 mt	24/0.6	1	1 / 24	2.5/63.5	5.3/135
275,000 lb/125 mt	25/0.6	1	1-1/8 / 28	2.8/71.1	6.0/152
324,000 lb/147 mt	20/0.5	2	7/8 / 22	2.2/55.9	4.6/117
405,000 lb/184 mt	24/0.6	2	1 / 24	2.5/63.5	5.3/135
437,000 lb/198 mt	33/0.9	1	1-1/2 / 36	3.8/96.5	8.0/203
497,000 lb/226 mt	36/0.9	1	1-5/8 / 40	4.1/104	8.7/221
497,000 lb/226 mt	48/1.2	1	1-5/8 / 40	4.1/104	8.7/221
524,000 lb/238 mt	25/0.6	2	1-1/16 / 26	2.7/68.6	9.9/252
575,000 lb/261 mt	25/0.6	2	1-1/8 / 28	2.8/71.1	6.0/152
693,000 lb/314 mt	44/1.1	1	2 / 48	5.0/127	10.8/ 274
792,000 lb/359 mt	30/0.8	2	1-3/8 / 34	3.4/86.4	7.4/188

Remark*: Strengths are based on minimum D/d ratio of 2.5 between the Bend Diameter and the Base Rope Nominal Diameter. Use of Link-it below a D/d ratio of 2.5 is not recommended by Samson.

Name of Mfr.: Samson

How to order: 21 – 11 - 55

Button-knot soft shackle "Link-It", MINIMUM STRENGTH RATING, OVERALL SHACKLE LENGTH, NUMBER OF LOOPS, BASE ROPE DIAMETER, MIMIMUM BEND DIAMETER

Ling-It Plus

Same specification with "Link-It" but comes in a single loop design with full length chafe protection and attached tag with rating information included.



Minimum Strength Rating* Pounds/Mt	Overall Shackle Length (Closed) Inches/ mtr	Base Rope Diameter Inches/mm	Minimum Bend Diameter Inches/mm	Knot Diameter Inch/mm
63,700 lb/28.9 mt	11/0.3	1/2 / 12	1.3/33.0	2.6/66
92,600 lb/42.0 mt	14/0.4	5/8 / 16	1.6/40.6	3.2/81
126,000 lb/57.0 mt	17/0.4	3/4 / 18	1.9/48.3	3.9/99
144,000 lb/65.2 mt	18/0.5	13/16 / 20	2.0/50.8	4.3/109
163,000 lb/73.8 mt	19/0.5	7/8 / 22	2.2/55.9	4.6/117
204,000 lb/92.4 mt	22/0.6	1 / 24	2.5/63.5	5.3/135
275,000 lb/125 mt	25/0.6	1-1/8 / 28	2.8/71.1	6.0/152
353,000 lb/160 mt	29/0.7	1-5/16 / 32	3.3/83.8	7.0/178
437,000 lb/198 mt	33/0.8	1-1/2 / 36	3.8/96.5	8.0/203
497,000 lb/226 mt	36/0.9	1-5/8 / 40	4.1/104	8.7/221
559,000 lb/254 mt	39/1.0	1-3/4 / 44	4.4/112	9.4/239
693,000 lb/314 mt	44/1.1	2 / 48	5.0/127	10.8/274

Remark*: Strengths are based on minimum D/d ratio of 2.5 between the Bend Diameter and the Base Rope Nominal Diameter. Use of Link-It Plus below a D/d ratio of 2.5 is not recommended by Samson.

Name of Mfr.: Samson

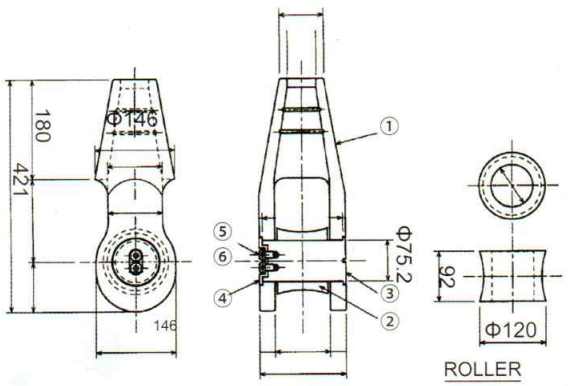
How to order: 21 - 11 - 59
Button-knot soft shackle "Link-It Plus", MINIMUM STRENGTH RATING, OVERALL SHACKLE LENGTH, BASE ROPE DIAMETER, MIMIMUM BEND DIAMETER

Mooring Wire Sockets, Roller Pin Type

Escaje de Amarre Tipo Rodillo
ローラーピン式ワイヤーソケット　缆绳用开口索节

Quite new style of mooring shackle as substitute for traditional connection of a synthetic tail rope with a wire rope when mooring. Attaching this new type Roller Socket at the end of mooring wire rope you can connect directly to mooring tail rope (Forerunner) by its unique construction combined conventional mooring shackles and wire rope socket. You don't need to buy standard mooring shackle anymore if this new style roller shackle is attached to mooring wire.

Roller shackle is made from carbon and alloy steel with pin and roller which are detachable for connecting tail rope. Normally the roller shackle will be supplied pre-attached to mooring wire rope by factory, but it is possible to attach by ship's workers using a unique socketing media "Wirelock".



21 11 71	Mooring wire socket, roller pin type 0-42 carbon and alloy steel for 42 mm dia wire rope	Pc.

Socketing Resin "Wirelock"

Resina para Enclavijar la Terminación de cable Metálico "Wirelock"
ソケット加工樹脂 "ワイヤーロック"
缆绳修补树脂胶



The suitable resin for socketing wire rope terminations. This wire rope assemblies are 100% efficient when used with steel wire rope, galvanized wire ropes.

Pass the wire rope through the end hole of roller socket, and measure the rope ends to be socketed. The rope end should be seized at the sufficient length so that the ends of the unlaid wires (from the strands) will be at the top of the socket basket. The wire rope is secured in a vice directly below the seizing to allow the strands to be unlaid to the seizing. Plasticine or clay based putty, i.e., window or glazing putty, is required to seal the base of the socket prior to pouring, thus, preventing resin leakage which may cause voids. All of the liquid resin should be placed in the mixing container and then all of the power added to it (or vice versa) before mixing. Always mix all of the resin with all of the powder. Upon mixing, the resin will turn to a greenish turquoise color. If the mix remains a pale straw yellow color, do not use the kit. Once the resin is mixed, it should be poured immediately into the socket to ensure good penetration. The rope can be put in service or proof loaded one hour after the material in the socket has gelled. Whenever possible, the assembly should be proof loaded.



Warning

* Incorrect use of the socketing resin can result in an unsafe termination which may lead to serious injury, death, or property damage.
* Do not use the resin with stainless steel rope in salt water environment applications. Consult with the manufacturer.
* Use only soft annealed iron wire for seizing.
* Do not use any other wire (copper, brass, stainless, etc.) for seizing.
* Never use an assembly until the resin has gelled and fully cured.
* Remove any non-metallic coating from the broom area.
* Sockets with large grooves need to have those grooves filled before use with the resin.

Caution

* This resin, in liquid state, is flammable.
* Chemicals used in this product can give off toxic fumes and can burn eyes and skin.
* Use only in well-ventilated work areas.
* Never breathe fumes directly or for extended time.
* Always wear safety glasses to protect eyes.
* Always wear gloves to protect hands.
* Avoid direct contact with skin anywhere.

CODE	Contents	Unit
21 11 75	250 cc	Set
76	500 cc	"
77	1,000 cc	"

Approvals: Lloyds Register of Shipping, Det Norske Veritas, United States Coast Guard, Registro Italiano Navale

3-Strand Vinylon Ropes
(Kuremona Rope)

Cuerda Vinylon 3 Cordones
三つ撚り 1 号クレモナロープ
三股线维尼纶绳



Made from a compound of vinyl chloride and vinylidene from limestone. Spun into cotton-like soft thread and stranded into rope. Easy-to-tighten due to its flexibility and also easy to handle.

How to order: CODE
Vinylon rope, 3-strand, DIAM x LENGTH

Unit Per C/L

200 mtrs				Breaking Strength kN	220 mtrs			
CODE	Size Cir. inch	Size Diam. mm	Weight kg/coil		CODE	Size Cir. inch	Size Diam. mm	Weight kg/coil
21 12 01	1	8	7.1	6.86	**21 12 21**	1	8	7.8
02	1-1/8	9	9.6	8.83	**22**	1-1/8	9	10.6
03	1-1/4	10	11.6	11.8	**23**	1-1/4	10	12.8
04	1-1/2	12	15.6	14.7	**24**	1-1/2	12	17.2
05	1-3/4	14	21.6	21.6	**25**	1-3/4	14	23.8

(to be continued)

Unit Per C/L

200 mtrs				Breaking Strength kN	220 mtrs			
CODE	Size		Weight kg/coil		CODE	Size		Weight kg/coil
	Cir. inch	Diam. mm				Cir. inch	Diam. mm	
21 12 06	2	16	29.0	25.5	**21 12 26**	2	16	31.9
07	2-1/4	18	36.0	32.4	**27**	2-1/4	18	39.6
08	2-1/2	20	47.6	37.3	**28**	2-1/2	20	52.4
09	2-3/4	22	58.0	47.1	**29**	2-3/4	22	63.8
10	3	24	69.0	54.9	**30**	3	24	75.9
21 12 11	3-1/4	26	79.8	62.8	**21 12 31**	3-1/4	26	87.8
12	3-1/2	28	93.4	72.6	**32**	3-1/2	28	102.7
13	3-3/4	30	106.6	80.4	**33**	3-3/4	30	117.3
14	4	32	122.2	93.2	**34**	4	32	134.4

3-Strand Tarred Hemp Ropes

Cuerda de Cáñamo Alquitaranado 3 Cordones
三つ撚りタールロープ　三股油麻绳



For general use on board a ship. All ropes are of a 3 strand lay and supplied in 200 mtr/110 fathom length coils.

How to order: CODE

Hemp rope, 3-strand tarred, DIAM x LENGTH

Unit Per Mtr.

CODE	Size		Weight kg/coil	CODE	Size		Weight kg/coil
	Cir. inch	Diam. mm			Cir. inch	Diam. mm	
21 12 51	3/4	6	6.5	**21 12 55**	1-1/2	12	25.6
52	1	8	11.3	**56**	1-3/4	14	34.8
53	1-1/8	9	14.4	**57**	2	16	45.5
54	1-1/4	10	17.8	**58**	2-1/4	18	57.6

3-Strand Heaving Lines

Guía de 3 Cordones
三つ撚りヒービングライン　三股丙纶抛绳



Specially designed as a heaving line which is easy to handle for a variety of jobs. When ordering, please specify the rope material which you require, as listed in the code table below. All heaving lines are supplied in 200 mtr/110 fathom length coils.

How to order: CODE

Heaving line, 3-strand, MATERIAL, DIAM x LENGTH

Unit Per Mtr.

Polypropylene Heaving			Manila Heaving			Cotton Heaving		
CODE	Size		CODE	Size		CODE	Size	
	Cir. inch	Diam. mm		Cir. inch	Diam. mm		Cir. inch	Diam. mm
21 12 71	1	8	**21 12 76**	1	8	**21 12 81**	1	8
72	1-1/8	9	**77**	1-1/8	9	**82**	1-1/8	9
73	1-1/4	10	**78**	1-1/4	10	**83**	1-1/4	10
Vinylon Heaving			**Nylon Heaving**					
CODE	Size		CODE	Size				
	Cir. inch	Diam. mm		Cir. inch	Diam. mm			
21 12 86	1	8	**21 12 91**	1	8			
87	1-1/8	9	**92**	1-1/8	9			
88	1-1/4	10	**93**	1-1/4	10			

Signal Halyards (Flag Line)

Driza　フラッグライン
信号旗索（旗绳）



These halyards are braided for easy handling. When ordering, select from the following 4 kinds of materials. Furnished in lengths of 300 meters.

How to order: CODE

Signal halyard (flag line), MATERIAL, DIAM x LENGTH

Unit Per Mtr.

Polypropylene			Cotton		
CODE	Size		CODE	Size	
	Cir. inch	Diam. mm		Cir. inch	Diam. mm
21 13 01	3/4	6	**21 13 06**	3/4	6
02	1	8	**07**	1	8
03	1-1/8	9	**08**	1-1/8	9
Vinylon			**Nylon**		
CODE	Size		CODE	Size	
	Cir. inch	Diam. mm		Cir. inch	Diam. mm
21 13 11	3/4	6	**21 13 16**	3/4	6
12	1	8	**17**	1	8
13	1-1/8	9	**18**	1-1/8	9

Log Lines

Sondaleza　ログライン　測速绳



All braided, non-kinkable lines for logging purposes. All ropes are 300 meters in length.

Please specify the rope material you require from the coded table below.

How to order: CODE

Log line, MATERIAL, DIAM x LENGTH

Unit Per Mtr.

Polypropylene			Cotton		
CODE	Size		CODE	Size	
	Cir. inch	Diam. mm		Cir. inch	Diam. mm
21 13 21	3/4	6	**21 13 26**	3/4	6
22	1	8	**27**	1	8
23	1-1/8	9	**28**	1-1/8	9
Vinylon			**Nylon**		
CODE	Size		CODE	Size	
	Cir. inch	Diam. mm		Cir. inch	Diam. mm
21 13 31	3/4	6	**21 13 36**	3/4	6
32	1	8	**37**	1	8
33	1-1/8	9	**38**	1-1/8	9

3-Strand Polyethylene Tiger Ropes

Cuerda Tigre Polietileno 3 Cordones
標識ロープ（虎ロープ）　三股丙纶虎斑绳



Made of polyethylene, braided with two yellow coloured and one black coloured strand. Suitable to indicate the boundaries of a dangerous zone. Furnished in 200 mtr length coils.

How to order: CODE

Tiger rope, 3-strand, polyethylene, black/yellow, DIAM x LENGTH

Unit Per Mtr.

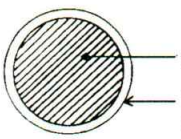
CODE	Size		Weight kg/coil	Breaking Strength (kN)
	Cir. inch	Diam. mm		
21 13 51	3/4	6	3.5	3.92
52	1	8	6.4	7.85
53	1-1/4	10	10.0	10.8
54	1-1/2	12	14.8	12.7
55	1-3/4	14	19.8	16.7
21 13 56	2	16	25.0	21.6
57	2-1/4	18	32.0	27.5
58	2-1/2	20	40.0	35.3
59	2-3/4	22	48.0	43.1
60	3	24	58.0	50.0

21 Rope & Hawsers

Man Ropes

Cuerda Plastificada
マンロープ（ギャングウェイ手摺り用ロープ） 扶手绳

Used as handrail rope for a gang way or wharf ladder, made of vinylon rope strand with vinyl chloride coating.



Strand of vinylon rope

Vinyl chloride coating, 2 mm (thickness) white color

Finished diam. 22 mm

Weight per mtr 1 kg

How to make rope ends:



Diamond Preparation



Small Eye

How to order: 21 - 13 - 65

Man rope, vinylon with vinyl chloride coating, 22 mm diam x FINISHED LENGTH (Mtr)

Tarred Marlines

Merlín (Alquitranado)
タール付マーライン
粗油麻绳



Sturdily woven, thoroughly tarred, waterproof, polished jute. When ordering, please specify if the marline is required in ball or hank form.

CODE	Diam. mm	Weight kg	Unit	CODE	Diam. mm	Weight kg	Unit
21 14 01	3	0.3	Hank	**21 14 03**	4	0.3	Hank
02	3	2.5	Ball	**04**	4	2.5	Ball

Polypropylene Marlines

Piola de Polipropileno
ポリプロピレン製マーライン
丙纶绳



Made of polypropylene, waterproof thread. Easy for seizing. Available only in hank.

CODE	Diam.	Weight and Unit
21 14 11	3 mm	100 gram in Hank
12	4 mm	

Seizing Twines

Piola (Hilo Ligada)
シージングトワイン 合股绳



Made of manila or polypropylene. Both are supplied in 2.5 kg balls. When ordering, please specify whether polypropylene or manila twine will be required.

CODE	Material	Diam.	Unit
21 14 21	Polypropylene	3 mm	2.5 kg Ball
22	Manila	3 mm	2.5 kg Ball

Sail Twines

Hilo de Vela セールトワイン
未涂蜡合股绳



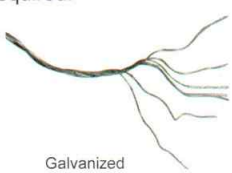
All purpose, uniform, strong woven, cotton or vinylon twine. Please specify whether you require waxed or unwaxed twine when ordering.

Unwaxed (Seaming Twine) Cotton			Waxed (Roping Twine) Vinylon		
CODE	Weight	Unit	CODE	Weight	Unit
21 14 31	225 grms	Hank	**21 14 33**	225 grms	Hank
32	225 grms	Ball	**34**	225 grms	Ball

Wire Ropes – Small Diameter for Seizing

Alambre Ligada シージング用小径ワイヤーロープ 细丝弯

For seizing large ropes or riggings. Two kinds of wire are shown here: an ordinary galvanized type and a spring type which returns to its original shape after removing. When ordering, please specify the kind of wire and diameter required.



Galvanized



Silk Wire

Unit Per Kgs. Unit Per Mtr.

Galvanized				Silk Wire			
CODE	Construc-tion	Diam. mm	STD. Coil	CODE	Construc-tion	Diam. mm	STD Coil
21 14 51	7-strand	2	5 kg	**21 14 55**	6 × 7	2	100 mtr
52	"	3	"	**56**	6 × 7	3	"
53	"	4	"	**57**	6 × 19	4	"
				58	6 × 19	5	"

Seizing Wires

Alambre de Hierro 鉄線 铁丝



Galvanized or ungalvanized wire for seizing large rope ends or riggings.

Unit Per Kgs.

Galvanized Wire		Kg per 1,000 m	Ungalvanized Wire	
CODE	Diam mm		CODE	Diam mm
67 11 01	0.23	0.326	**67 11 51**	0.23
02	0.26	0.417	**52**	0.26
03	0.29	0.518	**53**	0.29
04	0.32	0.631	**54**	0.32
05	0.35	0.755	**55**	0.35
67 11 06	0.40	0.987	**67 11 56**	0.40
07	0.45	1.25	**57**	0.45
08	0.50	1.54	**58**	0.50
09	0.55	1.87	**59**	0.55
10	0.60	2.22	**60**	0.60
67 11 11	0.65	2.60	**67 11 61**	0.65
12	0.70	3.02	**62**	0.70
13	0.80	3.95	**63**	0.80
14	0.90	4.99	**64**	0.90
15	1.0	6.17	**65**	1.0
67 11 16	1.2	8.88	**67 11 66**	1.2
17	1.4	12.1	**67**	1.4
18	1.6	15.8	**68**	1.6
19	1.8	20.0	**69**	1.8
20	2.0	24.7	**70**	2.0
67 11 21	2.3	32.6	**67 11 71**	2.3
22	2.6	41.7	**72**	2.6
23	2.9	51.8	**73**	2.9
24	3.2	63.1	**74**	3.2
25	3.5	75.5	**75**	3.5
67 11 26	4.0	98.7	**67 11 76**	4.0
27	4.5	125	**77**	4.5
28	5.0	154	**78**	5.0
29	5.5	187	**79**	5.5
30	6.0	222	**80**	6.0
67 11 31	6.5	260	**67 11 81**	6.5

Elastic Trapeze Cords

Cuerda de sujeción elástica
固縛用伸縮コード
固定用弾力縄



Elastic cord similar to rubber band but more durable and stronger. Use for fastening the items very easily. Attached with hook and clamp.

21 14 61	Elastic Trapeze Cord, 10 mm dia with hook and clamp	Mtr.
21 14 62	Hooks for Elastic Trapeze Cord	Pc.
21 14 63	Rope Clamps for Elastic Trapeze Cord	Pc.

Marine Oakum

Estopa Filástica　オーカム　麻絮



Available spun or unspun. The primary use of marine oakum is for caulking the seams of wooden vessels and the wooden decks of all types of marine structures. Both spun and unspun oakum are waterproof and essential for all marine work.

Unit Per Kgs.

CODE	Description
21 14 71	Spun marine oakum
72	Unspum marine oakum

Cordage

Name	Descriptions of Cordage
Point Line	Small rope used for reef points. Usually about inch to 1-3/4 inch in size. Generally referred to by the number of threads, 15 to 21, used in making it.
Ratlines	Small ropes stretched horizontally between shrouds to form foot and hand holds when going aloft. Sized to forward and after shrouds, clove hitched around intermediate shrouds.
Houseline	Soft laid three yarn stuff used for general purpose. May be tarred or untarred.
Boat Lacing	Line by which a boat's canvas cover, or other canvas gear, is secured in place.
Marline	Superior kind of spunyarn laid up left-handed.
Spunyarn	Spunyarn is a small stuff and is the cheapest and most commonly used for seizing, service, etc., where neatness is not important. It is laid up loosely, is left-handed, 2, 3 or 4 stranded, and is tarred.

Specifications of Cordage

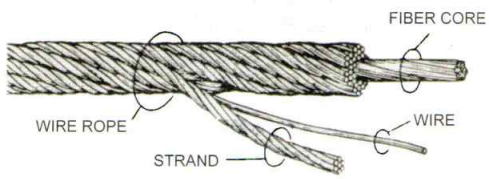
Name	Material	Number of Strand	Number of Thread & Diameter	
Point Line	Manila	3	12 thread 15 " 21 "	9 mm 10 12
Ratlines	Tarred Hemp of Manila	3	6 thread 9 " 12 "	6 mm 8 9
Houseline	Manila	3		5 mm 6
Sash Cord	Cotton	Senette Lay		6 mm 8 9
Wrapping Twine	Jute & Hemp	Spun	1.5 - 2.0 mm	
Boat Lacing	Manila	3	6 thread	6 mm
Manila	Hemp	-	3 lay 2 "	2 mm 3 4
Spunyarn	Jute	Spun	2 lay	4 mm

Steel Wire Ropes

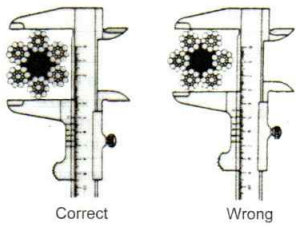
Cables de Acero - Mediciar - ワイヤーロープ　綱纜

Wire rope construction is indicated primarily by the number of strands and the number of wires in each strand. For instance a 6 x 24 steel wire rope is composed of 6 main strands and each strand has 24 main wires. These numbers are modified as follows:

1) The arrangement of wires in the strand, i.e. Filler, Seale, Warrington, etc.
2) Lay of stranding, i.e. regular, lang, right, left, etc.
3) Outer covering, i.e. galvanized, ungalvanized, etc.
4) Type of center, i.e. hemp core, I.W.R.C. (Independent Wire Rope Core) and strand.

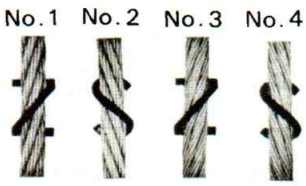


Gauging Wire Rope



The diameter of a wire rope is the diameter of the circle which will enclose all of its strands. When measuring a wire rope by caliper, care should be taken to measure the correct circumference of diameter of all the strands, not areas where there are two adjacent strands. See diagram above.

The Lays of Wire Rope



The picture right shows and indicates the regular and Lang's lay of wires.

1) Right hand regular lay
2) Left hand regular lay
3) Right hand Lang's lay
4) Left hand Lang's lay

Wire ropes can be either Lang's lay or Regular lay (Ordinary lay).

Lang's lay construction is one in which the wires in the strand are laid in the same direction as the strands are laid into the rope.

The advantage of using Lang's lay is that a rope so constructed offers a better wearing surface when in use, and, therefore, can be expected in many cases to survive for a longer period than a rope made with regular lay. Lang's lay ropes should never be used when one end of the rope is free to rotate.

Regular lay construction is one in which the strand wires are laid in one direction, and the completed strands laid into the rope in the opposite direction.

Nearly all ropes are supplied right-hand lay, but left-hand lay is occasionally required.

Nominal Tensile Strength

Referring to JIS G-3525

Galvanized Wire Rope		Un-galvanized Wire Rope	
Class	Tensile Strength N/mm² (kgf/mm²)	Class	Tensile Strength N/mm² (kgf/mm²)
E	-	E	1,320 (135)
G	1,470 (150)	G	-
A	1,620 (165)	A	1,620 (165)
B	1,770 (180)	B	1,770 (180)

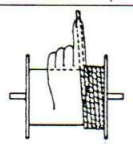
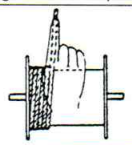
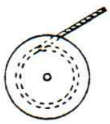
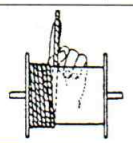
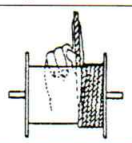
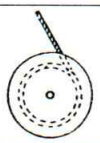
API - 9A

Nominal Grade	Class	Tensile Strength
180	IPS	1,770 Nm²
190	EIPS	1,860
200	-	1,960
220	-	2,160

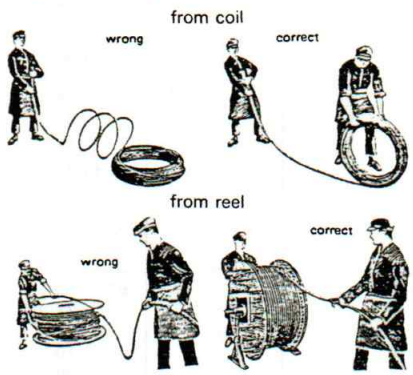
IPS : Improved Plow Steel
EIPS: Extra Improved Plow Steel

Winding Wire Rope

For left-handed drum = right-hand rope
For right-handed drum = left-hand rope

Left-Hand Rope	Right-Hand Rope	Drum
		
		

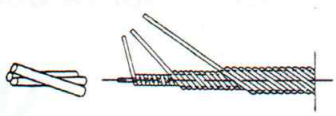
Unwinding Wire Rope



Cross Section of Wire rope

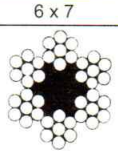
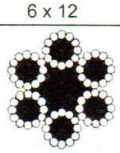
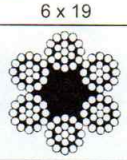
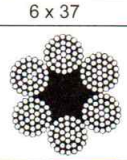
Construcción de Cable de Acero ロープの構成による分類 钢丝绳

A) Cross Lay (Conventional Lay)



The strands of a so-called conventional wire rope have equal-sized wires in all layers. Each layer has different length of lay and the wires of one layer cross the wires of the underlying layer.

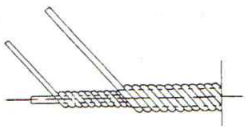
When the strands are spun in this manner the wires of the individual layers are in point contact with each other. In conventional ropes, all wires, except for the center wire, are of the same length.

Construction	6 x 7	6 x 12
Illustration		
6 x 19	6 x 24	6 x 37
		

B) Parallel Lay (Equal Lay)

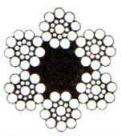
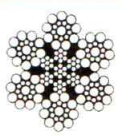
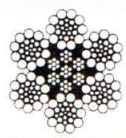
The strands of equal lay ropes have wires of varying sizes laid in such a way that the wires of one layer are parallel with and supported over their total length by wires in the underlying

layers. All wires have the same length of lay, and are laid up in a single operation.

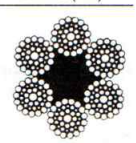
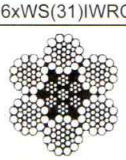
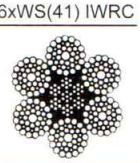
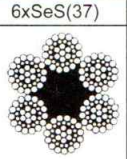
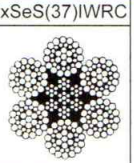


The use of equal lay strands avoids deformation, internal wear and secondary bending stress which result from the point contact between the wires in the conventional type. In most fields of application, therefore, equal lay ropes have proved to have a longer life than conventional ropes. The following types of construction are equal lay : Warrington, Seale, Filler and combinations of the same.

6 x 19 Classification

6 x S(19)	6 x W(19)	6 x Fi(25)	6 x WS(26)
			
6 x S(19) IWRC	6 x W(19)IWRC	6 x Fi(25)IWRC	6 x WS(26)IWRC
			

6 x 37 Classification

6xFi(29)	6xWS (31)	6xWS(36)	6xWS(41)
			
6xFi(29)IWRC	6xWS(31)IWRC	6xWS(36)IWRC	6xWS(41) IWRC
			
6xSeS(37)	6xSeS(37)IWRC		
			

Wire Arrangement

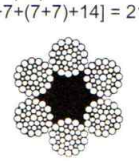
6 x 24
6 x (9+15) = 144 wires



6 x 37
6 x (1+6+12+18) = 222 wires



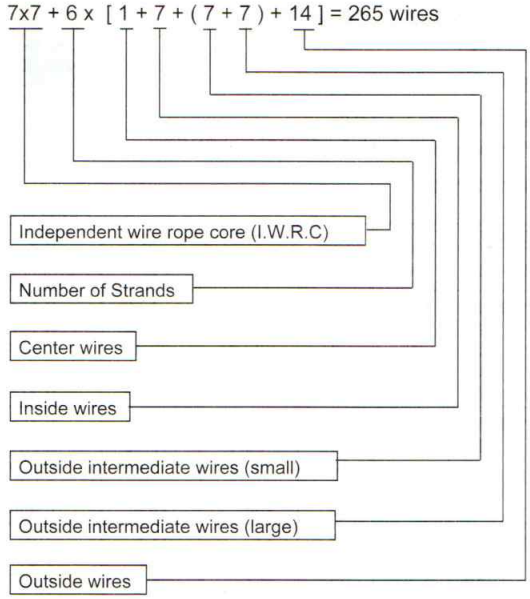
6 x WS (36)
6 x [1+7+(7+7)+14] = 216 wires



IWRC
6 x WS (36)



7x7 + 6 x [1 + 7 + (7 + 7) + 14] = 265 wires



Wire Rope Selection:

1. Wire ropes are available in various types and constructions, each having specific uses. Therefore, it is important to select the rope according to the intended application. Namely, it is necessary to see what properties are required for the rope to be used correctly. The properties cover breaking strength, flexibility, resistance to bending fatigue, anti-friction, resistance to deformation, non-rotation and anti-corrosion. In most cases, the key point of selecting the rope for a particular application is consideration of the above properties.

2. Selection by features

1) Where breaking strength is important, IWRC parallel lay ropes are recommended. For example:
IWRC 6 x Fi(25), IWRC 6 x Fi(29), IWRC 6 x WS(36).

2) Where flexibility is important, FC (Fibre Core) cross lay ropes are recommended.
For example: 6 x 24FC, 6 x 37FC.

3) Where resistance to bending fatigue is important, ropes made of strands with as many wires as possible are recommended.
For example: FC 6 x WS(36), FC 6 x WS(41).

4) Where anti-friction is important, ropes consisting of outer strands made of thick wires are recommended.
For example: 6 x S(19), 6 x Fi(21), 6 x Fi(25).

5) In case resistance to deformation is important, parallel lay ropes are recommended.
For example: IWRC 6 x WS(31), U4 x SeS(39).

6) Where non-rotation is required, non-rotating wire ropes are recommended.
For example: U4 x SeS(39), 18 x 7, 19 x 7, etc.

7) Where anti-corrosion is important, galvanized or stainless steel ropes are recommended.

Wire Rope 6 x 7

6 x (1+6)

Applications: Standing rigging.



FC

How to order : CODE

Wire rope, galvanized, 6 x 7, DIAM x LENGTH

Galvanized

Unit Per Mtr.

CODE 200 mtr	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 20 01	3/4"	6	18.8	1.92	0.134
02		6.3	21.0	2.14	0.147
03	1"	8	33.8	3.45	0.237
04		9	42.8	4.36	0.300
05	1-1/4"	10	52.8	5.38	0.371
21 20 06		11.2	66.2	6.75	0.465
07	1-1/2"	12	75.4	7.69	0.534
08		12.5	82.5	8.41	0.579
09	1-3/4"	14	103	10.6	0.727
10	2"	16	135	13.8	0.950
21 20 11	2-1/4"	18	171	17.4	1.20
12	2-1/2"	20	211	21.5	1.48
13	2-3/4"	22	254	25.9	1.80
14		22.4	265	27.0	1.86
15	3"	24	302	30.8	2.14
21 20 16		25	330	33.6	2.32
17	3-1/4"	26	354	36.1	2.51
18	3-1/2"	28	414	42.2	2.91
19	3-3/4"	30	475	48.4	3.34

(1,470 N/mm^2)

Wire Rope 6 x 19

6 x (1+6+12)

Applications: Running rigging.



FC

How to order: CODE

Wire rope, galvanized, 6 x 19, DIAM x LENGTH

Galvanized

Unit Per C/L

CODE 200 mtr	CODE 220 mtr	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 21 01	**21 21 26**	1/2"	4	8.03	0.82	0.058
02	**27**		5	12.5	1.28	0.091
03	**28**	3/4"	6	17.8	1.82	0.131
04	**29**		6.3	19.9	2.03	0.144
05	**30**	1"	8	32.1	3.28	0.233
21 21 06	**21 21 31**		9	40.7	4.15	0.295
07	**32**	1-1/4"	10	50.2	5.12	0.364
08	**33**		11.2	63.0	6.42	0.457
09	**34**	1-1/2"	12	72.3	7.37	0.524
10	**35**		12.5	78.4	8.00	0.569
21 21 11	**21 21 36**	1-3/4"	14	98.4	10.0	0.713
12	**37**	2"	16	128	13.1	0.932
13	**38**	2-1/4"	18	163	16.6	1.18
14	**39**	2-1/2"	20	201	20.5	1.46
15	**40**	2-3/4"	22	240	24.5	1.76
21 21 16	**21 21 41**		22.4	252	25.7	1.83
17	**42**	3"	24	286	29.2	2.10
18	**43**		25	314	32.0	2.28
19	**44**	3-1/4"	26	336	34.3	2.46
20	**45**	3-1/2"	28	393	40.1	2.85
21 21 21	**21 21 46**	3-3/4"	30	452	46.1	3.28

(1,470 N/mm^2)

How to order: CODE

Wire rope, ungalvanized, 6 x 19, DIAM x LENGTH

Ungalvanized

Unit Per C/L

CODE 200 mtr	CODE 220 mtr	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 21 51	**21 21 76**	1/2"	4	8.64	0.88	0.058
52	**77**		5	13.5	1.38	0.091
53	**78**	3/4"	6	19.4	1.98	0.131
54	**79**		6.3	21.4	2.19	0.144
55	**80**	1"	8	34.6	3.53	0.233
21 21 56	**21 21 81**		9	43.8	4.46	0.295
57	**82**	1-1/4"	10	54.0	5.51	0.364
58	**83**		11.2	67.8	6.91	0.457
59	**84**	1-1/2"	12	77.8	7.93	0.524
60	**85**		12.5	84.4	8.61	0.569
21 21 61	**21 21 86**	1-3/4"	14	106	10.8	0.713
62	**87**	2"	16	138	14.1	0.932
63	**88**	2-1/4"	18	175	17.8	1.18
64	**89**	2-1/2"	20	216	22.0	1.46
65	**90**	2-3/4"	22	261	26.6	1.76
21 21 66	**21 21 91**		22.4	271	27.6	1.83
67	**92**	3"	24	311	31.7	2.10
68	**93**		25	338	34.4	2.28
69	**94**	3-1/4"	26	365	37.2	2.46
70	**95**	3-1/2"	28	424	43.2	2.85
21 21 71	**21 21 96**	3-3/4"	30	486	49.6	3.28

(1,620 N/mm^2))

Wire Rope 6 x 24

6 x (9 + 15)

Applications: Slings, Mooring, Boom hoists, Preventers, Towing lines



FC

How to order: CODE

Wire rope, galvanized, 6 x 24, DIAM x LENGTH

Galvanized

Unit Per C/L

CODE 200 mtr	CODE 220 mtr	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 22 01	**21 22 51**	3/4"	6	16.4	1.67	0.120
02	**52**		6.3	18.0	1.84	0.132
03	**53**	1"	8	29.3	2.99	0.212
04	**54**		9	37.1	3.78	0.269
05	**55**	1-1/4"	10	45.8	4.67	0.332
21 22 06	**21 22 56**		11.2	57.4	5.86	0.416
07	**57**	1-1/2"	12	65.9	6.72	0.478
08	**58**		12.5	71.5	7.30	0.519
09	**59**	1-3/4"	14	89.7	9.15	0.651
10	**60**	2"	16	117	12.0	0.850
21 22 11	**21 22 61**	2-1/4"	18	148	15.1	1.08
12	**62**	2-1/2"	20	183	18.7	1.33
13	**63**	2-3/4"	22	221	22.5	1.61
14	**64**		22.4	230	23.4	1.67
15	**65**	3"	24	264	26.9	1.91
21 22 16	**21 22 66**		25	286	29.2	2.08
17	**67**	3-1/4"	26	308	31.4	2.24
18	**68**	3-1/2"	28	359	36.6	2.60
19	**69**	3-3/4"	30	412	42.0	2.99
20	**70**		31.5	454	46.3	3.29
21 22 21	**21 22 71**	4"	32	466	47.5	3.40
22	**72**		33.5	514	52.4	3.73
23	**73**	4-1/4"	34	526	53.6	3.84
24	**74**		35.5	577	58.8	4.18
25	**75**	4-1/2"	36	589	60.1	4.30
21 22 26	**21 22 76**		37.5	644	65.7	4.67
27	**77**	4-3/4"	38	657	67.0	4.79
28	**78**	5"	40	732	74.7	5.31

(1,470 N/mm^2)

How to order: CODE

Wire rope, ungalvanized, 6 x 24, DIAM x LENGTH

Ungalvanized

Unit Per C/L

CODE		Circ. Inch	Diam. mm	Breaking Strength		Weight per mtr (kg/mtr)
200 mtr	220 mtr			kN	tf	
21 23 01	21 23 51	3/4"	6	16.4	1.81	0.120
02	52		6.3	19.5	1.99	0.132
03	53	1"	8	31.6	3.22	0.212
04	54		9	39.9	4.07	0.269
05	55	1-1/4"	10	49.3	5.03	0.332
21 23 06	21 23 56		11.2	61.8	6.31	0.416
07	57	1-1/2"	12	71.0	7.24	0.478
08	58		12.5	77.0	7.85	0.519
09	59	1-3/4"	14	96.6	9.85	0.651
10	60	2"	16	126	12.9	0.850
21 23 11	21 23 61	2-1/4"	18	160	16.3	1.08
12	62	2-1/2"	20	197	20.1	1.33
13	63	2-3/4"	22	220	24.3	1.61
14	64		22.4	247	25.2	1.67
15	65	3"	24	262	28.9	1.91
21 23 16	21 23 66		25	308	31.4	2.08
17	67	3-1/4"	26	332	33.9	2.24
18	68	3-1/2"	28	387	39.4	2.60
19	69	3-3/4"	30	444	45.2	2.99
20	70		31.5	489	49.9	3.29
21 23 21	21 23 71	4"	32	466	51.4	3.40
22	72		33.5	553	56.4	3.73
23	73	4-1/4"	34	569	58.0	3.84
24	74		35.5	621	63.4	4.18
25	75	4-1/2"	36	637	65.0	4.30
21 23 26	21 23 76		37.5	693	70.7	4.67
27	77	4-3/4"	38	656	72.4	4.79
28	78	5"	40	789	80.4	5.31

(1,620 N/mm^2)

Wire Rope 6 x 37

6 x (1+6+12+18)

Applications: Running rigging, Boat falls, Winches, Cranes, Safety ropes, Hoists, Mooring, Slings



FC

How to order: CODE

Wire rope, galvanized, 6 x 37 DIAM x LENGTH

Galvanized

Unit Per C/L

CODE		Circ. Inch	Diam. mm	Breaking Strength		Weight per mtr (kg/mtr)
200 mtr	220 mtr			kN	tf	
21 25 01	21 25 51	3/4"	6	17.7	1.80	0.129
02	52		6.3	19.6	2.00	0.143
03	53	1"	8	31.6	3.22	0.230
04	54		9	40.0	4.08	0.291
05	55	1-1/4"	10	49.4	5.03	0.359
21 25 06	21 25 56		11.2	61.9	6.31	0.451
07	57	1-1/2"	12	71.1	7.25	0.517
08	58		12.5	77.1	7.86	0.561
09	59	1-3/4"	14	96.7	9.86	0.704
10	60	2"	16	126	12.9	0.920
21 25 11	21 25 61	2-1/4"	18	160	16.3	1.16
12	62	2-1/2"	20	197	20.1	1.44
13	63	2-3/4"	22	237	24.2	1.74
14	64		22.4	248	25.3	1.80
15	65	3"	24	284	29.0	2.07
21 25 16	21 25 66		25	308	31.5	2.25
17	67	3-1/4"	26	330	33.7	2.43
18	68	3-1/2"	28	387	39.5	2.82
19	69	3-3/4"	30	444	45.3	3.23
20	70		31.5	490	49.9	3.57
21 25 21	21 25 71	4"	32	501	51.1	3.68
22	72		33.5	554	56.5	4.03
23	73	4-1/4"	34	566	57.7	4.15
24	74		35.5	622	63.4	4.53
25	75	4-1/2"	36	634	64.7	4.66
21 25 26	21 25 76		37.5	694	70.8	5.05
27	77	4-3/4"	38	707	72.1	5.19
28	78	5"	40	790	80.5	5.75
29	79	5-1/4"	42	863	88.0	6.34
30	80		42.5	892	90.9	6.49
21 25 31	21 25 81	5-1/2"	44	947	96.6	6.96
32	82		45	1,000	102.0	7.28
33	83	5-3/4"	46	1,040	106.0	7.60
34	84		47.5	1,110	114.0	8.11
35	85	6"	48	1,128	115.0	8.28
21 25 36	21 25 86	6-1/4"	50	1,230	126.0	8.98

(1,470 N/mm^2)

(to be continued)

How to order: CODE

Wire rope, ungalvanized, 6 x 37 DIAM x LENGTH

Ungalvanized

Unit Per C/L

CODE		Circ. Inch	Diam. mm	Breaking Strength		Weight per mtr (kg/mtr)
200 mtr	220 mtr			kN	tf	
21 26 01	21 26 51	3/4"	6	19.1	1.95	0.129
02	52		6.3	21.1	2.15	0.143
03	53	1"	8	34.0	3.47	0.230
04	54		9	43.0	4.39	0.291
05	55	1-1/4"	10	53.1	5.42	0.359
21 26 06	21 26 56		11.2	66.6	6.79	0.451
07	57	1-1/2"	12	76.5	7.80	0.517
08	58		12.5	83.0	8.46	0.561
09	59	1-3/4"	14	104	10.6	0.704
10	60	2"	16	136	13.9	0.920
21 26 11	21 26 61	2-1/4"	18	172	17.5	1.16
12	62	2-1/2"	20	212	21.7	1.44
13	63	2-3/4"	22	257	26.2	1.74
14	64		22.4	266	27.2	1.80
15	65	3"	24	306	31.2	2.07
21 26 16	21 26 66		25	332	33.8	2.25
17	67	3-1/4"	26	359	36.6	2.43
18	68	3-1/2"	28	416	42.5	2.82
19	69	3-3/4"	30	478	48.7	3.23
20	70		31.5	527	53.7	3.57
21 26 21	21 26 71	4"	32	543	55.4	3.68
22	72		33.5	596	60.8	4.03
23	73	4-1/4"	34	613	62.5	4.15
24	74		35.5	669	68.3	4.53
25	75	4-1/2"	36	687	70.1	4.66
21 26 26	21 26 76		37.5	747	76.2	5.05
27	77	4-3/4"	38	766	78.1	5.19
28	78	5"	40	850	86.7	5.75
29	79	5-1/4"	42	936	95.4	6.34
30	80		42.5	959	97.8	6.49
21 26 31	21 26 81	5-1/2"	44	1,030	105.0	6.96
32	82		45	1,080	110.0	7.28
33	83	5-3/4"	46	1,118	114.0	7.60
34	84		47.5	1,200	122.0	8.11
35	85	6"	48	1,226	125.0	8.28
21 26 36	21 26 86	6-1/4"	50	1,330	135.0	8.98

(1,620 N/mm^2)

Wire Rope 6 x Fi(25)



FC

6 x [1+6+(6)+12]

Applications: Cranes, Winches, Derricks, Hoists

How to order: CODE

Wire rope, ungalvanized, 6 x Fi(25) DIAM x LENGTH

Ungalvanized

Unit Per Mtr.

CODE 200 mtr	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 27 01	1-1/4"	10	58.1	5.92	0.386
02		11.2	72.8	7.43	0.484
03	1-1/2"	12	83.6	8.52	0.555
04		12.5	90.7	9.25	0.603
05	1-3/4"	14	114	11.6	0.756
21 27 06	2"	16	149	15.2	0.988
07	2-1/4"	18	188	19.2	1.25
08	2-1/2"	20	232	23.7	1.54
09	2-3/4"	22	280	28.6	1.87
10		22.4	291	29.7	1.94
21 27 11	3"	24	333	34.0	2.22
12		25	363	37.0	2.41
13	3-1/4"	26	391	39.9	2.61
14	3-1/2"	28	455	46.4	3.02
15	3-3/4"	30	532	53.3	3.47
21 27 16		31.5	576	58.7	3.83
17	4"	32	593	60.5	3.95
18		33.5	652	66.4	4.33
19	4-1/4"	34	670	68.3	4.46
20		35.5	732	74.6	4.86
21 27 21	4-1/2"	36	751	76.6	5.00
22		37.5	816	83.3	5.42
23	4-3/4"	38	837	85.3	5.57
24	5"	40	929	94.7	6.17
21 27 71	4-1/2"	36	855	87.2	5.57
72		37.5	931	94.9	6.05
73	4-3/4"	38	952	97.1	6.21
74	5"	40	1,060	108.0	6.88

(1,770 N/mm^2)

Wire Rope 6 x Fi(25)IWRC



IWRC

7x7+6x[1+6+(6)+12]

Applications: Cranes, Anchor handling

How to order: CODE

Wire rope, ungalvanized,
6 x Fi(25)IWRC DIAM x LENGTH

Ungalvanized

Unit Per Mtr.

CODE 200 mtr	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 27 51	1-1/4"	10	66.2	6.75	0.430
52		11.2	83.0	8.47	0.539
53	1-1/2"	12	94.9	9.68	0.619
54		12.5	103	10.5	0.672
55	1-3/4"	14	130	13.2	0.843
21 27 56	2"	16	169	17.3	1.10
57	2-1/4"	18	214	21.9	1.39
58	2-1/2"	20	265	27.0	1.72
59	2-3/4"	22	319	32.5	2.08
60		22.4	332	33.9	2.16
21 27 61	3"	24	380	38.7	2.48
62		25	414	42.2	2.69
63	3-1/4"	26	446	45.5	2.91
64	3-1/2"	28	519	52.9	3.37
65	3-3/4"	30	596	60.7	3.87
21 27 66		31.5	657	67.0	4.27
67	4"	32	676	68.9	4.40
68		33.5	743	75.7	4.83
69	4-1/4"	34	762	77.7	4.97
70		35.5	834	85.1	5.42

(to be continued)

Wire Rope 6 x Fi(29)



FC

6 x [1+7+(7)+14]

Applications: Cranes, Winches, Derricks, Hoists

How to order: CODE

Wire rope, ungalvanized, 6 x Fi(29) DIAM x LENGTH

Ungalvanized

Unit Per Mtr.

CODE 200 mtr	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 28 01	1-1/4"	10	59.2	6.04	0.396
02		11.2	74.3	7.58	0.496
03	1-1/2"	12	85.1	8.68	0.570
04		12.5	92.5	9.44	0.618
05	1-3/4"	14	116	11.8	0.776
21 28 06	2"	16	152	15.5	1.01
07	2-1/4"	18	192	19.6	1.28
08	2-1/2"	20	237	24.2	1.58
09	2-3/4"	22	286	29.2	1.92
10		22.4	297	30.3	1.99
21 28 11	3"	24	340	34.7	2.28
12		25	370	37.8	2.47
13	3-1/4"	26	399	40.7	2.68
14	3-1/2"	28	464	47.4	3.10
15	3-3/4"	30	533	54.4	3.56
21 28 16		31.5	588	59.9	3.93
17	4"	32	605	61.7	4.05
18		33.5	665	67.8	4.44
19	4-1/4"	34	684	69.7	4.58
20		35.5	746	76.1	4.99
21 28 21	4-1/2"	36	766	78.1	5.13
22		37.5	833	84.9	5.57
23	4-3/4"	38	853	87.0	5.72
24	5"	40	948	96.6	6.33

(1,770 N/mm^2)

Wire Rope 6 x Fi(29)IWRC



IWRC

7x7+6x[1+7+(7)+14]

Applications: Cranes, Anchor handling

How to order: CODE

Wire rope, ungalvanized,
6 x Fi(29)IWRC DIAM x LENGTH

Ungalvanized

Unit Per Mtr.

CODE 200 mtr	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 28 51	1-1/4"	10	67.7	6.90	0.440
52		11.2	84.9	8.66	0.552
53	1-1/2"	12	97.3	9.92	0.634
54		12.5	106	10.8	0.688
55	1-3/4"	14	133	13.5	0.862
21 28 56	2"	16	173	17.7	1.13
57	2-1/4"	18	219	22.4	1.43
58	2-1/2"	20	271	27.6	1.76
59	2-3/4"	22	327	33.3	2.13
60		22.4	340	34.6	2.21

(to be continued)

Unit Per Mtr.

CODE 200 mtr	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 28 61	3"	24	389	39.7	2.53
62		25	423	43.2	2.75
63	3-1/4"	26	457	46.6	2.97
64	3-1/2"	28	531	54.1	3.45
65	3-3/4"	30	609	62.1	3.96
21 28 66		31.5	672	68.5	4.37
67	4"	32	691	70.5	4.51
68		33.5	760	77.5	4.94
69	4-1/4"	34	781	79.6	5.09
70		35.5	853	87.0	5.55
21 28 71	4-1/2"	36	876	89.3	5.70
72		37.5	952	97.1	6.19
73	4-3/4"	38	976	99.5	6.35
74	5"	40	1,080	110.0	7.04

(1,770 N/mm^2)

Wire Rope 6 x WS(26)

6x[1+5+(5+5)+10]

Applications: Cranes, Winches, Hoists, Mooring, Slings



FC

How to order: CODE

Wire rope, galvanized, 6 x WS(26) DIAM x LENGTH

Galvanized

Unit Per Mtr.

CODE 200 mtrs	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 29 01	1-1/4"	10	54.5	5.55	0.386
02		11.2	68.3	6.97	0.484
03	1-1/2"	12	78.4	8.00	0.555
04		12.5	85.1	8.68	0.603
05	1-3/4"	14	107	10.9	0.756
21 29 06	2"	16	139	14.2	0.988
07	2-1/4"	18	176	18.0	1.25
08	2-1/2"	20	218	22.2	1.54
09	2-3/4"	22	264	26.9	1.87
10		22.4	273	27.9	1.94
21 29 11	3"	24	314	32.0	2.22
12		25	340	34.7	2.41
13	3-1/4"	26	368	37.5	2.61
14	3-1/2"	28	427	43.5	3.02
15	3-3/4"	30	490	50.0	3.47
21 29 16		31.5	540	55.1	3.83
17	4"	32	557	56.8	3.95
18		33.5	611	62.3	4.33
19	4-1/4"	34	630	64.2	4.46
20		35.5	686	70.0	4.86
21 29 21	4-1/2"	36	705	71.9	5.00
22		37.5	766	78.1	5.42
23	4-3/4"	38	786	80.1	5.57
24	5"	40	871	88.9	6.17

(1,620 N/mm^2)

Wire Rope 6 x WS(26)IWRC

7x7+6x[1+5+(5+5)+10]

Applications: Running rigging, Winches, Cranes,Hoists, Mooing, Towing, Anchor handling



IWRC

How to order: CODE

Wire rope, galvanized,
6 x WS(26)IWRC DIAM x LENGTH

Galvanized

Unit Per Mtr.

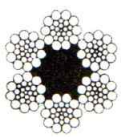
CODE 200 mtrs	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 29 51	1-1/4"	10	66.2	6.75	0.431
52		11.2	83.0	8.47	0.540
53	1-1/2"	12	96.9	9.88	0.620
54		12.5	103	10.5	0.673
55	1-3/4"	14	130	13.2	0.844
21 29 56	2"	16	169	17.3	1.10
57	2-1/4"	18	214	21.9	1.40
58	2-1/2"	20	265	27.0	1.72
59	2-3/4"	22	326	33.2	2.09
60		22.4	332	33.9	2.16
21 29 61	3"	24	387	39.5	2.48
62		25	414	42.2	2.69
63	3-1/4"	26	455	46.4	2.91
64	3-1/2"	28	519	52.9	3.38
65	3-3/4"	30	596	60.7	3.88
21 29 66		31.5	657	67.0	4.27
67	4"	32	689	70.3	4.41
68		33.5	743	75.7	4.83
69	4-1/4"	34	778	79.3	4.98
70		35.5	834	85.1	5.43
21 29 71	4-1/2"	36	872	88.9	5.58
72		37.5	931	94.9	6.06
73	4-3/4"	38	972	99.1	6.22
74	5"	40	1,060	108.0	6.89

(1,770 N/mm^2)

Wire Rope 6 x WS(31)

6x[1+6+(6+6)+12]

Applications: Running rigging, Boat falls, Winches, Cranes, Safety ropes, Hoists, Mooring, Slings



FC

How to order: CODE

Wire rope, galvanized, 6 x WS(31) DIAM x LENGTH

Galvanized

Unit Per Mtr.

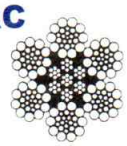
CODE 200 mtrs	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 30 01	1-1/4"	10	55.6	5.67	0.396
02		11.2	69.7	7.11	0.496
03	1-1/2"	12	80.0	8.16	0.570
04		12.5	86.9	8.86	0.618
05	1-3/4"	14	109	11.1	0.776
21 30 06	2"	16	142	14.5	1.01
07	2-1/4"	18	180	18.4	1.28
08	2-1/2"	20	222	22.7	1.58
09	2-3/4"	22	269	27.4	1.92
10		22.4	279	28.4	1.99
21 30 11	3"	24	320	32.6	2.28
12		25	348	35.4	2.47
13	3-1/4"	26	376	38.3	2.68
14	3-1/2"	28	436	44.4	3.10
15	3-3/4"	30	500	51.0	3.56
21 30 16		31.5	552	56.3	3.93
17	4"	32	569	58.0	4.05
18		33.5	624	63.6	4.44
19	4-1/4"	34	643	65.6	4.58
20		35.5	701	71.4	4.99
21 30 21	4-1/2"	36	721	73.5	5.13
22		37.5	782	79.7	5.57
23	4-3/4"	38	802	81.8	5.72
24	5"	40	890	90.7	6.33

(1,620 N/mm^2)

Wire Rope 6 x WS(31)IWRC

7x7+6x[1+6+(6+6)+12]

Applications: Running rigging, Winches, Cranes,Hoists, Mooring, Towing, Anchor handling



IWRC

How to order: CODE

Wire rope, galvanized, 6 x WS(31)IWRC DIAM x LENGTH

Galvanized

Unit Per Mtr.

CODE 200 mtrs	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 30 51	1-1/4"	10	67.7	6.90	0.441
52		11.2	84.9	8.66	0.553
53	1-1/2"	12	96.2	9.81	0.635
54		12.5	106	10.8	0.689
55	1-3/4"	14	133	13.5	0.864
21 30 56	2"	16	173	17.7	1.13
57	2-1/4"	18	219	22.4	1.43
58	2-1/2"	20	271	27.6	1.76
59	2-3/4"	22	324	33.0	2.13
60		22.4	340	34.6	2.21
21 30 61	3"	24	384	39.4	2.54
62		25	423	43.2	2.76
63	3-1/4"	26	452	46.1	2.98
64	3-1/2"	28	531	54.1	3.46
65	3-3/4"	30	609	62.1	3.97
21 30 66		31.5	672	68.5	4.37
67	4"	32	685	69.8	4.51
68		33.5	760	77.5	4.95
69	4-1/4"	34	773	78.8	5.10
70		35.5	853	87.0	5.56
21 30 71	4-1/2"	36	866	88.3	5.71
72		37.5	952	97.1	6.20
73	4-3/4"	38	965	98.4	6.37
74	5"	40	1,080	110.0	7.05

(1,770 N/mm^2)

Wire Rope 6 x 37 IWRC

7x7+6x[1+6+12+18]

Applications: Running rigging, Winches, Cranes,Hoists, Mooring, Towing, Anchor handling



IWRC

How to order: CODE

Wire rope, galvanized, 6 x 37 IWRC, DIAM x LENGTH

Galvanized

Unit Per Mtr.

CODE 200 mtrs	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 31 26		22.4	325	33.2	2.03
27	3"	24	373	38.1	2.33
28		25	404	41.2	2.52
29	3-1/4"	26	438	44.6	2.73
30	3-1/2"	28	507	51.7	3.17
21 31 31	3-3/4"	30	582	59.4	3.63
32		31.5	642	65.5	4.01
33	4"	32	663	67.6	4.13
34		33.5	726	74.1	4.53
35	4-1/4"	34	748	76.3	4.67
21 31 36		35.5	816	83.2	5.09
37	4-1/2"	36	839	85.6	5.23
38		37.5	910	92.8	5.68
39	4-3/4"	38	935	95.3	5.83
40	5"	40	1,040	106.0	6.46

(to be continued)

21 31 41	5-1/4"	42	1,140	116.2	7.25
42		42.5	1,170	119.0	7.29
43	5-1/2"	44	1,250	128.0	7.82
44		45	1,310	134.0	8.18
45	5-3/4"	46	1,370	140.0	8.54
21 31 46		47.5	1,460	149.0	9.11
47	6"	48	1,490	152.0	9.30
48	6-1/4"	50	1,620	165.0	10.10

(1,770 N/mm^2)

Wire Rope 6 x WS(36)

6 x [1+7+(7+7)+14]

Applications: Running rigging, Boat falls, Winches, Cranes, Safety ropes, Hoists, Mooring, Slings



FC

How to order: CODE

Wire rope, galvanized, 6 x WS(36) DIAM x LENGTH

Galvanized

Unit Per Mtr.

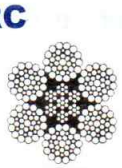
CODE 200 mtrs	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 31 01	2-1/2"	20	222	22.7	1.58
02	2-3/4"	22	269	27.4	1.92
03		22.4	279	28.4	1.99
04	3"	24	320	32.6	2.28
05		25	348	35.4	2.47
21 31 06	3-1/4"	26	376	38.3	2,68
07	3-1/2"	28	436	44.4	3.10
08	3-3/4"	30	500	51.0	3.56
09		31.5	552	56.3	3.93
10	4"	32	569	58.0	4.05
21 31 11		33.5	624	63.6	4.44
12	4-1/4"	34	642	65.5	4.58
13		35.5	701	71.4	4.99
14	4-1/2"	36	721	73.5	5.13
15		37.5	782	79.7	5.57
21 31 16	4-3/4"	38	802	81.8	5.72
17	5"	40	890	90.7	6.33
18	5-1/4"	42	981	100.0	6.98
19		42.5	1,000	102.0	7.15
20	5-1/2"	44	1,079	110.0	7.66
21 31 21		45	1,130	115.0	8.01
22	5-3/4"	46	1,177	120.0	8.38
23		47.5	1,250	128.0	8.93
24	6"	48	1,285	131.0	9.12
25	6-1/4"	50	1,390	142.0	9.90

(1,620 N/mm^2)

Wire Rope 6 x WS(36)IWRC

7x7+6x[1+7+(7+7)+14]

Applications : Running rigging, Winches, Cranes, Hoists, Mooring, Towing, Anchor handling



IWRC

How to order: CODE

Wire rope, galvanized, 6 x WS(36)IWRC DIAM x LENGTH

Galvanized

Unit Per Mtr.

CODE 200 mtrs	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 31 51	2-1/2"	20	271	27.6	1.76
52	2-3/4"	22	330	33.7	2.13
53		22.4	340	34.6	2.21
54	3"	24	393	40.1	2.54
55		25	423	43.2	2.76
21 31 56	3-1/4"	26	461	47.0	2.98
57	3-1/2"	28	531	54.1	3.46
58	3-3/4"	30	609	62.1	3.97
59		31.5	672	68.5	4.37
60	4"	32	698	71.2	4.51
21 31 61		33.5	760	77.5	4.95
62	4-1/4"	34	788	80.4	5.10
63		35.5	853	87.0	5.56
64	4-1/2"	36	885	90.2	5.71
65		37.5	952	97.1	6.20
21 31 66	4-3/4"	38	981	100.0	6.37
67	5"	40	1,080	110.0	7.05
68	5-1/4"	42	1,206	123.0	7.78
69		42.5	1,220	125.0	7.96
70	5-1/2"	44	1,324	135.0	8.53
21 31 71		45	1,370	140.0	8.93
72	5-3/4"	46	1,442	147.0	9.33
73		47.5	1,530	156.0	9.95
74	6"	48	1,569	160.0	10.2
75	6-1/4"	50	1,690	173.0	11.0

(1,770 N/mm^2)

Wire Rope 6 x WS(41)

6 x [1+8+(8+8)+16]

Applications: Running rigging, Winches Cranes, Mooring



FC

How to order: CODE

Wire rope, galvanized, 6 x WS(41) DIAM x LENGTH

Galvanized

Unit Per Mtr.

CODE 200 mtrs	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kgs/mtr)
21 32 01	3-3/4"	30	500	51.0	3.56
02		31.5	552	56.3	3.93
03	4"	32	569	58.0	4.05
04		33.5	624	63.6	4.44
05	4-1/4"	34	642	65.5	4.58
21 32 06		35.5	701	71.4	4.99
07	4-1/2"	36	721	73.5	5.13
08		37.5	782	79.7	5.57
09	4-3/4"	38	802	81.8	5.72
10	5"	40	890	90.7	6.33
21 32 11	5-1/4"	42	981	100.0	6.98
12		42.5	1,000	102.0	7.15
13	5-1/2"	44	1,079	110.0	7.66
14		45	1,130	115.0	8.01
15	5-3/4"	46	1,177	120.0	8.38
21 32 16		47.5	1,250	128.0	8.93
17	6"	48	1,285	131.0	9.12
18	6-1/4"	50	1,390	142.0	9.90

(1,620 N/mm^2)

Wire Rope 6 x WS(41)IWRC

7x7+6x[1+8+(8+8)+16]

Applications : Running rigging, Winches, Cranes, Mooring, Towing, Anchor handling



IWRC

How to order: CODE

Wire rope, galvanized, 6 x WS(41)IWRC DIAM x LENGTH

Galvanized

Unit Per Mtr.

CODE 200 mtrs	Circ. Inch	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 32 51	3-3/4"	30	609	62.1	3.97
52		31.5	672	68.5	4.37
53	4"	32	689	70.3	4.51
54		33.5	760	77.5	4.95
55	4-1/4"	34	779	79.4	5.10
21 32 56		35.5	853	87.0	5.56
57	4-1/2"	36	873	89.0	5.71
58		37.5	952	97.1	6.20
59	4-3/4"	38	973	99.2	6.37
60	5"	40	1,080	110.0	7.05
21 32 61	5-1/4"	42	1,187	121.0	7.78
62		42.5	1,220	125.0	7.96
63	5-1/2"	44	1,304	133.0	8.53
64		45	1,370	140.0	8.93
65	5-3/4"	46	1,422	145.0	9.33
21 32 66		47.5	1,530	156.0	9.95
67	6"	48	1,549	158.0	10.2
68	6-1/4"	50	1,690	173.0	11.0

(1,770 N/mm^2)

Elevator Wire Rope

Standard wire rope to be used for elevators.



8 x S(19)

How to order: CODE

Wire rope for elevator, ungalvanized, 8 x S(19), DIAM x LENGTH

Ungalvanized

Unit Per Mtr.

CODE	Diam. mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 33 01	8.0	26.0	2.65	0.220
02	10.0	40.6	4.14	0.343
03	11.2	51.0	5.20	0.430
04	12.0	58.5	5.96	0.494
05	12.5	63.5	6.47	0.536
21 33 06	14.0	79.6	8.12	0.672
07	16.0	104.0	10.60	0.878
08	18.0	132.0	13.40	1.110
09	20.0	162.0	16.60	1.370
10	22.4	204.0	20.80	1.720
21 33 11	25.0	254.0	25.90	2.140

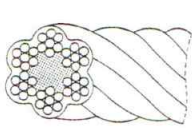
Vinyl Covered Wire Rope

for Staying Antenna

Cables de Acero con Forro de Vinnilo para Antena

アンテナ用ビニール被覆ワイヤー　涂塑绳

Used for staying antenna pole, boat fall lashing wire, or mast stay wire etc. Normally 6x19 or 6x24 construction with vinyl cover for protection from corrosion.



How to order: CODE

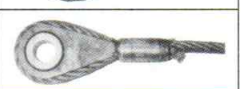
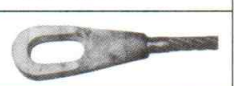
Wire rope, vinyl covered, galvanized, CONSTRUCTION, OUTER DIAM of WIRE ROPE & VINYL COVER, LENGTH

Galvanized

Unit Per Mtr.

CODE	Outer Diam. mm		Rope Construction
	Wire Rpe	Vinyl Cover	
21 33 21	6	8	6 x 19
22	8	10	6 x 24
23	10	12	6 x 24
24	12	14	6 x 24
25	14	16	6 x 24
21 33 26	16	18	6 x 24
27	18	21	6 x 24
28	20	23	6 x 24
29	22	25	6 x 24
30	24	27	6 x 24

Typical Example of Rope End Preparation

Pressed Thimble JIS Type (Mechanical Splice) JIS シンブル付・クランプ加工(B-2802)	
Soft Eye Splice (Mechanical Splice) クランプ加工・シンブルなし	
Soft Eye Splice (Hand-Splice) 普通カゴ差し加工	
Soft Eye Splice (Hand-Splice) "Australian Splice" カゴ差し加工	
Becket Eye (made of 2-strands) 2 本ストランダー	
Tapered and Welded End テーパー加工	
JIS Type-Solid Thimble Pressed JIS テッドアイ付・クランプ加工	
Solid Thimble Pressed テッドアイ付・クランプ加工特殊シンブル（ハグランド・タイプ）	
JIS Type-Open Socket JIS O 型 ワイヤソケット加工(F-3432)	
JIS Type-Closed Socket JIS C 型 ワイヤソケット加工(F-3432)	
End with Seizing シージング加工	

Non Rotating 4 Strand Wire Ropes

Cable de acero de 4 hilos no giratorio
非自転ワイヤー 无旋转 4 股钢丝绳

Best for use as a single lift crane rope. This rope has a unique four strand construction which serves to control and minimize the self spinning or rotating nature of the rope. The simple construction of the rope prevents sectional collapse and deformation. A smooth exterior finish, created through a special process, withstands abrasion and fits easily to the grooves of a drum or sheave. Because the outer shape of the rope is fitted well to drums and sheaves, there is less resulting friction during actual use, extending the length of service of the rope considerably.

The breaking strength of the non rotating ropes is higher than that of 6 strand ropes of an equivalent diameter and the margin of safety is higher. In spite of the 4 strand construction, these ropes have superior flexibility.

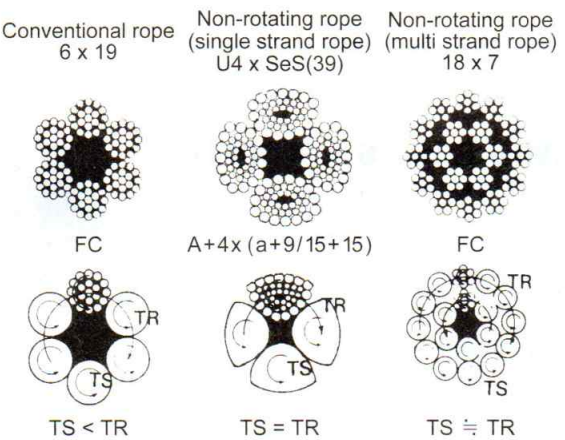
Recommended for use as the hoisting lines of tower and derrick cranes, as grab winch ropes, derrick fall ropes and lifeboat fall ropes.

UNI-Rope U4 x SeS(39)

* Principles of non-rotating properties of wire rope

(1) By making wire rope with multi strands and by laying the strands of the inner core of the rope in the opposite direction of the outer strands, the self rotating torque can be counteracted.

(2) By lengthening the lay (pitch) of the strands, reducing the number of strands, and laying strands of a more triangular shape, the tendency for the rope to be affected by spherical motion is decreased.



Non Rotating Wire Ropes U4xSeS(39)



A+4x(a+9/15+15)
Uni-Rope (Non-Rotating Rope)

Applications: Cranes, Hoists

How to order: CODE

Wire rope, non-rotating, U4 x SeS(39), galvanized, DIAM x LENGTH with TYPE of rope end preparation

Galvanized

Unit Per Mtr.

CODE	Circ. Inch	Diam mm	Breaking Strength		Weight per mtr (kg/mtr)
200 mtrs			kN	tf	
21 35 01	1"	8	40.9	4.10	0.257
02		9	51.8	5.28	0.326
03	1-1/4"	10	63.9	6.52	0.402
04		11.2	86.8	8.86	0.505
05	1-1/2"	12	99.7	10.2	0.579
21 35 06		12.5	108	11.0	0.628
07	1-3/4"	14	136	13.8	0.788
08	2"	16	177	18.1	1.03
09	2-1/4"	18	224	22.9	1.30
10		19	250	25.5	1.45

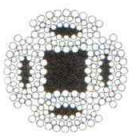
(to be continued)

Unit Per Mtr.

CODE 200 mtrs	Circ. Inch	Diam mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 35 11	2-1/2"	20	277	28.2	1.61
12	2-3/4"	22	335	34.2	1.95
13		22.4	347	35.4	2.02
14	3"	24	399	40.7	2.32
15		25	433	44.1	2.51
21 35 16	3-1/4"	26	468	47.7	2.72
17	3-1/2"	28	543	55.4	3.15
18	3-3/4"	30	623	63.5	3.62
19		31.5	687	70.1	3.99
20	4"	32	709	72.3	4.12
21 35 21		33.5	777	79.2	4.51
22	4-1/4"	34	800	81.6	4.65
23		35.5	872	89.0	5.07
24	4-1/2"	36	897	91.5	5.21
25		37.5	974	99.3	5.66
21 35 26	4-3/4"	38	1,000	102.0	5.81
27	5"	40	1,080	110.0	6.44

Class (Tensile Grade):
H..... High Tensile
"A"..... Rope Fibre Core
SH..... Special High Tensile
"a"..... Strand Fibre Core

Non Rotating Wire Ropes U4xSeS(48)



A+4x(a+12/18+18)

Uni-Rope (Non-Rotating Rope)

Uni-Rope F48 type is superior to F39 type in flexibility and fatigue properties. Normally supplied with Right Hand Regular Lay.

Applications: Cranes, Hoists

How to order: CODE

Wire rope, non-rotating, U4 x SeS(48), galvanized, DIAM x LENGTH with TYPE of rope end preparation

Galvanized

Unit Per Mtr.

CODE 200 mtrs	Circ. Inch	Diam mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 35 31	2"	16	189	19.2	1.00
32	2-1/4"	18	239	24.4	1.27
33		19	266	27.1	1.41
34	2-1/2"	20	295	30.1	1.56
35	2-3/4"	22	357	36.4	1.89
21 35 36		22.4	370	37.7	1.96
37	3"	24	425	43.3	2.25
38		25	450	45.9	2.44
39	3-1/4"	26	487	49.6	2.64
40	3-1/2"	28	564	57.5	3.07
21 35 41	3-3/4"	30	648	66.1	3.52
42		31.5	714	72.8	3.88
43	4"	32	737	75.2	4.00
44		33.5	808	82.4	4.39
45	4-1/4"	34	812	82.8	4.52
21 35 46		35.5	885	90.2	4.93
47	4-1/2"	36	910	92.8	5.07
48		37.5	939	95.7	5.50
49	4-3/4"	38	964	98.3	5.65
50	5"	40	1,070	109	6.26
21 35 51	5-1/4"	42	1,180	120	6.90
52		42.5	1,210	123	7.06
53	5-1/2"	44	1,290	132	7.57
54		45	1,350	138	7.92

Class (Tensile Grade):
"SH" ..... Special High Tensile
"A" ..... Rope Fibre Core
"a" ..... Strand Fibre Core

Non Rotating Wire Ropes 4xF(40)



4 x [8+(8+8)+16]

Single Rope (Non-Rotating Rope)

Applications: Cranes, Hoists

How to order: CODE

Wire rope, non-rotating, 4 x F(40), galvanized, DIAM x LENGTH with TYPE of rope end preparation

Galvanized

Unit Per Mtr.

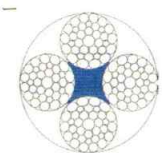
CODE 200 mtrs	Circ. Inch	Diam mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 36 25	2-1/2"	20	272	27.8	1.64
26	2-3/4"	22	329	33.6	1.99
27		22.4	341	34.8	2.06
28	3"	24	392	40.0	2.36
29		25	425	43.4	2.57
21 36 30	3-1/4"	26	460	46.9	2.77
31	3-1/2"	28	534	54.4	3.22
32	3-3/4"	30	613	62.5	3.69
33		31.5	675	68.9	4.07
34	4"	32	697	71.1	4.20
21 36 35		33.5	764	77.9	4.61
36	4-1/4"	34	787	80.2	4.74
37		35.5	858	87.5	5.17
38	4-1/2"	36	882	89.9	5.32
39		37.5	957	97.6	5.77
21 36 40	4-3/4"	38	983	100.0	5.93
41	5"	40	1,090	111.0	6.57

4 Strand Non Rotating Wire Ropes

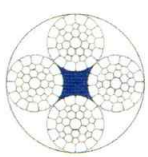
LANKO®FOUR

Cable de Acero no Giratorio de 4 Cordones
非自転ワイヤー ランコーフォー
4 股无旋转钢丝绳





LANKO® FOUR



LANKO® FOUR COMPACTED

LANKO®FOUR is a 4 strand, non-rotating, hoisting wire rope for use on cranes, such as Fukushima and IHI. Galvanized and lubricated to provide long protection against inner abrasion and corrosion. The LANKO® FOUR COMPACTED wire rope has a higher MBF and to maintain the required safety factors. Both versions have a thick outer wire making the wire robust and impact resistant in the often harsh conditions of loading and discharging.

Specifications

	LANKO® FOUR	LANKO® FOUR COMPACTED
Quality	Galvanized	Galvanized
Tensile Strength	1,960 N/mm²	2,060 N/mm²
Compacted	No	Yes
Type of Lay	right hand regular lay	right hand regular lay

LANKO® FOUR

Unit Per Mtr.

CODE	Dia (mm)	MBF (kN)	Weight (kg/100m)
21 36 71	12.5	103	66
72	18	225	120
73	20	280	150
74	22	345	188
75	24	400	226

(to be continued)

Unit Per Mtr.

CODE	Dia (mm)	MBF (kN)	Weight (kg/100m)
21 36 77	28	555	304
78	30	635	349
79	32	725	397
80	34	805	429
81	36	900	497
21 36 82	38	1,010	556

LANKO® FOUR COMPACTED

Unit Per Mtr.

CODE	Dia (mm)	MBF (kN)	Weight (kg/100m)
21 36 70	30	787	395
83	32	895	439
84	34	1,015	499
85	36	1,133	551

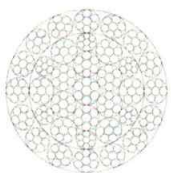
Name of Mfr.: Lankhorst Ropes

Multi Strand Non-Rotating Wire Ropes

35 x 7, LANKO®FLEX

Cable de Acero Multifilar no Giratorio
非自転ワイヤー ランコーフレックス
多股非旋转钢丝绳





Multi strand, non-rotating, hoisting wire rope. The construction ensures great flexibility to make this wire rope suitable for use on "European" type of cranes. The galvanization and internal/external lubrication provide protection against the environment.

Applications: Cranes, Hoists

Quality	:	Galvanized
Tensile Strength	:	1,960N/mm2
Construction	:	35 x 7
Direction of Lay	:	Right Hand Lang Lay
Greasing	:	Yes
Swivel	:	Yes
Optional	:	RHRL, LHLL, LHRL

How to order: CODE

Multi-strand Wire rope, 35x7, LANKOFLEX, non-rotating, galvanized, DIAM x LENGTH, Type/Direction of Lay, with TYPE of rope end preparation

Unit Per Mtr.

CODE	Dia (mm)	Breaking Strength (kN)	Weight (kg/100 m)
21 35 55	8	50.1	27
56	10	76.2	42
57	12	104.4	61
58	13	122	75.6
59	14	148	85.9
21 35 60	15	170	98.5
61	16	193	111
62	18	244	143
63	19	272	157
64	20	302	174
21 35 65	22	365	213
66	24	435	254
67	26	510	299
68	28	592	343
69	30	679	394
21 35 70	32	773	445
71	34	872	505
72	36	978	573
73	38	1,090	634
74	40	1,210	696

Name of Mfr.: Lankhorst Ropes

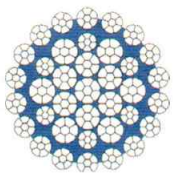
(to be continued)

Multi Strand Non-Rotating Wire Ropes

37 x 7, LANKO®PACK

Cable de acero no rotatorio de múltiples cordones
非自転ワイヤー ランコーパック
防旋转钢丝绳 LANKO





Compacted Multi-Strand, Non-Rotating, Hoisting Wire Rope. The construction ensures great flexibility to make this wire rope suitable for use on "European" type of cranes.
The galvanization and internal/external lubrication provide protection against environment.

The compacting gives this wire rope added breaking strength for those circumstances where you need it.

Applications: Cranes, Hoists

Quality	:	Galvanized
Tensile Strength	:	2,160 N/mm^2
Construction	:	37 x 7
Direction of Lay	:	Right Hand Lang Lay
Greasing	:	Yes
Swivel	:	Yes
Optional	:	RHRL, LHLL, LHRL, Plastic Coated Core

How to order: CODE

Compacted Multi-strand Wire rope, 37x7, LANKOPACK, non-rotating, galvanized, DIAM x LENGTH, Type/Direction of Lay, with TYPE of rope end preparation

Unit Per Mtr.

CODE	Dia (mm)	MBF (kN)	Weight (kg/100 m)
21 35 76	10	97	48
77	12	137	68
78	13	166	82
79	14	193	95
21 35 80	15	221	109
81	16	251	125
82	18	318	157
83	19	356	176
84	20	393	194
21 35 85	22	475	234
86	24	567	279
87	25	617	304
88	26	661	327
89	28	771	380
21 35 90	30	889	439
91	32	1,008	498
92	34	1,133	559
93	36	1,283	631
94	38	1,418	701
21 35 95	40	1,569	774

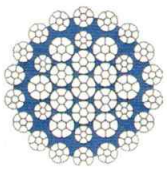
Name of Mfr.: Lankhorst Ropes

Multi Strand Non-Rotating Wire Ropes

37x7 LANKO®LIFT COMPACTED

Cable de acero no rotatorio de múltiples cordones
非自転ワイヤー ランコーリフト
防旋转钢丝绳 LANKO





Multi strand, non-rotating, hoisting wire rope. During the production process, the core is covered by an especially designed HDPE extruded cover. This special feature gives the wire rope stability, and avoids point-to-point contact between wires of the outer and inner strands, as well as preventing corrosion and wear of the core. When the high breaking strength is taken into account, this hoisting wire rope offers exceptional quality.

Applications: Cranes, Hoists

Quality	:	Galvanized
Tensile Strength	:	1,960 N/mm²
Construction	:	37 x 7
Direction of Lay	:	Right Hand Lang Lay
Greasing	:	Yes
Swivel	:	Yes
Optional	:	RHRL, LHLL, LHRL,

How to order: CODE

Multi-Strand Wire rope, LANKOLIFT, 37x7, non-rotating, galvanized, DIAM x LENGTH, Type/Direction of Lay, with TYPE of rope end preparation

Unit Per Mtr.

CODE	Dia (mm)	MBF (kN)	Weight (kg/100 m)
21 36 86	16	239	124.5
87	18	303	156.2
88	19	339	175.7
89	20	374	193.0
90	22	452	234.2
21 36 91	24	540	279.0
92	25	587	304.3
93	26	634	327.0
94	28	734	380.2
95	30	846	439.1
21 36 96	32	960	497.7
97	34	1,079	558.6
98	36	1,222	631.4
99	38	1,352	701.4
21 37 00	40	1,495	774.4
21 37 31	42	1,645	851.9
32	44	1,819	940.0
33	46	1,996	1,037.4
34	48	2,184	1,132.0
35	50	2,332	1,204.2
21 37 36	52	2,549	1,322.6
37	54	2,731	1,412.8

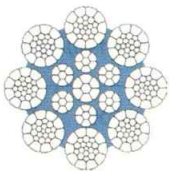
Name of Mfr.: Lankhorst Ropes

8-strand Wire Ropes

Lanko®Top Compacted

Cable de acero de 8 cordones compactado Lanko® Top
ランコートップ
LANKO ®TOP





An 8 strand compacted luffing wire rope. The core is covered by an especially designed HDPE extruded cover. This special feature gives the wire rope stability, and avoids point-to-point contact between wires of the outer and inner strands, as well as preventing corrosion and wear of the core. Compacting the wire rope provides greater strength, due to higher steel content, and better abrasion resistance, thanks to the larger contact area between wire rope and sheave.

Quality	:	Galvanized
Tensile strength	:	2,160 N/mm²
Type of core	:	Plastic covered IWRC
Direction of Lay	:	right hand regular lay
Optional	:	RHLL, LHRL, LHHL
Greasing	:	Yes

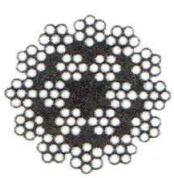
Unit Per Mtr.

CODE	Dia (mm)	MBF (kN)	Weight (kg/100 m)
21 37 38	12	133	64.9
39	13	156	76.9
40	14	187	90.3
41	15	214	102.6
42	16	242	116.0
21 37 44	18	307	149.4
45	19	342	164.1
46	20	379	183.6
47	22	459	221.5
21 37 48	24	556	263.5
49	26	655	310.6
50	28	748	357.1
51	30	864	411.6
52	32	968	467.2
21 37 53	34	1,091	529.4
54	36	1,217	584.2
55	38	1,332	657.9
56	40	1,479	729.8
57	42	1,613	797.8
21 37 58	44	1,820	900.1
59	46	1,975	978.0
60	48	2,155	1,061.0

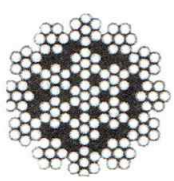
Name of Mfr.: Lankhorst Ropes

Hercules Ropes

Cable de Acero Tipo "ércules" ヘルクレスロープ 非旋转钢丝绳



18 x 7



19 x 7

Multi strand type non-rotating rope and normally used for lifting or lowering lifeboats or crane wire rope.

How to order: CODE

Wire rope, non-rotating, Hercules, CONSTRUCTION, galvanized, DIAM x LENGTH with TYPE of rope end preparation

18 × 7
A+6×(1+6)/12×(1+6)

Unit Per Mtr.

CODE	Diam mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 36 51	12.5	85.6	8.73	0.634
52	14.0	107.0	11.0	0.796
53	16.0	140.0	14.3	1.040
54	18.0	178.0	18.1	1.320
55	20.0	219.0	22.4	1.620
21 36 56	22.4	275.0	28.0	2.040

19 × 7
1×(1+6)+6×(1+6)/12×(1+6)

Unit Per Mtr.

CODE	Diam mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 36 61	12.5	91.9	9.37	0.664
62	14.0	115.0	11.8	0.833
63	16.0	151.0	15.4	1.090
64	18.0	191.0	19.4	1.380
65	20.0	235.0	24.0	1.700
21 36 66	22.4	295.0	30.1	2.130

Wire Ropes for Offshore Drilling Units

The following recommendation table lists ropes which are designed and manufactured to meet the requirements for structural use on offshore drilling units. Many of the ropes are shown previously in the catalogue, but to simplify the selection process, the most popular wire constructions for offshore applications are provided below. These ropes are made to order, so ropes of constructions other than those listed below are also available upon request.

When ordering, specify the construction type, diameter, length of coil, and other related information helpful in identification of the rope.

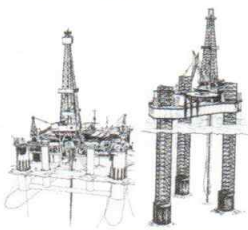
Rope Recommendations Table

All ropes are right-hand, regular lay unless otherwise stated.

Applications	Recommended Construction
Drilling Lines	6 × 19, Seale with IWRC 6 × 26, Warrington Seale with IWRC
Anchor Lines	6 × 25, Filler Wire with IWRC 6 × 36, Warrington Seale with IWRC 6 × 41, Warrington Seale with IWRC
Anchor Pennant Lines	6 × 25, Filler Wire with IWRC 6 × 41, Warrington Seale with IWRC
Riser-Tensioner Lines	6 × 41, Warrington Seale with IWRC,Lang's lay
Guide Lines	6 × 25, Filler Wire with IWRC 6 × 36, Warrington Seale with IWRC
Crane Hoist Wires	6 × 25, Filler Wire with IWRC or FC 6 × 36, Warrington Seale with IWRC or FC 18 × 7, Hercules 37 × 7, Nuflex U4 × SeS(39), UNI-ROPE, etc.
Crane Derricking Wires	6 × 25, Filler Wire with IWRC or FC 6 × 36, Warrington Seale with IWRC or FC 6 × 41, Warrington Seale with IWRC or FC
Sand Lines	6 × 7, PPC
Pipe Handling Slings	6 × 24, FC
Heavy Lifting Slings	Cable Laid Steel Wire Rope IWRC

*** Please indicate Tensile grade (IPS or EIPS) and Finish (Bright or Galvanized) when ordering.
IPS=Improved Plow Steel, EIPS=Extra Improved Plow Steel,
IWRC=Independent Wire Rope Core, FC= Fibre Core

Typical Exploration Offshore Drilling Units, etc.



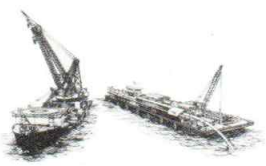
Semi-submersible drilling rig



Jack-up rig drilling



Floating storage unit



Derrick barge

Pipe lay barge

Specification for Wire Rope

ANSI/API Specification 9A
Twenty-fifth Edition, February 2004
ISO 10425:2003, Steel Wire Ropes for the Petroleum and Natural Gas Industries -
Minimum Requirement and Terms for Acceptance

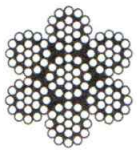
Type G.3 - Class 6 × 19M Fibre Core



Nominal Rope Diameter mm	Minimum Breaking Force (Fmin) Grade 1,770 kN	Minimum Breaking Force (Fmin) Grade 1,960 kN	Approximate Nominal Length Mass kg/100 mtr
3	4.89	5.42	3.11
4	8.69	9.63	5.54
5	13.6	15.0	8.65
6	19.6	21.7	12.5
7	26.6	29.5	17.0
8	34.8	38.5	22.1
9	44.0	48.7	28.0
10	54.3	60.2	34.6
11	65.8	72.8	41.9
12	78.2	86.6	49.8
13	91.8	102	58.5
14	107	118	67.8
16	139	154	88.6
18	176	195	112
19	196	217	125
20	217	241	138
22	263	291	167
24	313	347	199
26	367	407	234
28	426	472	271
32	556	616	354

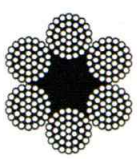
(to be continued)

Type G.4 - Class 6 × 19M Steel Core



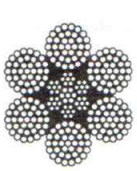
Nominal Rope Diameter mm	Minimum Breaking Force (Fmin)		Approximate Nominal Length Mass
	Grade 1,770 kN	Grade 1,960 kN	kg/100 mtr
8	37.6	41.6	24.7
9	47.6	52.7	31.2
10	58.8	65.1	38.6
11	71.1	78.7	46.7
12	84.6	93.7	55.6
13	99.3	110	65.2
14	115	128	75.7
16	150	167	98.8
18	190	211	125
19	212	235	139
20	235	260	154
22	284	315	187
24	338	375	222
26	397	440	261
28	461	510	303
32	602	666	395

Type G.5 - Class 6 × 37M Fibre Core



Nominal Rope Diameter mm	Minimum Breaking Force (Fmin)		Approximate Nominal Length Mass
	Grade 1,770 kN	Grade 1,960 kN	kg/100 mtr
5	13.9	14.6	8.65
6	18.8	20.8	12.5
7	25.6	28.3	17.0
8	33.4	37.0	22.1
9	42.3	46.8	28.0
10	52.2	57.8	34.6
11	63.2	70.0	41.9
12	75.2	83.3	49.8
13	88.2	97.7	58.5
14	102	113	67.8
16	134	148	88.6
18	169	187	112
19	188	209	125
20	209	231	138
22	253	280	167
24	301	333	199
26	353	391	239
28	409	453	271
32	535	592	354
35	640	708	424
36	677	749	448
38	754	835	500
40	835	925	554

Type G.6 - Class 6 × 37M Steel Core



Nominal Rope Diameter mm	Minimum Breaking Force (Fmin)		Approximate Nominal Length Mass
	Grade 1,770 kN	Grade 1,960 kN	kg/100 mtr
8	39.2	43.4	24.4
9	49.6	54.9	30.9
10	61.2	67.8	38.1
11	74.1	82.1	46.1
12	88.2	97.7	54.9
13	95.4	106	64.4
14	111	126	74.7
16	145	160	97.5
18	183	203	123
19	204	226	138
20	226	250	152
22	273	303	184
24	325	360	219
26	382	423	258
28	443	490	299
32	578	640	390
35	692	766	467
36	732	810	494
38	815	903	550
40	903	1,000	610

Federal Specification, FS RR-W-410E-2002 (Superseding FS RR-W-410D-1984)

Type I, General Purpose, Class 1, 6 × 7, Improved Plow Steel, Fiber Cores

Rope Diameter		Approx. Weight lbs./ft.	Nominal Strength in lbs.	
Inches	Circum.		Uncoated	Galvanized
1/4	3/4	0.094	5,280	4,760
5/16	1	0.15	8,200	7,380
3/8	1-1/8	0.21	11,720	10,540
7/16	1-3/8	0.29	15,860	14,280
1/2	1-5/8	0.38	20,600	18,540
9/16	1-3/4	0.48	26,000	23,400
5/8	2	0.59	31,800	28,600
3/4	2-3/8	0.84	45,400	40,800
7/8	2-3/4	1.15	61,400	55,200
1	3-1/8	1.50	79,400	71,400
1-1/8	3-1/2	1.90	99,600	89,600
1-1/4	3-7/8	2.34	122,000	109,800
1-3/8	4-3/8	2.84	146,200	131,600
1-1/2	4-3/4	3.38	172,400	155,200

Type I, General Purpose, Class 1, 6 × 7, Iron Galvanized, Regular Lay, Fiber Cores

Rope Diameter		Approx. Weight lbs./ft.	Nominal Strength in lbs.
Inches	Circum.		
1/4	3/4	0.094	1,840
5/16	1	0.15	2,840
3/8	1-1/8	0.21	4,080
7/16	1-3/8	0.29	5,520
1/2	1-5/8	0.38	7,160
9/16	1-3/4	0.48	9,020
5/8	2	0.59	11,080
3/4	2-3/8	0.84	15,800
13/16	2-1/2	0.99	18,460
7/8	2-3/4	1.15	21,400
1	3-1/8	1.50	27,600
1-1/16	3-3/8	1.70	31,000
1-1/8	3-1/2	1.90	34,600
1-3/16	3-3/4	2.12	38,400
1-1/4	3-7/8	2.34	42,400

Type I, General Purpose, Class 2, 6 × 19, and Class 3, 6 × 37, Single Operation Strand, Improved Plow Steel, Fiber Cores

Rope Diameter		Approx. Weight lbs./ft.	Nominal Strength in lbs.	
Inches	Circum.		Uncoated	Galvanized
1/4	3/4	0.105	5,480	4,940
5/16	1	0.164	8,520	7,660
3/8	1-1/8	0.236	12,200	10,980
7/16	1-3/8	0.32	16,540	14,880
1/2	1-5/8	0.42	21,400	19,260
9/16	1-3/4	0.53	27,000	24,300
5/8	2	0.66	33,400	30,000
3/4	2-3/8	0.95	47,600	42,800
7/8	2-3/4	1.29	64,400	58,000
1	3-1/8	1.68	83,600	75,200
1-1/8	3-1/2	2.13	105,200	94,600
1-1/4	3-7/8	2.63	129,200	116,200
1-3/8	4-3/8	3.18	155,400	139,800
1-1/2	4-3/4	3.78	184,000	165,600
1-5/8	5-1/8	4.44	214,000	192,600
1-3/4	5-1/2	5.15	248,000	224,000
1-7/8	5-7/8	5.91	282,000	254,000
2	6-1/4	6.72	320,000	288,000
2-1/8	6-5/8	7.59	358,000	322,000
2-1/4	7-1/8	8.51	400,000	360,000
2-1/2	7-7/8	10.5	488,000	440,000
2-3/4	8-5/8	12.7	584,000	526,000
3	9-3/8	15.1	685,000	616,000
3-1/4	10-1/4	17.7	798,000	718,000
3-1/2	11	20.6	914,000	822,000

Type I, General Purpose, Class 2, 6 × 19, and Class 3, 6 × 37, Single Operation Strand, Improved Plow Steel, Wire Strand Core or IWRC

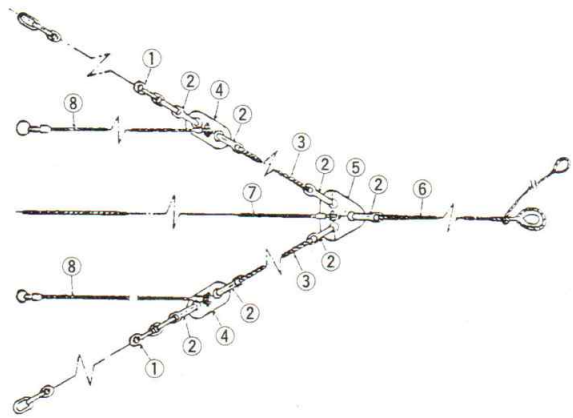
Rope Diameter		Approx. Weight lbs./ft.	Nominal Strength in lbs.	
Inches	Circum.		Uncoated	Galvanized
1/4	3/4	0.116	5,880	5,300
5/16	1	0.180	9,160	8,240
3/8	1-1/8	0.26	13,120	11,800
7/16	1-3/8	0.35	17,780	16,000
1/2	1-5/8	0.46	23,000	20,700
9/16	1-3/4	0.59	29,000	26,100
5/8	2	0.72	35,800	32,200
3/4	2-3/8	1.04	51,200	46,000
7/8	2-3/4	1.42	69,200	62,200
1	3-1/8	1.85	89,800	80,800
1-1/8	3-1/2	2.34	113,000	101,800
1-1/4	3-7/8	2.89	138,800	125,000
1-3/8	4-3/8	3.50	167,000	150,400
1-1/2	4-3/4	4.16	197,800	178,000
1-5/8	5-1/8	4.88	230,000	207,000
1-3/4	5-1/2	5.67	266,000	240,000
1-7/8	5-7/8	6.50	304,000	274,000
2	6-1/4	7.39	344,000	310,000
2-1/8	6-5/8	8.35	384,000	346,000
2-1/4	7-1/8	9.36	430,000	387,000
2-1/2	7-7/8	11.6	524,000	472,000
2-3/4	8-5/8	14.0	628,000	566,000
3	9-3/8	16.6	740,000	666,000
3-1/4	10-1/4	19.5	858,000	772,000
3-1/2	11	22.7	982,000	884,000

Note:

These specifications are quoted from the Federal Specification RR-W-410E dated February 7, 2002 and superseded to RR-W-410D on April 25, 1984. However, please acknowledge that these specifications are subject to change based upon revisions in Federal Regulations and other various factors. To obtain the most updated version of these specifications, please contact the Federal Supply Service Bureau at the following address:

Federal Supply Service Bureau,
Specification Section
470 East L'Enfant Plaza S.W., Suite 8100,
Washington D.C. 20407 U.S.A.
TEL: (202) 755-0325, FAX: (202) 755-0285

Offshore Drilling Units
Typical Assembling Plan for Towing Bridle



Quantity listed below shows for 2 sets of Towing Bridles

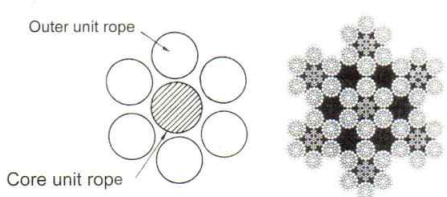
1	Towing Chain 78 mm Φ × 18 mtr	4 Set
2	Anchor Shackle	14 Pcs.
3	Towing wire 84 mm Φ × 41 mtr	4 Set
4	Connection Plate	4 Pcs.
5	Tri Plate	2 Pcs.
6	Pendant Wire 80 mm Φ × 50 mtr	2 Set
7	Recovering Rope 28 mm Φ × 125 mtr	2 Set
8	Recovering Rope	4 Set

Cable Laid Slings

Cables de Acero Ligado ケーブルレイドスリング 强力钢丝绳吊索

Steel slings which are designed for use in situations where extremely heavy load capacity is required. In the structural design and construction of modern offshore drilling rigs it is necessary to use ropes which can withstand very heavy loads for extended periods of time under extreme conditions.

For such jobs, ropes of more complex construction designs with high breaking strengths, good flexibility, easy handling, and product reliability are in greater demand.



Cable Laid Design

The term "Cable Laid" indicates a rope that is constructed from a number of unit ropes laid up in a helical design. Because of the complexity of the rope design, there is a wide choice of sling constructions available. A more typical design is illustrated in this section.

When ordering, please indicate the size of the eye splice at each end of the rope as well as the diameter of the sling, the construction, breaking strength, and total length.

How to order: 21 - 38 - 01

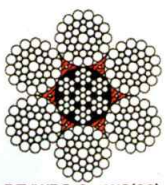
Sling, cable laid, galvanized, DIAM of SLING, CONSTRUCTION, BREAKING STRENGTH, LENGTH



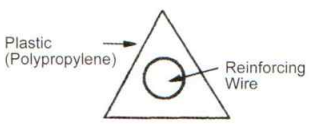
180 mm

Delta Filler Wire Ropes

Cable de Acero Tipo "Delta" デルタフィラーロープ 三角形填充钢丝绳



DF IWRC 6×WS(36)



A specially designed IWRC type rope with a patened plastic filler liner between the inner core and the outer strands of the rope. There are several unique advantages to this wire construction which make it more efficient and durable than normal wire ropes.

Delta Filler Rope eliminates one of the leading cause for unexpected wire rope failure, the invisible breakage of wire contact points inside of the wire core. When a rope is in use, the inner core of the rope is constantly in friction with the outside strands, causing abrasive wear on the connecting points in the wire core. With the Delta Filler Rope, a plastic lining fills the inner space of the rope stabilizing the strand lay construction and absorbing any friction between the inner core and the outer strands of the rope. The inner plastic lining also protects the inner core from corrosion. It keeps water and other elements from entering the inner core of the rope while keeping the anticorrosive lubricant oils inside of the rope from dripping out and polluting the environment.

Because of the ropes tendency not to twist it has a higher breaking strength than conventional ropes.

Delta Filler Rope is suitable for the following uses:

* As a mooring line for LNG carriers
* As a ramp support for RO-RO vessels.
* As an anchoring line for large vessels.
* As a luffing for deck cranes.
* As a guy line for large cranes.
* As a towing line for ocean tugboats.

How to order: 21 - 38 - 06

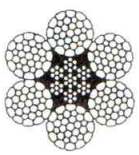
Delta Filler Wire Rope, CONSTRUCTION, DIAM, LENGTH with TYPE of rope end preparation

Circ. Inch	Diam. mm	Outer wire dia mm		Breaking Strength		Weight per mtr (kg/mtr)
		6 × 36 W.S.	6 × 41 W.S.	kN	tf	
	25	1.42	1.26	431	44.0	2.75
3-1/4"	26	1.47	1.30	467	47.6	2.97
3-1/2"	28	1.62	1.42	541	55.2	3.45
3-3/4"	30	1.72	1.52	621	63.3	3.96
	31.5	1.82	1.62	685	69.8	4.36
4"	32	1.85	1.65	707	72.1	4.50
	33.5	1.92	1.72	775	79.0	4.94
4-1/4"	34	1.95	1.75	798	81.4	5.08
	35.5	2.02	1.82	870	88.7	5.54
4-1/2"	36	2.06	1.85	894	91.2	5.70
	37.5	2.15	1.92	971	99.0	6.18
4-3/4"	38	2.18	1.95	1,000	102	6.35
5"	40	2.27	2.02	1,108	113	7.04
5-1/4"	42	2.36	2.12	1,216	124	7.76
	42.5	2.40	2.15	1,245	127	7.94
5-1/2"	44	2.47	2.20	1,334	136	8.51
	45	2.55	2.27	1,402	143	8.91
5-3/4"	46	2.60	2.33	1,461	149	9.31
	47.5	2.70	2.40	1,559	159	9.92
6"	48	2.72	2.43	1,589	162	10.1
6-1/4"	50	2.85	2.55	1,726	176	11.0
6-1/2"	52	2.95	2.60	1,863	190	11.9
	53	3.03	2.70	1,942	198	12.4
6-3/4"	54	3.10	2.75	2,010	205	12.8
7"	56	3.20	2.85	2,167	221	13.8
7-1/4"	58	3.30	2.95	2,324	237	14.8
7-1/2"	60	3.40	3.03	2,491	254	15.8
	63	3.60	3.20	2,746	280	17.5

(to be continued)

Green Ropes

Cable de Acero Tipo "Green"
グリーンロープ 格林钢丝绳



A unique full circle processed form provides approx. 10 to 20% higher breaking strength and endurance against abrasion compared with conventional wire rope.

Also this form will not get out easily under hard conditions by passing through the rollers or sheaves, or by winding into rope drum frequently.

Applications: Winches, Cranes

How to order: 21 - 38 - 11

Wire rope, Green Rope, ungalvanized 6xWS(31)IWRC, DIAM x LENGTH with TYPE of rope end preparation

Ungalvanized

Circ. Inch	Diam. mm	Breaking Strength		Weight per mtr (kg/mtr)
		kN	tf	
2-1/4"	18	265	27.1	1.50
2-1/2"	20	328	33.4	1.86
2-3/4"	22	396	40.4	2.25
3"	24	472	48.1	2.67
	25	512	52.2	2.90
3-1/4"	26	554	56.4	3.14
3-1/2"	28	642	65.5	3.64
3-3/4"	30	737	75.2	4.18
4"	32	839	85.5	4.75
4-1/4"	34	947	96.5	5.37
4-1/2"	36	1,060	108.0	6.02

Stainless Steel Wire Ropes

Cable de Acero Inoxidable ステンレスワイヤロープ 不锈钢钢丝绳

There are many kinds of stainless steel ropes which are applicable for use in a wide variety of industries. The most commonly used stainless steel alloys are the AISI 304 and AISI 316 alloys which have superior resistance to corrosion in atmospheres with the presence of alkaline, acidic, or chemical elements. Stainless steel is also superior in its resistance to the adverse effects of extreme hot or cold temperatures.

Features of Stainless Steel Rope

* It will not rust easily in normal atmospheres and keeps a clean surface appearance.
* It will resist corrosion easily in high temperatures.
* It will resist corrosion from many industrial chemicals.
* Hard stainless steel has a high breaking strength and superior mechanical properties.
* Soft stainless steel wire rope is laid with bright annealing wire and is very flexible.
* Stainless steel AISI 304 complies with Japanese Industrial Standards SUS-304 for wire ropes.

Stainless Steel Wire Rope 1 × 19
1 × (1 + 6 + 12)



Applications: Standing Riggings

How to order: CODE

Wire rope, stainless steel, SUS-304, 1 × 19, DIAM × LENGTH

Unit Per Mtr.

CODE 200 mtrs	Circ. Inch	Diam mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 40 01		7	44.3	4.52	0.265
02	1"	8	53.0	5.40	0.328
03	1-1/8"	9	68.1	6.94	0.416
04	1-1/4"	10	81.4	8.30	0.512
05		11	100	10.2	0.640
21 40 06	1-1/2"	12	109	11.1	0.710
07	1-3/4"	14	151	15.4	1.00
08	2"	16	180	18.4	1.31
09	2-1-4"	18	230	23.5	1.66
10		19	255	26.0	1.85

Stainless Steel Wire Rope 6 × 19
6 × (1 + 6 + 12)



Applications: Cranes, etc.

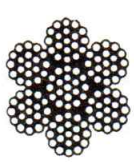
How to order: CODE

Wire rope, stainless steel, SUS-304, 6 × 19, DIAM × LENGTH

Unit Per Mtr.

CODE 200 mtrs	Circ. Inch	Diam mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 40 31	3/4"	6	22.2	2.26	0.133
32	1"	8	37.9	3.86	0.236
33	1-1/8"	9	48.6	4.96	0.298
34	1-1/4"	10	58.5	5.97	0.369
35	1-1/2"	12	84.2	8.59	0.531
21 40 36	1-3/4"	14	112	11.4	0.724
37	2"	16	143	14.6	0.924
38	2-1/4"	18	183	18.7	1.20
39	2-1/2"	20	221	22.5	1.47
40	2-3/4"	22	267	27.2	1.86
21 40 41	3"	24	316	32.2	2.05
42	3-1/4"	26	359	36.6	2.50

Stainless Steel Wire Rope 7 × 19
1× (1+6+12) + 6 x (1+6+12)



Applications: Hoists, etc.

How to order: CODE

Wire rope, stainless steel, SUS-304, 7 × 19, DIAM x LENGTH

Unit Per Mtr.

CODE 200 mtrs	Circ. Inch	Diam mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 40 74	1/8"	1	0.784	0.08	0.004
75	1/4"	2	2.75	0.28	0.017
76	3/8"	3	6.13	0.62	0.038
61	1"	8	40.0	4.08	0.269
62	1-1/8"	9	53.4	5.45	0.340
21 40 63	1-1/4"	10	64.5	6.58	0.419
64	1-1/2"	12	93.0	9.48	0.584
65	1-3/4"	14	124	12.6	0.821
66	2"	16	158	16.1	1.08
67	2-1/4"	18	203	20.7	1.36
21 40 68	2-1/2"	20	244	24.9	1.68
69	2-3/4"	22	295	30.1	2.12
70	3"	24	350	35.7	2.41
71	3-1/4"	26	398	40.6	2.94
72	3-1/2"	28	479	48.8	3.28
21 40 73	3-3/4"	30	534	54.5	3.77

Stainless Steel Wire Rope 6 × 24
6 × (9 + 15)



Applications: Cranes, etc.

How to order: CODE

Wire rope, stainless steel, SUS-304, 6 x 24, DIAM x LENGTH

Unit Per Mtr.

CODE 200 mtrs	Circ. Inch	Diam mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 41 01	3/4"	6	19.0	1.94	0.103
02	1"	8	33.4	3.41	0.215
03	1-1/8"	9	52.0	4.28	0.273
04	1-1/4"	10	51.9	5.29	0.337
05	1-1/2"	12	72.9	7.43	0.487
21 41 06	1-3/4"	14	99.0	10.1	0.661
07	2"	16	127	13.0	0.864
08	2-1/4"	18	159	16.2	1.10
09	2-1/2"	20	196	20.0	1.35
10	2-3/4"	22	230	23.5	1.70
21 41 11	3"	24	275	28.0	1.88
12	3-1/4"	26	301	30.7	2.29

Stainless Steel Wire Rope 6 × 37
6 × (1 + 6 + 12 + 18)



Applications: Cranes, etc.

How to order: CODE

Wire rope, stainless steel, SUS-304, 6 x 37, DIAM x LENGTH

Unit Per Mtr.

CODE 200 mtrs	Circ. Inch	Diam mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 41 31	3/4"	6	21.0	2.14	0.131
32	1"	8	35.2	3.59	0.232
33	1-1/8"	9	45.1	4.60	0.294
34	1-1/4"	10	54.4	5.55	0.364
35	1-1/2"	12	78.4	7.99	0.505
21 41 36	1-3/4"	14	104	10.6	0.713
37	2"	16	134	13.7	0.933
38	2-1/4"	18	173	17.6	1.19
39	2-1/2"	20	207	21.1	1.45
40	2-3/4"	22	250	25.5	1.84

(to be continued)

Unit Per Mtr.

CODE 200 mtrs	Circ. Inch	Diam mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 41 41	3"	24	297	30.3	2.03
42	3-1/4"	26	333	34.0	2.55
43	3-1/2"	28	394	40.2	2.86
44	3-3/4"	30	430	43.8	3.28

Stainless Steel Wire Rope 7 × 37
1 × (1+6+12+18) + 6 × (1+6+12+18)



Applications: Cranes, etc.

How to order: CODE

Wire rope, stainless steel, SUS-304, 7 x 37, DIAM x LENGTH

Unit Per Mtr.

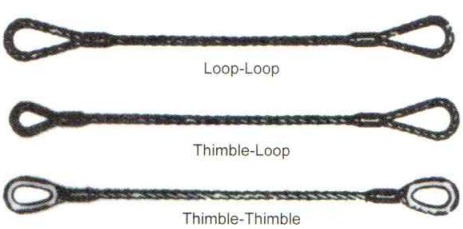
CODE 200 mtrs	Circ. Inch	Diam mm	Breaking Strength kN	Breaking Strength tf	Weight per mtr (kg/mtr)
21 41 61	3/4"	6	23.2	2.37	0.151
62	1"	8	38.8	3.96	0.267
63	1-1/8"	9	51.5	5.25	0.338
64	1-1/4"	10	62.1	6.33	0.417
65	1-1/2"	12	89.3	9.11	0.580
21 41 66	1-3/4"	14	119	12.1	0.818
67	2"	16	154	15.7	1.07
68	2-1/4"	18	197	20.1	1.35
69	2-1/2"	20	237	24.2	1.67
70	2-3/4"	22	286	29.2	2.10
21 41 71	3"	24	341	34.8	2.32
72	3-1/4"	26	390	39.8	2.94
73	3-1/2"	28	439	44.8	3.28
74	3-3/4"	30	500	51.0	3.77

Wire Rope Slings

Eslingas de Acero　ワイヤースリング　钢丝绳吊索

Generally made from galvanized wire rope of 6 x 24 construction. Made to order. When ordering, please specify the following points:

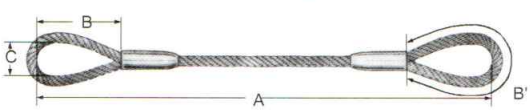
1. Type
2. Wire Rope Construction
3. Wire Rope Diameter
4. Overall Length



How to order: 21 - 45 - 01

Sling, wire rope, TYPE, CONSTRUCTION , DIAM (mm), OVERALL LENGTH (mtr)

Standard Size of Eye Splicing



Wire Rope Diam.	Standard Size of Eye Splice B	C	B'	Wire Rope Diam.	Standard Size of Eye Splice B	C	B'
6	100	50	250	36	500	250	1,250
8	160	80	400	38	500	250	1,250
9	160	80	400	40	600	300	1,500
10	200	100	500	42	600	300	1,500
12	200	100	500	45	700	350	1,750
14	260	130	650	48	800	400	2,000
16	260	130	650	50	900	450	2,250
18	300	150	750	53	1,000	500	2,500
20	300	150	750	56	1,100	550	2,750
22	300	150	750	60	1,200	600	3,000
24	360	180	900	65	1,300	650	3,250
26	360	180	900	70	1,400	700	3,500
28	400	200	1,000				
30	400	200	1,000				
32	460	230	1,150				
34	460	230	1,150				

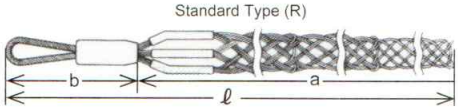
Cable Grips (Cable Stocking)

Asideros de Cables　ケーブルグリップ　钢丝绳套环

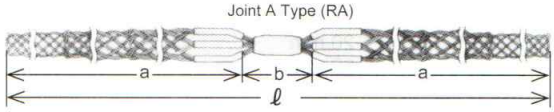
Cable grips are invariably made from woven mesh wire in the shape of an open ended stocking or sleeve. Cable grips of the same diameter as the rope to be restored are prepared with the strand ends fitted with pull collars. The sock is placed over the ends of the new and old wire ropes and when it is pulled taught, the woven mesh tightens snug around the rope.

The grip is easily fitted and removed. It holds the wire rope securely, operates safely, and saves labor costs compared to other means of rope repair.

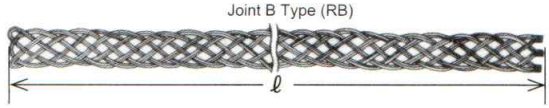
Standard Type (R)



Joint A Type (RA)



Joint B Type (RB)



Unit Per Pc.

CODE	Rope Diam mm	Size mm a	Size mm b	Size mm L	Max. Work Load (Tons)
Standard Type (R)					
21 45 06	8 ~ 11	450	140	590	0.5
07	11 ~ 13	500	190	690	1.1
08	13 ~ 16	600	190	790	1.1
09	16 ~ 21	650	220	870	1.4
10	21 ~ 25	850	220	1,070	1.7
21 45 11	25 ~ 30	900	250	1,150	2.7
12	30 ~ 35	1,100	310	1,410	3.0
13	35 ~ 42	1,200	360	1,560	3.5
14	42 ~ 50	1,500	360	1,860	4.2

Joint A Type (RA)

21 45 15	8 ~ 11	450	140	1,040	0.4
16	11 ~ 13	500	210	1,210	0.8
17	13 ~ 16	600	210	1,410	0.8
18	16 ~ 21	650	220	1,520	1.1
19	21 ~ 25	850	220	1,920	1.3
21 45 20	25 ~ 30	900	220	2,020	2.1
21	30 ~ 35	1,100	280	2,480	2.4
22	35 ~ 42	1,200	280	2,680	2.8
23	42 ~ 50	1,500	280	3,280	3.3

Joint B Type (RB)

CODE	Road Diam mm	Size (L) mm	Max. Work Load (Tons)
21 45 24	8 ~ 11	950	0.4
25	11 ~ 13	1,200	0.8
26	13 ~ 16	1,600	0.8
27	16 ~ 21	1,700	1.1
28	21 ~ 25	2,000	1.3
21 45 29	25 ~ 30	2,000	2.1
30	30 ~ 35	2,600	2.4
31	35 ~ 42	2,900	2.8
32	42 ~ 50	3,500	3.3

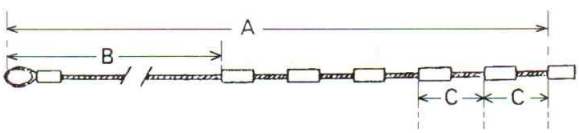
Guy Preventers & Stoppers

Patarráez y Estopores

ガイブリベンター&ストッパー　钢丝绳制动器

When ordering the preventers, please specify:

(1) Overall length of wire rope: (A)
(2) Intervals and the number of sleeves (Ferrules) to be attached: (B & C)
(3) Rope-end processing
(4) Quantity



Galvanized Steel Wire Rope

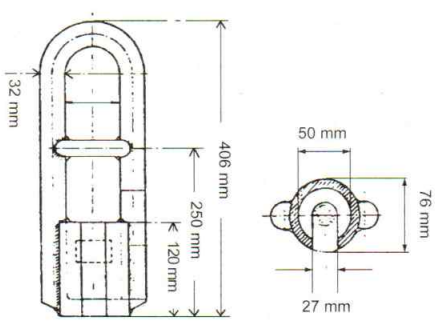
Construction : 7 x 19
Diam : 20 mm
Breaking Strength : 32 tons

Sleeves (Ferrules)

Material : Aluminium Alloy
Size : Diam - 43 mm
Length - 100 mm

Stoppers (Shoes) or Preventer Grips

Material : Iron
Size : as per sketch



Stoppers (Shoes)



How to order: 21 - 46 - 11

Guy preventer, galvanized wire rope, 20 mm dia, 7 × 19 × length × sleeve interval × processing of rope and × with stopper (set)

Rope Core



FC Fibre Core

IWRC Independent Wire Rope Core

Rope Symbols

S	Seale
W	Warrington
Fi	Filler
WS	Warrington Seale
SeS	Semi Seale
IWRC	Independent Wire Rope Core
FC	Fibre Core

Wire Rope Section



Warrington Type



Filler Type

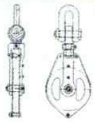
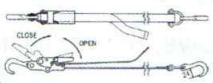
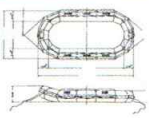


Semi Seale Type



Warrington Seale Type

23
Rigging Equipment & General Deck Items

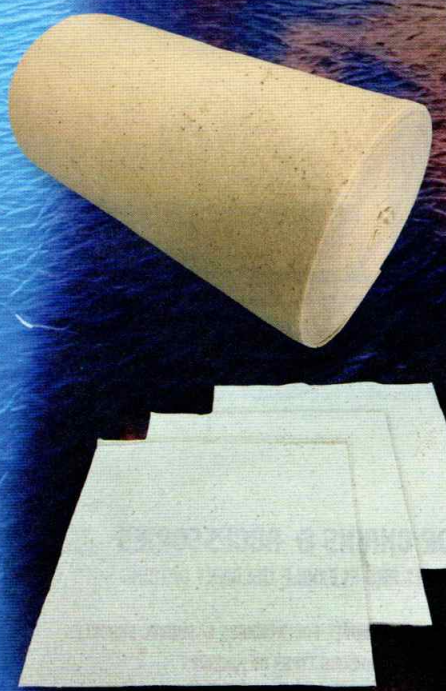
Shackles  P. 23-1 ~ 10	Turnbuckles  P. 23-10 ~ 12	Wire Clips/ Thimbles/Sockets  P. 23-12 ~ 15	Chains/Links  P. 23-15 ~ 21
Cargo Hooks  P. 23-21 ~ 22	Delta Plates   P. 23-22	Sling Chains & Hooks  P. 23-22 ~ 27	Steel Cargo Blocks  P. 23-27 ~ 29
Wood Cargo Blocks  P. 23-29 ~ 31	Container Lashings   P. 23-31 ~ 34	Car Claspers  P. 23-34	Ladders  P. 23-34 ~ 42
Scaffolds/Stages/ Boatswain's Chairs  P. 23-42	Cargo Nets/Sfety Nets  P. 23-42 ~ 43	Cargo Bags/ Sling Belts  P. 23-43 ~ 44	Canvas/Canvas Maintenance Items  P. 23-44 ~ 46
Hatch Wedges/ Hatach Cover Tapes  P. 23-46 ~ 47	Rat Guards  P. 23-47	Riggers' Vises/ Wire Rope Grips  P. 23-47	Fenders  P. 23-47 ~ 50
Scupper Plugs  P. 23-50	Deck Coverings  P. 23-50 ~ 51	Oil Pollution Counter-measures  P. 23-51 ~ 53	Tank Check Boats  P. 23-53
Tank Mirrors  P. 23-53	Oil Funnels/Oil Sample Cans  P. 23-53	Hand Cuffs  P. 23-54	Deck Chairs  P. 23-54
Dunnage Bags/ Plywood  P. 23-54 ~ 55	Nails P. 23-55	Acryl Sheets  P. 23-55	Waste/Rags  P. 23-55 ~ 56
Used Drums/ Used Cement Bags  P. 23-56	Sand/Cement/ Blasting Sand  P. 23-56 ~ 57	Separation Nets/ Covering Sheets  P. 23-57 ~ 58	Hatch Cover Parts  P. 23-58 ~ 61

Requirement of Certificate

Please mention on your request for cargo handling gear such as shackles, turnbuckles, cargo blocks, chains, etc. if you require a certificate, and specify which type of certificate: Class/Factory/ Manufacturer, etc.

Oil Absorbents Eco-Friendly UC mat

エコタイプ油吸着材 ユーシーマット®





Stable in quality

Environmentally friendly

Made from natural cotton fiber

JPA Eco Mark certified product

CODE	Type	Size	Weight	Unit
23 25 37	Sheet	500 x 500 mm	10 kg/box	App.100 sht/box
23 25 38		650 x 650 mm	15 kg/box	App.100 sht/box
23 25 39	Roll	W 650 x L 25 mtr	5.85 kg/roll	1 roll/bag

YUHO CO., LTD.

Fujita-Toyobo-Building 7floor 1-16 Dojima 2-chome,
kita-ku,Osaka 530-0003 JAPAN
Tel +81-6-6348-4315 Fax +81-6-6348-4309
website : www.yuho.toyobo.co.jp

1. Shackles

M Class Straight Shackles - SA

with Flat Head Pin

(Ref. JIS B 2801-1996)

Grilletes Rectos Cabeza Cilindidrica con Clavija

SA型シャックル　直型卸克



SA

Drop forged carbon steel shackle with flat head pin and split pin hole on the other end. Used for heavy work. Please specify Ungalvanized (Black) or Galvanized shackle is required.

Unit Per Pc.

CODE		Type	Body Diam. mm	Opening mm	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	**Galv.**						
23 37 01	**23 37 21**		34	50	116	40	7.0
02	**22**		36	54	123	42	8.0
03	**23**		38	57	129	46	9.0
04	**24**		40	60	136	48	10.0
05	**25**		42	63	142	51	11.0
23 37 06	**23 37 26**		44	66	149	54	12.5
07	**27**		46	68	156	56	13.0
08	**28**		48	72	163	58	14.0
09	**29**		50	75	170	60	16.0
10	**30**		55	83	187	65	18.0
23 37 11	**23 37 31**		60	90	205	70	20.0
12	**32**		65	98	221	77	25.0
13	**33**		70	105	238	83	31.5
14	**34**		75	112	255	90	35.0
15	**35**		80	120	272	96	40.0
23 37 16	**23 37 36**		85	128	289	102	45.0
17	**37**		90	135	306	108	50.0

M Class Straight Shackles - SB

with Hexagon Head Bolt

(Ref. JIS B 2801-1996)

Grilletes Rectos Pasador Tornillo con Tuerca

SB 型シャックル　SB 型带六角螺栓的直型卸克



SB

Drop forged carbon steel shackle with a hexagon, metric coarse threaded bolt, which has a split pin hole at the end and a securing nut. Please specify Ungalvanized (Black) or galvanized shackle is required.

Unit Per Pc.

CODE		Body Diam. mm	Opening mm	Thread Bolt and Nut	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	**Galv.**						
23 37 41	**23 37 66**	20	31	M24	68	24	2.5
42	**67**	22	34	M24	75	26	3.15
43	**68**	24	39	M30	81	30	3.6
44	**69**	26	41	M30	88	32	4.0
45	**70**	28	43	M33	95	34	4.8
23 37 46	**23 37 71**	30	45	M36	102	36	5.0
47	**72**	32	48	M36	109	38	6.3
48	**73**	34	50	M39	116	40	7.0
49	**74**	36	54	M42	123	42	8.0
50	**75**	38	57	M45	129	46	9.0
23 37 51	**23 37 76**	40	60	M48	136	48	10.0
52	**77**	42	63	M48	142	51	11.0
53	**78**	44	66	M48	149	54	12.5
54	**79**	46	68	M48	156	56	13.0
55	**80**	48	72	M56	163	58	14.0
23 37 56	**23 37 81**	50	75	M56	170	60	16.0
57	**82**	55	83	M64	187	65	18.0
58	**83**	60	90	M64	205	70	20.0
59	**84**	65	98	M 72×6	221	77	25.0
60	**85**	70	105	M 80×6	238	83	31.5
23 37 61	**23 37 86**	75	112	M 80×6	255	90	35.0
62	**87**	80	120	M 90×6	272	96	40.0
63	**88**	85	128	M 90×6	289	102	45.0
64	**89**	90	135	M100×6	306	108	50.0

M Class Straight Shackles - SC

with Eye Bolt

(Ref. JIS B 2801-1996)

Grilletes Rectos Cabeza Punzón "Jis" Roscado

SC 型シャックル　SC 型带孔螺栓的直型卸克



SC

A drop forged, carbon steel shackle with an eye bolt which has a metric coarse thread on one end. Please specify Ungalvanized (Black) or Galvanized shackle is required.

Unit Per Pc.

CODE		Body Diam. mm	Opening mm	Thread Bolt and Nut	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	**Galv.**						
23 38 01	**23 38 16**	16	26	M18	54	19	1.6
02	**17**	18	29	M20	61	21	2.0
03	**18**	20	31	M24	68	24	2.5
04	**19**	22	34	M24	75	26	3.15
05	**20**	24	39	M30	81	30	3.6
23 38 06	**23 38 21**	26	41	M30	88	32	4.0
07	**22**	28	43	M33	95	34	4.8
08	**23**	30	45	M36	102	36	5.0
09	**24**	32	48	M36	109	38	6.3
10	**25**	34	50	M39	116	40	7.0
23 38 11	**23 38 26**	36	54	M42	123	42	8.0
12	**-**	38	57	M45	129	46	9,0
13	**-**	40	60	M48	136	48	10.0

M Class *Straight Shackles - SD*

with Eye Bolt

(Ref. JIS B 2801-1996)

Grilletes Rectos Cabeza Punzón "Jis" Roscado Roscado

SD 型シャックル　SD 型带孔螺栓的直型卸克



SD

A drop forged, carbon steel shackle with an eye bolt which has metric coarse threads at one end. Please specify Ungalvanized (Black) or Galvanized shackles is required.

Unit Per Pc.

CODE		Body Diam. mm	Opening mm	Screw Pin Thread	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	**Galv.**						
-	**23 38 41**	16	32	M20	53	21	1.0
-	**42**	20	40	M24	68	24	1.6
-	**43**	22	44	M27	74	27	2.0
-	**44**	24	48	M27	81	29	2.5
-	**45**	26	52	M30	88	32	3.15
-	**23 38 46**	28	56	M33	95	34	3.5
23 38 31	**47**	30	60	M36	102	36	4.0
32	**48**	34	68	M42	115	42	5.0
33	**49**	38	76	M45	129	45	6.3
34	**50**	40	80	M48	136	48	7.0
23 38 35	**23 38 51**	42	84	M48	142	51	8.0
36	**52**	48	96	M56	163	58	10.0
37	**53**	52	104	M56	177	62	12.5
38	**54**	58	116	M64	198	68	16.0

Note: Both SC, SD shackles are similar in type, but opening and SWL differ in the same size. Sizes of the opening in SD type are double the body size.

M Class Bow Shackles - BA

with Flat Head Pin

(Ref. JIS B 2801-1996)

Grillete Lira Cabeza Cilindrica con Clavija

BA 型シャックル　BA 型带六角螺栓的弓型卸克



BA

A weldless, drop forged, carbon steel shackle with a flathead pin which has a hole for a securing pin at one end. Please specify Ungalvanized (Black) or Galvanized shackles is required.

Unit Per Pc.

CODE		Oval Body Small Diam. mm	Opening mm	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	Galv.					
23 38 61	23 38 81	34	50	156	40	7.0
62	82	36	54	169	42	8.0
63	83	38	57	175	46	9.0
64	84	40	60	188	48	10.0
65	85	42	63	194	51	11.0
23 38 66	23 38 86	44	66	203	54	12.5
67	87	46	68	212	56	13.0
68	88	48	72	219	58	14.0
69	89	50	75	227	60	16.0
70	90	55	83	247	65	18.0
23 38 71	23 38 91	60	90	275	70	20.0
72	92	65	98	299	77	25.0
73	93	70	105	318	83	31.5
74	94	75	112	342	90	35.0
75	95	80	120	366	96	40.0
23 38 76	23 38 96	85	128	389	102	45.0
77	97	90	135	419	108	50.0

M Class Bow Shackles - BB

with Hexagon Head Bolt

(Ref. JIS B 2801-1996)



BB

Grillete Lira Pasador Tornillo con Tuerca

BB 型シャックル　BB 型带六角螺栓的弓型卸克

A weldless, drop forged, carbon steel shackle with a hexagon, metric coarse threaded bolt, nut, and a split pin hole at the other end. Please specify Ungalvanized (Black) or Galvanized shackle is required.

Unit Per Pc.

CODE		Oval Body Small Diam. mm	Opening mm	Thread Bolt and Nut	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	Galv.						
23 39 01	23 39 26	20	31	M24	92	24	2.5
02	27	22	34	M24	104	26	3.15
03	28	24	39	M30	111	30	3.6
04	29	26	41	M30	119	32	4.0
05	30	28	43	M33	127	34	4.8
23 39 06	23 39 31	30	45	M36	135	36	5.0
07	32	32	48	M36	148	38	6.3
08	33	34	50	M39	156	40	7.0
09	34	36	54	M42	169	42	8.0
10	35	38	57	M45	175	46	9.0
23 39 11	23 39 36	40	60	M48	188	48	10.0
12	37	42	63	M48	194	51	11.0
13	38	44	66	M48	203	54	12.5
14	39	46	68	M48	212	56	13.0
15	40	48	72	M56	219	58	14.0
23 39 16	23 39 41	50	75	M56	227	60	16.0
17	42	55	83	M64	247	65	18.0
18	43	60	90	M64	275	70	20.0
19	44	65	98	M 72×6	299	77	25.0
20	45	70	105	M 80×6	318	83	31.5
23 39 21	23 39 46	75	112	M 80×6	342	90	35.0
22	47	80	120	M 90×6	366	96	40.0
23	48	85	128	M 90×6	389	102	45.0
24	49	90	135	M100×6	419	108	50.0

M Class Bow Shackles - BC

with Eye Bolt

(Ref. JIS B 2801-1996)



BC

Grillete Lira Cabeza Ponzón "Jis" Perno Roscado

BC 型シャックル　BC 型带孔螺栓的弓型卸克

Weldless, drop forged, carbon steel shackle with an eye bolt which has a metric coarse threaded end. Please specify Ungalvanized (Black) or Galvanized shackle is required.

Unit Per Pc.

CODE		Oval Body Small Diam. mm	Opening mm	Screw Pin Thread	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	Galv.						
23 39 51	23 39 66	16	26	M18	70	19	1.6
52	67	18	29	M20	84	21	2.0
53	68	20	31	M24	92	24	2.5
54	69	22	34	M24	104	26	3.15
55	70	24	39	M30	111	30	3.6
23 39 56	23 39 71	26	41	M30	119	32	4.0
57	72	28	43	M33	127	34	4.8
58	73	30	45	M36	135	36	5.0
59	74	32	48	M36	148	38	6.3
60	75	34	50	M39	156	40	7.0
23 39 61	23 39 76	36	54	M42	169	42	8.0
62	77	38	57	M45	175	46	9.0
63	78	40	60	M48	188	48	10.0

M Class Bow Shackles - BD

with Eye Bolt

(Ref. JIS B 2801-1996)



BD

Grillete Lira Cabeza Ponzón "Jis" Perno Roscado

BD 型シャックル　BD 型带孔螺栓的弓型卸克

A weldless, drop forged, carbon steel shackle with an eye bolt which has metric coarse threads on the end. Please specify Ungalvanized (Black) shackle or Galvanized shackle is required.

Unit Per Pc.

CODE		Oval Body Small Diam. mm	Opening mm	Screw Pin Thread	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	Galv.						
23 39 81	23 39 86	16	32	M20	69	21	1.2
82	87	18	36	M20	89	21	1.3
83	88	20	40	M24	100	24	1.8

Note: Both BC and BD shackles are similar in type, but the opening and SWL differ in the same size. Sizes of the openings in the BD types are double the smaller diams. of the oval body.

Straight Shackles - SA

with Flat Head Pin

(Ref. JIS B 2801-1977)



SA

Grilletes Rectos Cabeza Cilíndrica con Clvaija

SA 型シャックル　不锈钢 SA 型卸克

Drop forged carbon steel shackle with flat head pin and split pin hole on the other end. Used for heavy work. Please specify Ungalvanized (Black) shackle or Galvanized shackle is required.

Unit Per Pc.

CODE		Body Diam. mm	Opening mm	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	Galv.					
23 01 01	23 13 01	34	50	116	40	7.0
02	02	36	54	123	42	8.0
03	03	38	57	129	46	9.0
04	04	40	60	136	48	10.0
05	05	42	63	142	51	11.0
23 01 06	23 13 06	44	66	149	54	12.0
07	07	46	68	156	56	13.0
08	08	48	72	163	58	14.0
09	09	50	75	170	60	15.0
10	10	55	83	187	65	18.0
23 01 11	23 13 11	60	90	205	70	22.0
12	12	65	98	221	77	26.0
13	13	70	105	238	83	30.0
14	14	75	112	255	90	35.0
15	15	80	120	272	96	40.0
23 01 16	23 13 16	85	128	289	102	45.0
17	17	90	135	306	108	50.0

Straight Shackles - SB

with Hexagon Head Bolt

(Ref. JIS B 2801-1977)


SB

Grilletes Rectos Pasador Tornillo con Tuerca

SB 型シャックル　SB 型带六角螺栓的直型卸克

Drop forged carbon steel shackle with a hexagon, metric coarse threaded bolt, which has a split pin hole at the end and a securing nut. Please specify Ungalvanized (Black) shackle or Galvanized shackle is required.

Unit Per Pc.

CODE		Body Diam. mm	Opening mm	Thread Bolt and Nut	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	Galv.						
23 01 21	23 13 21	20	31	M24	68	24	2.5
22	22	22	34	M24	75	26	3.0
23	23	24	39	M30	81	30	3.6
24	24	26	41	M30	88	32	4.2
25	25	28	43	M33	95	34	4.8
23 01 26	23 13 26	30	45	M36	102	36	5.4
27	27	32	48	M36	109	38	6.2
28	28	34	50	M39	116	40	7.0
29	29	36	54	M42	123	42	8.0
30	30	38	57	M45	129	46	9.0
23 01 31	23 13 31	40	60	M48	136	48	10.0
32	32	42	63	M48	142	51	11.0
33	33	44	66	M48	149	54	12.0
34	34	46	68	M48	156	56	13.0
35	35	48	72	M56	163	58	14.0
23 01 36	23 13 36	50	75	M56	170	60	15.0
37	37	55	83	M64	187	65	18.0
38	38	60	90	M64	205	70	22.0
39	39	65	98	M 72×6	221	77	26.0
40	40	70	105	M 80×6	238	83	30.0
23 01 41	23 13 41	75	112	M 80×6	255	90	35.0
42	42	80	120	M 90×6	272	96	40.0
43	43	85	128	M 90×6	289	102	45.0
44	44	90	135	M100×6	306	108	50.0

Straight Shackles - SC

with Eye Bolt

(Ref. JIS B 2801-1977)


SC

Grilletes Recto Cabeza Punzón

SC 型シャックル　SC 型带孔螺栓的直型卸克

A drop forged, carbon steel shackle with an eye bolt which has a metric coarse thread on one end. Please specify Ungalvanized (Black) or Galvanized shackle is required.

Unit Per Pc.

CODE		Body Diam. mm	Opening mm	Thread Bolt and Nut	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	Galv.						
23 13 51	23 01 51	6	11	M 8	20	8	0.2
52	52	8	14	M10	27	10	0.35
53	53	10	17	M12	34	12	0.6
23 01 54	23 13 54	12	20	M14	40	15	0.9
55	55	14	24	M16	47	17	1.2
23 01 56	23 13 56	16	26	M18	54	19	1.5
57	57	18	29	M20	61	21	2.0
58	58	20	31	M24	68	24	2.5
59	59	22	34	M24	75	26	3.0
60	60	24	39	M30	81	30	3.6
23 01 61	23 13 61	26	41	M30	88	32	4.2
62	62	28	43	M33	95	34	4.8
63	63	30	45	M36	102	36	5.4
64	64	32	48	M36	109	38	6.2
65	65	34	50	M39	116	40	7.0
23 01 66	23 13 66	36	54	M42	123	42	8.0
67	67	38	57	M45	129	46	9.0
68	68	40	60	M48	136	48	10.0

Straight Shackles - SD

with Eye Bolt

(Ref. JIS B 2801-1977)


SD

Grilletes Recto Cabeza Punzón

SD 型シャックル　SD 型带孔螺栓的直型卸克

A drop forged, carbon steel shackle with an eye bolt which has metric coarse threads at one end. Please specify Ungalvanized (Black) or Galvanized shackles is required.

Unit Per Pc.

CODE		Body Diam. mm	Opening mm	Screw Pin Thread	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	Galv.						
23 13 71	23 01 71	10	20	M12	34	12	0.4
23 01 72	23 13 72	12	24	M14	40	15	0.6
73	73	14	28	M16	47	17	0.8
74	74	16	32	M20	54	20	1.0
75	75	20	40	M24	68	24	1.5
23 01 76	23 13 76	22	44	M27	74	27	2.0
77	77	24	48	M27	81	29	2.5
78	78	26	52	M30	88	32	3.0
79	79	28	56	M33	95	34	3.5
80	80	30	60	M36	102	36	4.0
23 01 81	23 13 81	34	68	M42	115	42	5.0
82	82	38	76	M45	129	45	6.0
83	83	40	80	M48	136	48	7.0
84	84	42	84	M48	142	51	8.0
85	85	48	96	M56	163	58	10.0
23 01 86	23 13 86	52	104	M56	177	62	12.0
87	87	58	116	M64	198	68	15.0

Note: Both SC, SD shackles are similar in type, but opening and SWL differ in the same size. Sizes of the opening in SD type are double the body size.

Bow Shackles - BA

with Flat Head Pin

(Ref. JIS B 2801-1977)


BA

Grilletes Lira Cabeza cilindrica con Clavija

BA 型シャックル　BA 型平头销的弓型卸克

A weldless, drop forged, carbon steel shackle with a flathead pin which has a hole for a securing pin at one end. Please specify Ungalvanized (Black) or galvanized shackle is required.

Unit Per Pc.

CODE		Oval Body Small Diam. mm	Opening mm	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	Galv.					
23 02 01	23 14 01	34	50	156	40	7.0
02	02	36	54	169	42	8.0
03	03	38	57	175	46	9.0
04	04	40	60	188	48	10.0
05	05	42	63	194	51	11.0
23 02 06	23 14 06	44	66	203	54	12.0
07	07	46	68	212	56	13.0
08	08	48	72	219	58	14.0
09	09	50	75	227	60	15.0
10	10	55	83	247	65	18.0
23 02 11	23 14 11	60	90	275	70	22.0
12	12	65	98	299	77	26.0
13	13	70	105	318	83	30.0
14	14	75	112	342	90	35.0
15	15	80	120	366	96	40.0
23 02 16	23 14 16	85	128	389	102	45.0
17	17	90	135	419	108	50.0

Bow Shackles - BB

with Hexagon Head Bolt

(Ref. JIS B 2801-1977)


BB

Grillete Lira Pasador Tornillo con Tuerca

BB 型シャックル　BB 型带六角螺栓的弓型卸克

A weldless, drop forged, carbon steel shackle with a hexagon, metric coarse threaded bolt, nut, and a split pin hole at the other end. Please specify Ungalvanized (Black) shackle or Galvanized shackle is required.

Unit Per Pc.

CODE		Oval Body Small Diam. mm	Opening mm	Thread Bolt and Nut	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	Galv.						
23 02 21	23 14 21	20	31	M24	92	24	2.5
22	22	22	34	M24	104	26	3.0
23	23	24	39	M30	111	30	3.6
24	24	26	41	M30	119	32	4.2
25	25	28	43	M33	127	34	4.8
23 02 26	23 14 26	30	45	M36	135	36	5.4
27	27	32	48	M36	148	38	6.2
28	28	34	50	M39	156	40	7.0
29	29	36	54	M42	169	42	8.0
30	30	38	57	M45	175	46	9.0
23 02 31	23 14 31	40	60	M48	188	48	10.0
32	32	42	63	M48	194	51	11.0
33	33	44	66	M48	203	54	12.0
34	34	46	68	M48	212	56	13.0
35	35	48	72	M56	219	58	14.0
23 02 36	23 14 36	50	75	M56	227	60	15.0
37	37	55	83	M64	247	65	18.0
38	38	60	90	M64	275	70	22.0
39	39	65	98	M 72×6	299	77	26.0
40	40	70	105	M 80×6	318	83	30.0
23 02 41	23 14 41	75	112	M 80×6	342	90	35.0
42	42	80	120	M 90×6	366	96	40.0
43	43	85	128	M 90×6	389	102	45.0
44	44	90	135	M100×6	419	108	50.0

Bow Shackles - BC

with Eye Bolt

(Ref. JIS B 2801-1977)

Grillete Lira cabeza Punzón "Jis" Perno Roscado

BC 型シャックル　BC 型带孔螺栓的弓型卸克



BC

Weldless, drop forged, carbon steel shackle with an eye bolt which has a metric coarse threaded end. Please specify Ungalvanized (Black) or Galvanized shackle is required.

Unit Per Pc.

CODE		Oval Body Small Diam. mm	Opening mm	Screw Pin Thread	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	Galv.						
23 14 51	23 02 51	6	11	M 8	32	8	0.2
52	52	8	14	M10	40	10	0.35
53	53	10	17	M12	48	12	0.6
23 02 54	23 14 54	12	20	M14	55	15	0.9
55	55	14	24	M16	63	17	1.2
23 02 56	23 14 56	16	26	M18	70	19	1.5
57	57	18	29	M20	84	21	2.0
58	58	20	31	M24	92	24	2.5
59	59	22	34	M24	104	26	3.0
60	60	24	39	M30	111	30	3.6
23 02 61	23 14 61	26	41	M30	119	32	4.2
62	62	28	43	M33	127	34	4.8
63	63	30	45	M36	135	36	5.4
64	64	32	48	M36	148	38	6.2
65	65	34	50	M39	156	40	7.0
23 02 66	23 14 66	36	54	M42	169	42	8.0
67	67	38	57	M45	175	46	9.0
68	68	40	60	M48	188	48	10.0

Bow Shackles - BD

with Eye Bolt

(Ref. JIS B 2801-1977)

Grillete Lira cabeza Punzón "Jis" Perno Roscado

BD 型シャックル　BD 型带孔螺栓的弓型卸克



BD

A weldless, drop forged, carbon steel shackle with an eye bolt which has metric coarse threads on the end. Please specify Ungalvanized (Black) shackle or Galvanized shackle is required.

Unit Per Pc.

CODE		Oval Body Small Diam. mm	Opening mm	Screw Pin Thread	Clear Length mm	Pin Diam. mm	S.W.L. Ton
Ungalv. (Black)	Galv.						
23 14 71	23 02 71	6	12	M 8	32	8	0.15
72	72	8	16	M10	40	10	0.3
73	73	10	20	M12	48	12	0.5
23 02 74	23 14 74	12	24	M14	55	15	0.7
75	75	14	28	M16	63	17	0.9
23 02 76	23 14 76	16	32	M20	70	20	1.2
77	77	18	36	M20	89	21	1.3
78	78	20	40	M24	100	24	1.8

Note: Both BC and BD shackles are similar in type, but the opening and SWL differ in the same size. Sizes of the openings in the BD types are double the smaller diams. of the oval body.

Straight Shackles - SE

with Eye Bolt

Grillete Recto Cabeza Punzón

旧 JIS-SE 型シャックル　SE 型带孔螺栓的直型卸克



SE

Drop forged steel shackle with eye bolt. Please specify whether you require galvanized or ungalvanized shackles.

Unit Per Pc.

CODE	Body Diam. mm	Opening mm	Clear Length mm	Pin Diam. mm	S.W.L. ton
Black					
23 03 01	22	34	75	26	3
02	24	39	81	30	3.6
03	26	41	88	32	4.2
04	28	43	95	34	4.8
05	30	45	102	36	5.4
23 03 06	32	48	109	38	6.2
07	34	50	116	40	7
08	36	54	123	42	8
09	38	57	129	46	9
10	40	60	136	48	10
Galvanized					
23 03 11	22	34	75	26	3
12	24	39	81	30	3.6
13	26	41	88	32	4.2
14	28	43	95	34	4.8
15	30	45	102	36	5.4
23 03 16	32	48	109	38	6.2
17	34	50	116	40	7
18	36	54	123	42	8
19	38	57	129	46	9
20	40	60	136	48	10

Screw Pin "D" Shackles

Grilletes Recto Cabeza Punzón "D"

D 型雑用シャックル　"D" 型螺柱销卸扣（黑的）



Made of drop forged steel. When ordering, please specify whether you require galvanized or ungalvanized shackles.

Unit Per Pc.

CODE	Body Diam. mm	Opening mm	Clear Length mm	Pin Diam. mm	S.W.L. ton
Black					
23 03 21	6	12	22	6.5	0.138
22	8	17	27	8.5	0.216
23	9	18	31	10	0.284
24	12	24	40	13	0.468
25	16	30	50	17	0.8

(to be continued)

Unit Per Pc.

CODE	Body Diam. mm	Opening mm	Clear Length mm	Pin Diam. mm	S.W.L. ton
23 03 26	19	36	64	20	1.0
27	22	43	74	23	1.5
28	25	47	82	27	2.0
29	28	55	95	30	2.5
30	32	58	103	34	3.2
23 03 31	38	73	125	40	4.2
Galvanized					
23 03 41	6	12	22	6.5	0.138
42	8	17	27	8.5	0.216
43	9	18	31	10	0.284
44	12	24	40	13	0.468
45	16	30	50	17	0.8
23 03 46	19	36	64	20	1.0
47	22	43	74	23	1.5
48	25	47	82	27	2.0
49	28	55	95	30	2.5
50	32	58	103	34	3.2
23 03 51	38	73	125	40	4.2

Screw Pin Countersink Shackles

(Carver Shackles)

Grilletes Recto Cabeza Ranura

沈みシャックル　沉头螺柱销卸扣（黑的）



Made of drop forged steel with countersink and slotted pins. The shackle pins are also galvanized above the threading. When ordering, please specify whether galvanized or black shackles are required.

Unit Per Pc.

CODE	Body Diam. mm	Opening mm	Clear Length mm	Pin Diam. mm	S.W.L. ton
Black					
23 03 63	9	18	32	9	0.3
64	12	26	40	12	0.5
65	16	32	52	16	0.8
66	19	38	64	19	1.0
67	22	44	75	22	1.5
23 03 68	25	50	83	25	2.0
69	28	43	95	34	4.8
70	32	48	109	38	6.2
71	38	57	129	46	9.0
Galvanized					
23 03 83	9	18	32	9	0.3
84	12	26	40	12	0.5
85	16	32	52	16	0.8
86	19	38	64	19	1.0
87	22	44	75	22	1.5
23 03 88	25	50	83	25	2.0
89	28	43	95	34	4.8
90	32	48	109	38	6.2
91	38	57	129	46	9.0

Roller Shackles

Grillete con Rodillo

ローラーシャックル　滚轮卸扣



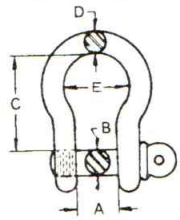
Drop forged roller shackle with a hexagon bolt pin and nut. A cotter pin hole is located at the end of the pin thread to prevent the nut from loosening and coming off. Commonly used as lashing equipment for lumber vessels and log carriers.

Unit Per Pc.

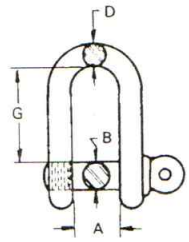
CODE	Body Diam.mm	Roller Width×Diam mm	S.W.L. ton
23 04 01	25	44 × 63	3
03	32	60 × 85	5

U.S. Federal Specification (RR-C-271b)

Mild Steel Shackles



Screw Pin Anchor



Screw Pin Chain

Nominal Size	Pin Dia (D)	Inside Length (C)	Inside Length (G)	Inside Width (A)	SWL Short Ton
1/4	5/16	1-1/8	7/8	15/32	0.2
5/16	3/8	1-1/4	1	17/32	0.3
3/8	7/16	1-7/16	1-1/4	21/32	0.4
7/16	1/2	1-11/16	1-1/2	23/32	0.6
1/2	5/8	1-15/16	1-11/16	13/16	0.9
9/16	5/8	2-1/8	1-13/16	7/8	1.2
5/8	3/4	2-1/2	2	1-1/16	1.4
3/4	7/8	3	2-5/16	1-1/4	2.0
7/8	1	3-1/4	2-7/8	1-7/16	2.7
1	1-1/8	3-3/4	3-1/4	1-11/16	3.6
1-1/8	1-1/4	4-1/4	3-1/2	1-13/16	4.9
1-1/4	1-3/8	4-1/2	3-11/16	2	6.3
1-3/8	1-1/2	5-1/4	4-1/2	2-1/4	7.6
1-1/2	1-5/8	5-3/4	5	2-3/8	9.4
1-5/8	1-3/4	6-1/4	5-1/4	2-5/8	11
1-3/4	2	7	5-7/8	2-7/8	13
2	2-1/4	7-3/4	6-3/4	3-1/4	16
2-1/4	2-1/2	8-3/4	7-1/8	3-3/4	18
2-1/2	2-3/4	10	8	4-1/8	24

Stainless Steel Screw Pin "D" Shackles

Grillete con Perno Roscado Tipo D de Acero Inoxidable

ステンレス雑用シャックル　不锈钢 D 型卸克



Made of stainless steel which is suitable for using in corrosive surroundings.

Unit Per Pc.

CODE	Body Diam. mm	Opening mm	Clear Length mm	Pin Diam. mm	S.W.L. ton
23 35 01	7	14	23	7	0.17
02	8	17	29	8	0.23
03	9	18	32	9	0.3
04	12	24	40	12	0.5
05	13	26	40	12.6	0.65
23 35 06	16	32	52	16	0.8
07	19	38	64	19	1.0
08	22	44	75	22	1.5
09	25	50	83	25	2.0
10	28	56	97	28	2.5
23 35 11	32	64	102	32	3.2
12	38	76	125	38	4.5

Stainless Steel Straight Shackles-SB

with Hexagon Head Bolt (Ref. JIS B 2801-1977)



Grillete con Perno Cabeza Hexagonal Tipo de Acero Inoxidable

ステンレス SB 型シャックル　不锈钢 SB 型卸克

Stainless steel shackle with a hexagon, metric coarse threaded bolt, which has a split pin hole at the end and a securing nut.

Unit Per Pc.

CODE	Body Diam. mm	Opening mm	Thread Bolt and Nut	Clear Length mm	Pin Diam. mm	S.W.L. ton
23 35 21	12	20	M14	40	15	1.0
22	14	24	M16	47	17	1.25
23	16	26	M18	54	19	1.6
24	18	29	M20	61	21	2.0
25	20	31	M24	68	24	2.5
23 35 26	22	34	M24	75	26	3.15
27	24	39	M30	81	30	3.6
28	26	41	M30	88	32	4.0
29	28	43	M33	95	34	4.8
30	30	45	M36	102	36	5.0
23 35 31	32	48	M36	109	38	6.2
32	34	50	M39	116	40	7.0
33	36	54	M42	123	42	8.0
34	38	57	M45	129	46	9.0
35	40	60	M48	136	48	10.0

Stainless Steel Straight Shackles-SC

with Eye Bolt

(Ref. JIS B 2801-1977)



Grillete con Perno de Ojo Tipo SC de Acero Inoxidable

ステンレス SC 型シャックル　不锈钢 SC 型卸克

Made of stainless steel which is suitable for using in corrosive surroundings.

Unit Per Pc.

CODE	Body Diam. mm	Opening mm	Clear Length mm	Pin Diam. mm	S.W.L. ton
23 35 51	6	11	20	8	0.2
52	8	14	27	10	0.32
53	10	17	34	12	0.6
54	12	20	40	15	1.0
55	14	24	47	17	1.25
23 35 56	16	26	54	19	1.6
57	18	29	61	21	2.0
58	20	31	68	24	2.5
59	22	34	75	26	3.15
60	24	39	81	30	3.6
23 35 61	26	41	88	32	4.0
62	28	43	95	34	4.8
63	30	45	102	36	5.0
64	32	48	109	38	6.2
65	34	50	116	40	7.0
23 35 66	36	54	123	42	8.0
67	38	57	129	46	9.0
68	40	60	136	48	10.0

Stainless Steel Bow Shackles-BB

with Hexagon Head Bolt

(Ref. JIS B 2801-1977)



Grillete con Perno de Cabeza Hexagonal Tipo BB de Acero Inoxidable

ステンレス BB 型シャックル　不锈钢 BB 型卸克

A stainless steel shackle with a hexagon, metric coarse threaded bolt, nut, and a split pin hole at the other end.

Unit Per Pc.

CODE	Oval Body Small Diam. mm	Opening mm	Thread Bolt and Nut	Clear Length mm	Pin Diam. mm	S.W.L. ton
23 35 71	10	17	M12	34	12	0.6
72	12	20	M14	40	15	1.0
73	14	24	M16	47	17	1.25
74	16	26	M18	54	19	1.6
75	18	29	M20	61	21	2.0

(to be continued)

23 35 76	20	31	M24	68	24	2.5
77	22	34	M24	75	26	3.15
78	24	39	M30	81	30	3.6
79	26	41	M30	88	32	4.0

Stainless Steel Bow Shackles-BC

with Eye Bolt

(Ref. JIS B 2801-1977)



Grillete con Perno de Ojo Tipo BC de Acero Inoxidable

ステンレス BC 型シャックル　不锈钢 BC 型卸克

Stainless steel shackle with an eye bolt which has a metric coarse threaded end.

Unit Per Pc.

CODE	Oval Body Small Diam. mm	Opening mm	Screw Pin Thread	Clear Length mm	Pin Diam. mm	S.W.L. ton
23 36 01	6	11	M 8	20	8	0.2
02	8	14	M10	27	10	0.32
03	10	17	M12	34	12	0.6
04	12	20	M14	40	15	1.0
05	14	24	M16	47	17	1.25
23 36 06	16	26	M18	54	19	1.6
07	18	29	M20	61	21	2.0
08	20	31	M24	68	24	2.5
09	22	34	M24	75	26	3.15
10	24	39	M30	81	30	3.6
23 36 11	26	41	M30	88	32	4.0

Green Pins Standard Shackles

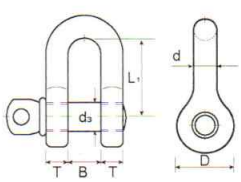
Grilletes estándar Green Pin

グリーンピン標準シャックル　Green Pin® 标准卸扣

High quality, high tensile "Green Pin" shackle can be identified by the green coloured pin and the marking on the shackle body and pin. Green pin shackles meet all relevant requirements of the Machinery Directive 2006/42/EC and all latest amendments.

Dee Shackles with Screw Collar Pin G-4151





Material: Body and pin high tensile steel, Grade 6, quenched and tempered

Safety Factor: MBL equals 6 x WLL (Working Load Limit)

Standard: EN 13889 and meets performance requirements of US Fed. Spec. RR-C-271 Type IVB Class 2, Grade A

Finish: Hot dipped galvanized

Temperature Range: -20°C to + 200°C

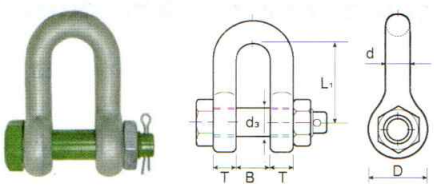
Certification: At no extra charges this product can be supplied with a works certificate, material certificate, manufacturer test certificate, EC Declaration of Conformity and all shackles starting from 2 t can be supplied with DNV 2.7-1 certificate.

Unit Per Pc.

CODE	Diameter			Width Inside	Length Inside	Working Load Limit	Weight
	Body	Pin	Eye				
	d mm	d3 mm	D mm	B mm	L mm	Ton	kg
23 45 01	5	6	12	8	22	0.33	0.02
02	7	8	16	10	26	0.5	0.05
03	9	10	20	12	31	0.75	0.09
04	10	11	22	15	37	1	0.14
05	11	13	26	17	43	1.5	0.19
23 45 06	13	16	34	20	51	2	0.32
07	16	19	39	25	60	3.25	0.54
08	19	22	46	28	70	4.75	0.87
09	22	25	52	33	85	6.5	1.34
10	25	28	59	40	99	8.5	2.08
23 45 11	28	32	66	44	106	9.5	2.77
12	32	35	72	47	111	12	3.72
13	35	38	80	53	134	13.5	5.14
14	38	42	88	56	148	17	6.85
15	45	50	103	70	174	25	11.5
23 45 16	50	57	111	78	199	35	16.9
17	57	65	130	90	222	42.5	24.7
18	65	70	145	100	238	55	32.7

Name of Mfr.: Van Beest BV

Dee Shackles with Safety Bolt
G-4153



Material: Body and pin high tensile steel, Grade 6, quenched and tempered

Safety Factor: MBL equals 6 x WLL (Working Load Limit)

Standard: EN 13889 and meets performance requirements of US Fed. Spec. RR-C-271 Type IVB Class 3, Grade A

Finish: Hot dipped galvanized

Temperature Range: -20°C to + 200°C

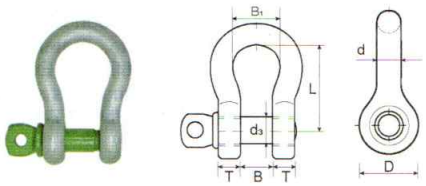
Certification: At no extra charges this product can be supplied with a works certificate, material certificate, manufacturer test certificate, EC Declaration of Conformity and all shackles starting from 2 t can be supplied with DNV 2.7-1 certificate.

Unit Per Pc.

CODE	Diameter			Width Inside	Length Inside	Working Load Limit	Weight
	Body	Pin	Eye				
	d mm	d3 mm	D mm	B mm	L mm	Ton	kg
23 45 21	13	16	34	20	51	2	0.39
22	16	19	39	25	60	3.25	0.67
23	19	22	46	28	70	4.75	1.08
24	22	25	52	33	85	6.5	1.66
25	25	28	59	40	99	8.5	2.46
23 45 26	28	32	66	44	106	9.5	3.4
27	32	35	72	47	111	12	4.51
28	35	38	80	53	134	13.5	6.1
29	38	42	88	56	148	17	7.63
30	45	50	103	70	174	25	13.3
23 45 31	50	57	111	78	199	35	18.6
32	57	65	130	90	222	42.5	26
33	65	70	145	100	238	55	35.4
34	75	83	162	122	270	85	53

Name of Mfr.: Van Beest BV

Bow Shackles with Screw Collar Pin
G-4161



Material: Body and pin high tensile steel, Grade 6, quenched and tempered

Safety Factor: MBL equals 6 x WLL (Working Load Limit)

Standard: EN 13889 and meets performance requirements of US Fed. Spec. RR-C-271 Type IVA Class 2, Grade A

Finish: Hot dipped galvanized

Temperature Range: -20°C to + 200°C

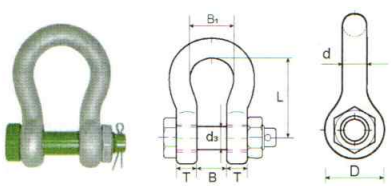
Certification: At no extra charges this product can be supplied with a works certificate, material certificate, manufacturer test certificate, EC Declaration of Conformity and all shackles starting from 2 t can be supplied with DNV 2.7-1 certificate.

Unit Per Pc.

CODE	Diameter			Width Inside	Length Inside	Width Bow	Working Load Limit	Weight
	Body	Pin	Eye					
	d mm	d3 mm	D mm	B mm	L mm	B1 mm	Ton	kg
23 45 41	5	6	12	8	25	16	0.33	0.02
42	7	8	16	10	33	20	0.5	0.05
43	9	10	20	12	37	22	0.75	0.1
44	10	11	22	15	42	26	1	0.14
45	11	13	26	17	49	29	1.5	0.19
23 45 46	13	16	34	20	59	32	2	0.36
47	16	19	39	25	73	43	3.25	0.63
48	19	22	46	28	87	51	4.75	1.01
49	22	25	52	33	95	58	6.5	1.5
50	25	28	59	40	109	68	8.5	2.21
23 45 51	28	32	66	44	124	75	9.5	3.16
52	32	35	72	47	132	83	12	4.31
53	35	38	80	53	152	92	13.5	5.55
54	38	42	88	56	167	99	17	7.43
55	45	50	103	70	203	126	25	12.9
23 45 56	50	57	111	78	225	138	35	18.2
57	57	65	130	90	254	160	42.5	26.3
58	65	69	145	100	294	180	55	37.6

Name of Mfr. : Van Beest BV

Bow Shackles with Safety Bolt
G-4163



Material: Body and pin high tensile steel, Grade 6, quenched and tempered

Safety Factor: MBL equals 6 x WLL (Working Load Limit)

Standard: EN 13889 and meets performance requirements of US Fed. Spec. RR-C-271 Type IVA Class 3, Grade A

Finish: Hot dipped galvanized

Temperature Range: -20°C to + 200°C

Certification: At no extra charges this product can be supplied with a works certificate, material certificate, manufacturer test certificate, EC Declaration of Conformity and all shackles starting from 2 t can be supplied with DNV 2.7-1 certificate.

Unit Per Pc.

CODE	Diameter			Width Inside	Length Inside	Width Bow	Working Load Limit	Weight
	Body	Pin	Eye					
	d mm	d3 mm	D mm	B mm	L mm	B1 mm	Ton	kg
23 45 61	7	8	16	10	33	20	0.5	0.06
62	9	10	20	12	37	22	0.75	0.11
63	10	11	22	15	42	26	1	0.16
64	11	13	26	17	49	29	1.5	0.22
65	13	16	34	20	59	32	2	0.42
23 45 66	16	19	39	25	73	43	3.25	0.74
67	19	22	46	28	87	51	4.75	1.18
68	22	25	52	33	95	58	6.5	1.77
69	25	28	59	40	109	68	8.5	2.58
70	28	32	66	44	124	75	9.5	3.66
23 45 71	32	35	72	47	132	83	12	4.91
72	35	38	80	53	152	92	13.5	6.54
73	38	42	88	56	167	99	17	8.19
74	45	50	103	70	203	126	25	14.3
75	50	57	111	78	225	138	35	19.9
23 45 76	57	65	130	90	254	160	42.5	28.4
77	65	70	145	100	295	180	55	39.6
78	75	83	162	122	370	190	85	62

Name of Mfr. : Van Beest BV

Green Pin Sling Shackles

Bow Shackles with Safety Bolt

Grilletes deeslimgas Green Pin
グリーンピンスリングシャックル　Green Pin® 吊索卸扣

These shackles cover a range from WLL 7 tons up to 1,500 tons. Compared to the standard Green Pin shackles they have an increased bow radius for saving slings and improving wearability. These shackles are ideal for use with wire rope and synthetic sling applications.

Material: Body and pin alloy steel, Grade 8, quenched and tempered

Safety Factor: MBL equals 5 × WLL

Finish: Shackle bow painted silver, pin painted green

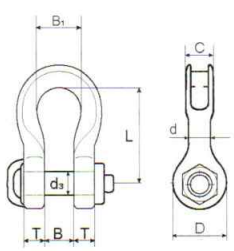
Temperature Range: -20°C to + 200°C

Certification: Can be supplied with a works certificate, material certificate, manufacturer test certificate, EC declaration of Conformity and all shackles from 75 ton are supplied with a Lloyd's Register of Shipping Certificate on proof load. An MPI and/or US inspection certificate can be supplied on request.

Note: ± 5% forging tolerance on inside width and length

P-6033





Unit Per Pc.

CODE	Size mm					WLL	Weight
	Body Diam.	Pin Diam.	Eye Diam.	Inside Width	Inside Lengh		
	d	d3	D	B	L	ton	kg
23 45 79	22	22	46	28	107	7	2
80	28	28	61	40	134	12.5	4
99	35	35	69	50	165	18	7
81	40	42	90	65	186	30	13
82	55	51	109	80	225	40	21
23 45 83	60	57	115	85	268	55	30
84	68	70	125	105	325	75	48
85	85	80	154	130	406	125	92
86	94	95	178	140	439	150	140
87	110	105	198	150	534	200	205
23 45 88	126	120	226	170	602	250	264
89	135	134	245	185	668	300	360
90	160	160	293	220	656	400	580
91	170	180	328	250	771	500	780
92	190	200	347	275	841	600	980
23 45 93	200	215	392	300	859	700	1,360
94	218	230	420	325	966	800	1,430
95	242	255	466	350	979	900	1,650
96	260	270	490	380	986	1,000	2,120
97	285	300	510	430	1,081	1,250	3,700
23 45 98	285	320	550	460	1,110	1,500	4,000

Name of Mfr. : Van Beest BV

Forged Screw Pin Shackles

G-210, G-209

Grilletes Forjados 鍛造スクリューピンシャックル　鍛造 U 形鏈鉤



G-210, Straight Type



G-209 Bow Type

Straight Shackle

Unit Per Pc.

CODE G-210 (Galv)	Nominal Shackle Size Inches	Safe Working Load (t)	Weight (kg)
23 41 01	1/4	0.5	0.05
02	5/16	0.75	0.08
03	3/8	1	0.13
04	7/16	1.5	0.20
05	1/2	2	0.27
23 41 06	5/8	3.25	0.57
07	3/4	4.75	1.20
08	7/8	6.5	1.43
09	1	8.5	2.15
10	1-1/8	9.5	3.06
23 41 11	1-1/4	12	4.11
12	1-3/8	13.5	5.28
13	1-1/2	17	7.23
14	1-3/4	25	12.10
15	2	35	19.20
23 41 30	2-1/2	55	32.50

Name of Mfr.: Crosby®

Bow Shackle

Unit Per Pc.

CODE G-209 (Galv)	Nominal Shackle Size Inches	Safe Working Load (t)	Weight (kg)
23 41 61	3/16	0.33	0.03
62	1/4	0.5	0.05
63	5/16	0.75	0.09
64	3/8	1	0.14
65	7/16	1.5	0.17

(to be continued)

Unit Per Pc.

CODE G-209 (Galv)	Nominal Shackle Size Inches	Safe Working Load (t)	Weight (kg)
23 41 66	1/2	2	0.33
67	5/8	3.25	0.62
68	3/4	4.75	1.07
69	7/8	6.5	1.64
70	1	8.5	2.28
23 41 71	1-1/8	9.5	3.36
72	1-1/4	12	4.31
73	1-3/8	13.5	6.14
74	1-1/2	17	7.80
75	1-3/4	25	12.60
23 41 91	2	35	20.40
92	2-1/2	55	38.90

Name of Mfr.: Crosby®

Bolt Type Anchor & Chain Shackles

G-2130, G-2150

Grilletes Tipo Perno con Pasador y de Ancla

ボルト型アンカー及びチェインシャックル　鍛造U形鏈鉤（帯螺帽）



G-2130
Anchor Shackle



G-2150
Chain Shackle

Anchor Shackle

Unit Per Pc.

CODE G-2130 (Galv)	Nominal Shackle Size Inches	Safe Working Load (t)	Weight (kg)
23 42 74	3/16	0.33	0.03
75	1/4	0.5	0.05
88	5/16	0.75	0.10
89	3/8	1	0.15
90	7/16	1.5	0.22
23 42 31	1/2	2	0.36
32	5/8	3.25	0.62
33	3/4	4.75	1.23
34	7/8	6.5	1.79
35	1	8.5	2.28
23 42 36	1-1/8	9.5	3.75
37	1-1/4	12	5.31
38	1-3/8	13.5	7.18
39	1-1/2	17	8.62
40	1-3/4	25	15.40
23 42 41	2	35	23.70
42	2-1/2	55	44.60
43	3	85	70
44	3-1/2	120	120
45	4	150	153

Name of Mfr.: Crosby®

Chain Shackle

Unit Per Pc.

CODE G-2150 (Galv)	Nominal Shackle Size Inches	Safe Working Load (t)	Weight (kg)
23 42 91	1/4	0.5	0.06
92	5/16	0.75	0.10
93	3/8	1	0.15
94	7/16	1.5	0.22
61	1/2	2	0.34

(to be continued)

Unit Per Pc.

23 42 62	5/8	3.25	0.67
63	3/4	4.75	1.14
64	7/8	6.5	1.74
65	1	8.5	2.52
66	1-1/8	9.5	3.45
23 42 67	1-1/4	12	4.90
68	1-3/8	13.5	6.24
69	1-1/2	17	7.72
70	1-3/4	25	14.20
71	2	35	21.20
23 42 72	2-1/2	55	38.60
73	3	85	56

Name of Mfr.: Crosby®

Anchor Shackles

Alloy Bolt Type G-2140

Grillete Lira de Ancla Crosby (Acero Forjado)

バウシャックル合金ボルト止タイプ

鍛造U形鏈鉤（帯合金螺帽）



G-2140

Meets the performance requirements of Federal Specification RR-C-271G, Type IVA, Grade B, Class 3. Quenched and tempered alloy bows and alloy bolts shackles.

Sizes from 3/8 to 5 are made from forged alloy steel, and sizes 6 & 7 are made from cast alloy steel.

Unit Per Pc.

CODE G-2140 (Galv)	Nominal Shackle Size Inches	Working Load Limit(t)	Weight Each (kg)
23 43 59	3/8	2	0.15
60	7/16	2.67	0.22
68	1/2	3.33	0.36
69	5/8	5	0.76
70	3/4	7	1.23
23 43 86	7/8	9.5	1.79
87	1	12.5	2.57
88	1-1/8	15	3.75
89	1-1/4	18	5.31
90	1-3/8	21	7.18
23 43 01	1-1/2	30	8.52
02	1-3/4	40	15.4
03	2	55	23.6
04	2-1/2	85	43.5
05	3	120	81
23 43 06	3-1/2	150	120
07	4	175	153
16	4-3/4	200	209
17	5	250	276
18	6	300	362
23 43 19	7	400	500

Note : Name of Mfr.: Crosby®

Wide Body Shackles

G-2160/G-2160E

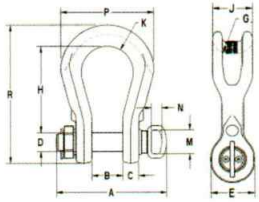
Grillete de Eslinga Crosby

ワイドボディ シャックル　寛幅U形鏈鉤

Greatly improves the durability of wire rope slings. The increase in shackle bow radius provides minimum 58 % gain in the sling bearing surface and eliminates the need for a thimble. Increases the usable sling strength a minimum of 15 %. Forged alloy steel from 7 through 300 metric tons, and cast alloy steel from 400 through 1,550 metric tons. G-2160E as Easy-Loc type will be provided for Working Load Limit 75 to 300 metric tons.



G-2160





G-2160E

Unit Per Pc.

CODE	Working Load Limit (t)	Dimensions in Millimeters A	B	C	D	K	R	Weight (kg)
23 43 08	7	105	31.8	17.5	22.4	31.8	149	1.81
09	12.5	137	42.9	23.4	28.7	41.4	194	4.54
10	18	170	51.6	29.5	35.1	50.8	238	6.80
15	30	195	60.2	35.1	41.4	63.5	289	11.34
20	40	236	73.2	42.9	50.8	76.2	346	20.90
23 43 32	55	263	82.6	50.8	57.2	88.9	397	32.21
21	75*	382	105	60.7	69.9	92.5	474	49.9
22	125*	450	130	78.7	80	110	584	86.2
23	200*	491	150	86.1	105	138	773	185
24	300*	574	187	109	133	160	953	358
23 43 25	400	772	220	131	160	185	985	518
26	500	849	250	146	180	225	1,085	653
27	600	916	275	158	200	247	1,200	967
28	700	990	300	167	215	270	1,275	1.170
29	800	1.059	325	185	230	277	1,323	1.372
23 43 30	900	1,112	350	198	250	293	1,387	1.712
31	1,000	1,169	380	212	270	308	1,405	1.850
33	1,250	1,278	432	233	300	323	1,660	2,588
34	1,550	1,588	465	282	320	338	1,896	3,650

*Working Load Limit 75 to 300 ton will be G-2160E with Easy-Loc.
Name of Mfr.: Crosby®

2. Turnbuckles

Drop Forged Steel Turnbuckles

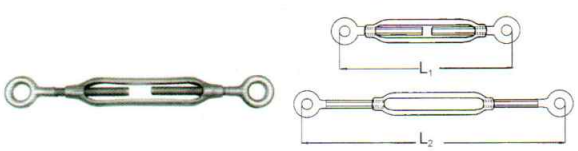
Frame Type

Tensor Avero Forjado - Tipo Abierto
枠式ターンバックル　枠型螺旋卸扣（黒皮）

Turnbuckle fittings are hot galvanized above the threading. When ordering this type of equipment, please specify the type of turnbuckle required such as "eye" and "eye", etc., and if the turnbuckle should be galvanized or ungalvanized.

Turnbuckles Eye and Eye

Tensor Abierto Cáncamo - Cáncamo
両アイ、ターンバックル　架式双眼环螺旋卸扣（黒皮）

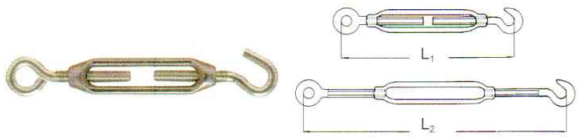


Unit Per Pc.

Black CODE	Thread Diam. mm	×	Frame Length mm	Galvanized CODE	Thread Diam. mm	×	Frame Length mm
23 05 01	6	×	100	**23 05 16**	6	×	100
02	8	×	125	**17**	8	×	125
03	9	×	150	**18**	9	×	150
04	12	×	200	**19**	12	×	200
05	16	×	250	**20**	16	×	250
23 05 06	19	×	300	**23 05 21**	19	×	300
07	22	×	325	**22**	22	×	325
08	25	×	350	**23**	25	×	350
09	32	×	400	**24**	32	×	400
10	38	×	450	**25**	38	×	450

Turnbuckles Eye and Hook

Tensor Abierto Cáncamo - Gancho
片アイ、片フックターンバックル
架式单眼单钩松紧螺旋扣（黑皮）

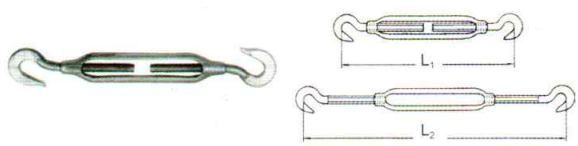


Unit Per Pc.

Black CODE	Thread Diam. mm	×	Frame Length mm	Galvanized CODE	Thread Diam. mm	×	Frame Length mm
23 05 31	6	×	100	**23 05 46**	6	×	100
32	8	×	125	**47**	8	×	125
33	9	×	150	**48**	9	×	150
34	12	×	200	**49**	12	×	200
35	16	×	250	**50**	16	×	250
23 05 36	19	×	300	**23 05 51**	19	×	300
37	22	×	325	**52**	22	×	325
38	25	×	350	**53**	25	×	350
39	32	×	400	**54**	32	×	400
40	38	×	450	**55**	38	×	450

Turnbuckles Hook and Hook

Tensor Abierto Gancho - Gancho
両フックターンバックル　双钩螺旋卸扣（黑皮）



Unit Per Pc.

Black CODE	Thread Diam. mm	×	Frame Length mm	Galvanized CODE	Thread Diam. mm	×	Frame Length mm
23 05 61	6	×	100	**23 05 76**	6	×	100
62	8	×	125	**77**	8	×	125
63	9	×	150	**78**	9	×	150
64	12	×	200	**79**	12	×	200
65	16	×	250	**80**	16	×	250
23 05 66	19	×	300	**23 05 81**	19	×	300
67	22	×	325	**82**	22	×	325
68	25	×	350	**83**	25	×	350
69	32	×	400	**84**	32	×	400
70	38	×	450	**85**	38	×	450

Turnbuckles Jaw and Jaw

U.S. Federal Spec FT-T-791b

Tensor Abierto Horquilla - Horquilla
ジョー＆ジョーターンバックル　双爪螺旋卸扣（镀锌）

Drop forged steel D6 Brand Turnbuckle of hex. neck frame bodies. All jaw end fittings are supplied with hex. head bolts & nuts. Weldless, self coloured, hot drip galvanized turnbuckle is available.



Galvanized

Unit Per Pc.

CODE	Thread Diam. Inch	Frame Take up Inch	Breaking Strength kN	Breaking Strength tf	Weight kg
23 06 21	3/8	6	26.4	2.7	0.41
23 06 22	1/2	6	49	5.0	0.74
23		9			0.93
24		12			1.12
23 06 25	5/8	6	78.4	8.0	1.37
26		9			1.57
27		12			1.92
23 06 29	3/4	6	117.6	12.0	1.98
30		9			2.24
31		12			2.55
32		18			3.28
23 06 33	7/8	12	161.7	16.5	3.72
34		18			4.6
23 06 35	1	6	225.4	23	3.99
36		12			5.04
37		18			6.27
38		24			7.89
23 06 39	1-1/4	12	343	35	10.5
80		18			12.4
81		24			14.6
23 06 82	1-1/2	12	480.2	49	16.7
83		18			19.2
84		24			21.7

Turnbuckles Jaw and Eye

U.S. Federal Spec FT-T-791b

Tensor Abierto Horquilla - Cáncamo

ジョー＆アイターンバックル　単爪单眼环螺旋扣（镀锌）



Galvanized

Unit Per Pc.

CODE	Thread Diam. Inch	Frame Take up Inch	Breaking Strength kN	Breaking Strength tf	Weight kg
23 06 61	3/8	6	26.4	2.7	0.41
23 06 62	1/2	6	49	5.0	0.74
63		9			0.93
64		12			1.12
23 06 65	5/8	6	78.4	8.0	1.37
66		9			1.57
67		12			1.92
23 06 69	3/4	6	117.6	12.0	1.98
70		9			2.24
71		12			2.55
72		18			3.28
23 06 73	7/8	12	161.7	16.5	3.72
74		18			4.6
23 06 75	1	6	225.4	23	3.99
76		12			5.04
77		18			6.27
78		24			7.89
23 06 79	1-1/4	12	343	35	10.5
85		18			12.4
86		24			14.6
23 06 87	1-1/2	12	480.2	49	16.7
88		18			19.2
89		24			21.7

Forged Steel Pipe Turnbuckles

Tensor Tubular (Cerrado) de Acero Forjado

パイプ式ターンバックル　双眼环松紧螺旋扣（黑皮）

These turnbuckle fittings are hot galvanized above the threading. When ordering, please specify what type of turnbuckle is required, i.e. "eye" and "eye", etc., and whether the turnbuckle should be black or galvanized steel.

Pipe Turnbuckles - PS (Pipe Swage) Type

Tensor Tubular Tipo P.S

PS 式パイプターンバックル　PS 型双眼环松紧螺旋扣（黑皮）

Pipe frame turnbuckle with collapse at the middle of the frame for secure turning by the grip. Available ungalvanized (black) or galvanized (electric plated).

Pipe Turnbuckles Eye and Eye PS Type



Unit Per Pc.

CODE	Nom. Size	Thread Dia	Frame Length mm	Length Eye to Eye mm Min.	Length Eye to Eye mm Max.	Breaking Load kN	Breaking Load tf
Black							
23 04 41	9	W 3/8	150	180	300	13.7	1.4
42	12	W 1/2	200	265	430	21.6	2.2
43	16	W 5/8	250	335	540	31.4	3.2
44	19	W 3/4	300	395	640	47.1	4.8
45	22	W 7/8	320	430	695	62.8	6.4
23 04 46	25	W 1	350	470	750	84.3	8.6
47	32	W 1-1/4	400	520	810	357.9	36.5
Galvanized							
23 04 51	9	W 3/8	150	180	300	13.7	1.4
52	12	W 1/2	200	265	430	21.6	2.2
53	16	W 5/8	250	335	540	31.4	3.2
54	19	W 3/4	300	395	640	47.1	4.8
55	22	W 7/8	320	430	695	62.8	6.4
23 04 56	25	W 1	350	470	750	84.3	8.6
57	32	W 1-1/4	400	520	810	357.9	36.5

Pipe Turnbuckles Eye and Hook PS Type

Unit Per Pc.

CODE	Nom. Size	Thread Dia	Frame Length mm	Length Eye to Hook mm Min.	Length Eye to Hook mm Max.	Breaking Load kN	Breaking Load tf
Black							
23 04 61	9	W 3/8	150	180	300	6.9	0.7
62	12	W 1/2	200	265	430	10.8	1.1
63	16	W 5/8	250	335	540	13.7	1.4
64	19	W 3/4	300	395	640	24.5	2.5
65	22	W 7/8	320	430	695	33.3	3.4
23 04 66	25	W 1	350	470	750	42.2	4.3
67	32	W 1-1/4	400	520	810	73.5	7.5
Galvanized							
23 04 71	9	W 3/8	150	180	300	6.9	0.7
72	12	W 1/2	200	265	430	10.8	1.1
73	16	W 5/8	250	335	540	13.7	1.4
74	19	W 3/4	300	395	640	24.5	2.5
75	22	W 7/8	320	430	695	33.3	3.4
23 04 76	25	W 1	350	470	750	42.2	4.3
77	32	W 1-1/4	400	520	810	73.5	7.5

Pipe Turnbuckles Hook and Hook PS Type

Unit Per Pc.

CODE	Nom. Size	Thread Dia	Frame Length mm	Length Hook to Hook mm Min.	Length Hook to Hook mm Max.	Breaking Load kN	Breaking Load tf
Black							
23 04 81	9	W 3/8	150	180	300	6.9	0.7
82	12	W 1/2	200	265	430	10.8	1.1
83	16	W 5/8	250	335	540	13.7	1.4
84	19	W 3/4	300	395	640	24.5	2.5
85	22	W 7/8	320	430	695	33.3	3.4
23 04 86	25	W 1	350	470	750	42.2	4.3
87	32	W 1-1/4	400	520	810	73.5	7.5

(to be continued)

Unit Per Pc.

CODE	Nom. Size	Thread Dia	Frame Length mm	Length Hook to Hook mm		Breaking Load	
				Min.	Max.	kN	tf
Galvanized							
23 04 91	9	W 3/8	150	180	300	6.9	0.7
92	12	W 1/2	200	265	430	10.8	1.1
93	16	W 5/8	250	335	540	13.7	1.4
94	19	W 3/4	300	395	640	24.5	2.5
95	22	W 7/8	320	430	695	33.3	3.4
23 04 96	25	W 1	350	470	750	42.2	4.3
97	32	W 1-1/4	400	520	810	73.5	7.5

Pear Shape Lashing Links

(Grab Links)

Eslabón (Anilla) Forma de Pera
ラッシング用リンク　梨形捆扎环（黑皮）



Pear shaped end links for chain or lashing turnbuckles. Forged steel, self-color or galvanized finish. Has 22 mm diam., 240 mm outside length and 130 mm outside width.

Unit Per Pc.

CODE	Description	Diam. mm	Overall Length mm × Width mm
23 11 81	Black	22	240 × 130
82	Galvanized	22	240 × 130

Log Lashing Spanners

Llaves para Trincar Troncos
ログラッシング用締付けレンチ　原木捆扎扳手



Light to carry and easy to use to tighten the turnbuckles for lashing log and lumber cargoes on deck. Can be used for the final lashing in port, as well as the important task of retightening turnbuckles daily on the voyage. You'll make the job faster and easier, reducing your crew's time and exposure on deck.

Unit Per Pc.

CODE	Type	Opening mm	For	Weight kg
23 07 73	30	105/30	Specially designed to fit the new style small turnbuckles. Old style large turnbuckles, but can be used efficiency on all sizes.	2.4
74	45	105/45		
23 07 75	30	105/30	Above original spanner with a one-way sprocket.	2.4
78	42	105/42		
23 07 79	42	105/42	A forward/reverse and static positions with a 42mm sprocket opening.	2.4
Leather Pouch				
23 07 80	Leather Pouch for above all spanners to ensure the health and safety for users			

Chain Type Load Binders

Carraca de Cadenas　チェーン式荷締機　链式扎紧装置

Ratchet type lever operated device for tightening or binding pipes, logs, etc.



Unit Per Pc.

CODE	S.W.L. Ton	Max. Pull Distance mm	Min. Distance Hook to Hook mm	Chain Diam. mm	Weight kg
23 07 76	0.5	1,350	350	6.3	3.7
77	1.0	1,420	420	6.3	6.0

Rigging Screws

Tensor con Guardacabo　リギング スクリュー　舾装松紧螺旋扣



Drop forged frame with a solid thimble and bolt ends. When ordering, please specify the diameter or circumference of the wire rope to be used with the rigging screw. Also specify whether Ungalvanized (Black) or Galvanized rigging screws will be required when ordering.

Unit Per Pc.

CODE		Nominal Size mm	Dia. of Rope Applied mm	Screw Rod		SWL Tons	Weight kg
Ungalv. (Black)	Galv.			Thread Size	Length mm		
23 07 81	**23 19 81**	14	14	M24	350	2.1	5.97
82	**82**	16	16	M27	380	2.6	8.58
83	**83**	18	18	M30	420	3.3	11.6
84	**84**	22	20 and 22.4	M33	450	5.1	14.8
85	**85**	24	24	M39	480	5.9	19.4
23 07 86	**23 19 86**	26	25	M42	500	6.9	23.9
87	**87**	30	28 and 30	M48	540	9.2	30.2
88	**88**	32	32	M48	560	10.5	36.2
89	**89**	34	34	M52	590	11.5	43.2
90	**90**	36	36	M56	620	13.0	51.1
23 07 91	**23 19 91**	38	38	M60	640	14.5	59.9
92	**92**	40	40	M64	670	16.5	70.7
93	**93**	42	42.5	M68	720	18.5	93.5
94	**94**	45	45	M68	740	21	105
95	**95**	48	47.5	M76×6	770	23	117
23 07 96	**23 19 96**	50	50	M76×6	780	25.5	124

3. Wire Clips/Thimbles/Sockets

Standard Wire Clips

Cast Iron

Sujetacables Tipo Estándar de Hierro Fundido
鋳物スタンダード型ワイヤークリップ
标准铸铁钢丝绳卡环（黑皮）



Made of cast iron and designed to hold one wire rope tight and securely to another. When ordering, please specify whether galvanized or black wire clips are required. Also, please specify the diameter of the wire rope to be used with the wire clip.

Unit Per Pc.

Black			Galvanized		
CODE	Wire Size Diam. mm	U-Bolt Diam. mm	CODE	Wire Size Diam. mm	U-Bolt Diam. mm
23 08 01	4.5	4.5	**23 08 16**	4.5	4.5
02	6	6	**17**	6	6
03	8	6	**18**	8	6
04	9	8	**19**	9	8
05	12	9	**20**	12	9
23 08 06	16	13	**23 08 21**	16	13
07	19	13	**22**	19	13
08	22	16	**23**	22	16
09	25	16	**24**	25	16
10	28	19	**25**	28	19
23 08 11	32	19	**23 08 26**	32	19
12	38	22	**27**	38	22
13	44	25	**28**	44	25
14	50	25	**29**	50	25

Wire Rope Clips

Malleable Iron

U.S. Federal Spec. FF-C-450b

Sujetacable de Acero Maleable

アメリカ型マレアブルワイヤークリップ

可锻铸铁钢丝绳卡环（黑皮）



Made of malleable iron with a grooved rope channel to hold the wire ropes securely together.

Unit Per Pc.

Black			Galvanized		
CODE	Wire Size Diam. inch	U-Bolt Diam. inch	CODE	Wire Size Diam. inch	U-Bolt Diam. inch
23 08 31	1/8	3/16	**23 08 46**	1/8	3/16
32	3/16	1/4	**47**	3/16	1/4
33	1/4	5/16	**48**	1/4	5/16
34	5/16	5/16	**49**	5/16	5/16
35	3/8	3/8	**50**	3/8	3/8
23 08 36	7/16	3/8	**23 08 51**	7/16	3/8
37	1/2	7/16	**52**	1/2	7/16
38	9/16	1/2	**53**	9/16	1/2
39	5/8	1/2	**54**	5/8	1/2
40	3/4	9/16	**55**	3/4	9/16
23 08 41	7/8	5/8	**23 08 56**	7/8	5/8
42	1	5/8	**57**	1	5/8

Wire Rope Clips

Drop Forged Steel (F Type)

Sujetacable de Acero Forjado

F型鍛造クリップ　压锻钢钢丝绳卡环（FR-型，镀锌）



Specially, designed with tapered wings at the base in order to assure a very tight and firm grip to wire ropes.

Unit Per Pc.

Black			Galvanized		
CODE	Wire Size Diam. mm	U-Bolt Th'd Diam.	CODE	Wire Size Diam. mm	U-Bolt Th'd Diam.
23 08 61	8	M 8	**23 08 76**	8	M 8
62	10	M10	**77**	10	M10
63	12	M12	**78**	12	M12
64	14	M12	**79**	14	M12
65	16	M14	**80**	16	M14
23 08 66	18	M14	**23 08 81**	18	M14
67	20-22	M18	**82**	20-22	M18
68	24-25	M20	**83**	24-25	M20
69	26-28	M22	**84**	26-28	M22
70	30-32	M22	**85**	30-32	M22
23 08 71	33-38	M27	**23 08 86**	33-38	M27
72	40-45	M30	**87**	40-45	M30
73	47-50	M33	**88**	47-50	M33

Standard Wire Clips

Stainless Steel

Sujetacable Tipo Estándar de Acero Inoxidable

ステンレス製ワイヤークリップ　不锈钢钢丝绳夹头



Made of stainless steel and desighed to hold one wire rope tight and securely to another. Please specify the diameter of the wire rope to be used with the wire clip.

Unit Per Pc.

CODE	Wire Size Diam mm.	U-Bolt		Weight grm
		Diam. mm	Thread	
23 36 51	1.5	1.7	M 1.8	5
52	2	2.5	M 3	8
53	3	3.0	M 3	11
54	4	3.5	M 4	19
55	5	5.0	M 5	26
23 36 56	6	5.3	M 6	35
57	8	7.1	M 8	78
58	10	8.9	M10	160
59	12	10.8	M12	240
60	14	10.8	M12	270
23 36 61	16	12.6	M14	410
62	18	12.6	M14	460
63	20-22	16.3	M18	800

(to be continued)

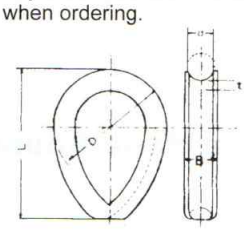
Wire Rope Thimbles (A Type)

Guardacabos para Cable de Acero (Tipo A)

ワイヤーロープシンブル A 型　钢丝绳套环（A-型，镀锌）

A wrought steel, galvanized type thimble for use with bare steel wire rope. Please specify the diameter of the wire rope to be used with the thimble when ordering.





Unit Per Pc.

CODE	Nominal Size mm	Applicable Wire Rope Diam. mm	Dimensions mm		
			L	D	B
23 09 01	6	6	36	27	8
02	8	8	48	36	10
03	9	9	51	40	11
04	10	10	58	45	13
05	12	12	68	54	15
23 09 06	14	14	78	61	17
07	16	16	92	72	20
08	18	18	100	75	22
09	20	20	112	86	24
10	22	22	122	95	27
23 09 11	24	24	136	105	29
12	26	26	144	110	31
13	28	28	156	120	33
14	30	30	166	130	35
15	32	32	180	140	38
23 09 16	34	34	186	145	40
17	36	36	196	150	42
18	38	38	205	160	44
19	40	40	220	170	46
20	42	42	232	180	50
23 09 28	44	44	242	190	52
29	46	46	252	195	54
22	48	48	260	205	56
23	50	50	274	215	58
30	55	55	310	235	65
23 09 26	60	60	335	255	70
31	65	65	358	276	75

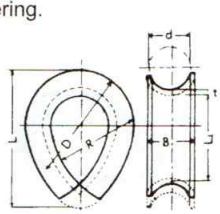
Manila Rope Thimbles (C Type)

Guardacabos para Cuerda de Manila (Tipo C)

マニラロープコース C 型　钢质马尼拉棕绳套环（C-型，镀锌）

A wrought steel, galvanized, C type thimble for use with manila rope. Please specify the diameter of the rope to be used with the thimble when ordering.





Unit Per Pc.

CODE	Nominal Size mm	Applicable Manila Rope Diam. mm	Dimensions mm		
			L	D	B
23 09 41	10	10	36	28	13
42	12	12	42	34	15
43	14	14	48	38	17
44	16	16	55	42	19
45	18	18	60	50	21
23 09 46	20	20	65	55	23
47	22	22	72	60	25
48	24	24	78	65	27
49	26	26	85	70	30
50	28	28	90	75	32
23 09 51	30	30	95	80	34
52	32	32	100	85	36
53	35	35	110	92	41
54	40	40	125	105	46
55	45	45	140	115	51
23 09 56	50	50	155	130	56

Manila Rope Round Thimbles

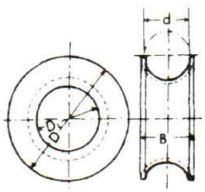
(D Type)

Guardacabos Redondos para Cuerda de Manila (Tipo D)

マニラロープコースD型　钢质马尼拉棕绳圆套环（D-型，镀锌）

D type round thimble for use with manila rope. Made of galvanized wrought steel. Please specify the diameter of the rope to be used with the thimble when ordering.





Unit Per Pc.

CODE	Nominal Size mm	Applicable Manila Rope Diam. mm	Dimensions mm	
			D	D1
23 09 72	10	10	38	23
73	12	12	38	23
75	16	16	48	27
86	19	19	48	27
78	22	22	55	35
23 09 87	25	25	55	35
81	28	28	73	40
83	32	32	73	40

Stainless Steel Wire Rope Thimbles

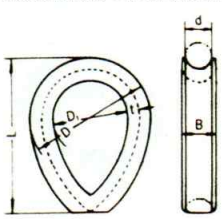
(A Type)

Guardacabo del Cable de Acero Inoxidable

ステンレス製ワイヤーロープシンブルA型　A型不锈钢三角圈

A stainless steel thimble which resist deformation and collapse even in frequent use. Please specify the diameter of the wire rope to be used with the thimble when ordering.





Unit Per Pc.

CODE	Nominal Size mm	Applicable Wire Rope Diam. mm	Dimensions mm		
			L	D	B
23 36 71	6	6	36	27	8
72	8	8	48	36	10
73	9	9	51	40	11
74	10	10	58	45	13
75	12	12	68	54	15
23 36 76	14	14	78	61	17
77	16	16	92	72	20
78	18	18	100	75	22
79	20	20	112	86	24
80	22	22	122	95	27
23 36 81	24	24	136	105	29
82	26	26	144	110	31
83	28	28	156	120	33
84	30	30	166	130	35
85	32	32	180	140	38
23 36 86	34	34	186	145	40
87	36	36	196	150	42
88	38	38	205	160	44
89	40	40	220	170	46
90	42	42	232	180	50

Corresponding Shackle Sizes to Wire Rope Thimble

Thimble Size	Shackle Size		
	SE	SD	SA
8	-	-	10
9	-	-	10
10	-	-	12
12	16	14/16	14/16
14	18	-	18
16	20	20	20
18	22	-	22
20	24	-	24
22	26	-	26
24	28	-	28
26	30	-	30
28	32	-	32
30	34	-	-
32	36	-	-
34	38	-	-
36	40	-	-

Wire Clamps

for Topping Lift

Sujetacables para Peligallo

荷役つり索ニッパ　吊货钢丝绳夹头（重型）

Made of carbon steel for topping lifts. Used as temporary holders when the topping lifts are fastened to cleats or the like.





Unit Per Pc.

CODE	Nominal Size	Applicble Wire Rope Diam. mm	SWL Tons	Butterfly Nut torque kgf/cm²	Wt. kg
23 10 11	14	14 (6×24)	0.4	400	3.46
12	16	16 (6×24)	0.4	400	3.46
13	18	18 (6×24)	0.4	400	3.46
01	20	20 (6×24)	0.4	400	3.46
02	22	224 (6×24)	0.4	400	3.46
23 10 05	25	25 (6×24)	0.4	500	13.7
06	28	28 (6×24)	0.4	500	13.7

Wire Rope Lubricators

Lubricadores de Cable
ワイヤーロープルブリケーター 钢丝绳润滑器



A unique method of automatically lubricating on wire ropes, utilizing a high pressure collar with seals which delivers grease into the core of the wire ropes while providing a thin grease film outer coating as wire ropes passe through the lubricator. Lubrication protects the ropes against corrosion while also providing excellent lubrication of wire strands both internally and externally. This can provide safety lubrication work for crew and reduce the labor on lubrication by up to 90%, and significant increases in wire rope life.

Lubricator can also remove the grease or contamination from the wire rope prior to lubrication with cleaner attachment, which improve the effectiveness of the lubrication process.

There are several brands available, and each brand has different applicable rope diameters and accessories, so please specify the manufacturer and brand name when ordering replacement seals.

Specifications

Maker	Viper Wire Rope Lubricator		Ferryl		Saemah
Model	Mid MKII	Mini MKII	Wire Rope Lubricator		SIGMALUB
Applicable Rope Dia.	6 mm – 67 mm	6 mm – 36 mm	1 – 50 mm	50 – 90 mm	6 mm – 44 mm
Lubrication Speed	4.5 kg/min	2.5 kg/min	40 m /min	40 m /min	-
Seal Replacement	Up to 15,000 meters		-		-
Accessories	Grease Pump, Air Regulator, 1m clear hose, 4m x 1/2" High Pressure Hose, 2 x 2m Ratchet Strap, 4 x Shackle, Shoulder Strap, Carry Case.	Grease Pump, Air Regulator, 4m x 3/8" High Pressure Hose, 2 x Ratchet Strap, 4 x Shackle, Carry Case.	Grease Pump, Air Regulator, High Pressure Hose, Set of Seals, Groove Cleaners, Self-retracting Ratchet Straps, Scraper Plates, Spare set of Seals, Wire Rope Grease (IMPA 450404 Ferryl 202 Standard), Carry Case.		Grease Pump, Air Regulator, 4m x 3/8" High Pressure Hose, Set of Seals & Cleaner, Spare set of Seals & Cleaner, Ratchet Strap, Carry Case.
Weight (kg)	9.5	2.9	4.5	14	3.4

How to order: CODE

Wire rope lubricator, APPLICABLE ROPE DIA, MANUFACTURER AND BRAND NAME etc.

CODE	Description	Unit
23 10 16	Wire rope lubricators, complete	Set
17	Spare seals for specific wire rope diameter	Pc.
18	Groove cleaners for specific wire rope diameter	Pc.

Wire Rope Sockets

Terminales para Cables
ワイヤーロープソケット 钢丝套（开式）

Drop forged carbon steel, self coloured wire socket for standing wire rope of a ships mast, post, etc.



Open type



Closed type

Unit Per Pc.

Open Type CODE	Applicable Wire Rope Diam. mm	Rope Hole Size mm	Overall Length mm	Closed Type CODE
23 10 51	16	20	193	**23 10 76**
52	18	23	210	**77**
53	20	25	227	**78**
54	22.4	30	245	**79**
55	24	32	262	**80**
23 10 56	25	33	281	**23 10 81**
57	28	36	298	**82**
58	30	38	316	**83**
59	31.5	40	335	**84**
60	33.5	42	353	**85**
23 10 61	35.5	44	373	**23 10 86**
62	37.5	47	392	**87**
63	40	49	413	**88**
64	42.5	52	434	**89**
65	45	54	474	**90**
23 10 66	47.5	57	494	**23 10 91**
67	50	60	516	**92**
68	53	63	536	**93**
69	56	66	567	**94**
70	60	70	619	**95**
23 10 71	63	74	641	**23 10 96**

Spelter Sockets G-416/G-417

Tomas de espelta G-416/G-417
スペルターソケット 斯派尔特插座

Forged steel sockets through 38mm, cast alloy steel 40mm through 60mm.



Open Socket G-416



Closed Socket G-417

Unit Per Pc.

Open Type CODE	Rope Dia mm	Rope Hole Size mm	Overall Length mm	Weight kg
23 10 21	14-16	17.5	171	1.63
22	18	20.6	202	2.64
23	20-22	23.9	235	4.38
24	24-26	28.7	268	7.03
25	28-30	31.8	300	9.75
23 10 26	32-35	38.1	335	14.1
27	38	41.4	384	21.4
28	40-42	44.5	413	24.9
29	44-48	51.0	464	37.2
30	50-54	57.0	546	59.0
23 10 31	56-60	63.5	597	76.0

Name of Mfr.: Crosby®

Unit Per Pc.

Closed Type CODE	Rope Dia mm	Rope Hole Size mm	Overall Length mm	Weight kg
23 10 32	14-16	17.5	162	1.13
33	18	22.4	194	1.92
34	20-22	25.4	226	3.28
35	24-26	28.7	254	4.76
36	28-30	31.8	283	6.46
23 10 37	32-35	38.1	309	8.95
38	38	41.4	355	13.24
39	40-42	44.5	390	16.32
40	44-48	51.0	445	25.96
41	50-54	57.2	505	35.83
23 10 42	56-60	66.8	546	47.62

Name of Mfr.: Crosby®

4. Chains/Links

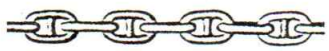
Stud Link Anchor Chain Cables

Flush Butt Welded

(Ref.JIS F 3303-1993)

Cadenas con Cartrete/Soldadas Eléctrica
フラッシュバット溶接アンカーチェーン
嵌入式对接缝焊的有档链环锚链钢索

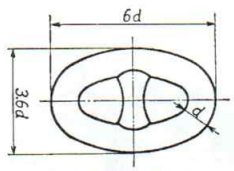
The specifications of these flush butt welded Anchor Chain Cables and their accessories for ship and harbour use are as follows.



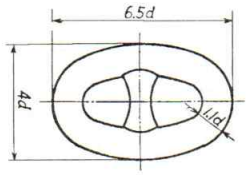
Nominal Size	Denoted by the diameter "d" shown in the sketch.
One Length	One length of the chain is 25 or 27.5 mtrs between the farther point end of the inner side of the end link and that of the opposite end link. May be also including the joining shackle and kenter shackle.
Nos. of Link	The total number of links for each length is odd except where it includes a swivel.
Shape & Size of Link, Shackle, etc.	The shape of each link, shackle and swivel must be determined in proportion to the size as shown in the sketches. They must be uniform in shape, and those next to each other must fit properly and move freely.

Specification

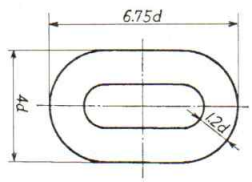
Kind of Chain		Symbol	Material
Stud Link Chain	Class 1	ST 1	SBC 300 : Steel bars for chains SS-400 : Rolled steel got general structure S20C : Cold rolled special steel strip
	Class 2	ST 2	SBC 490 : Steel bars for structure
	Class 3	ST 3	SBC 690 (or KBC) : Steel bars for structure



Common link



Enlarged link



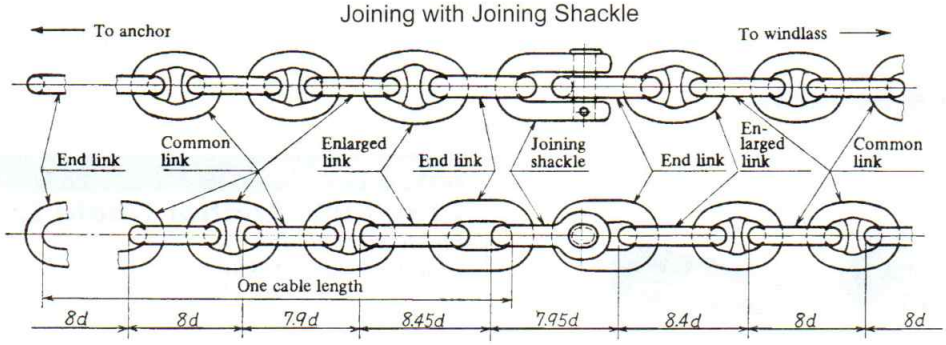
End link

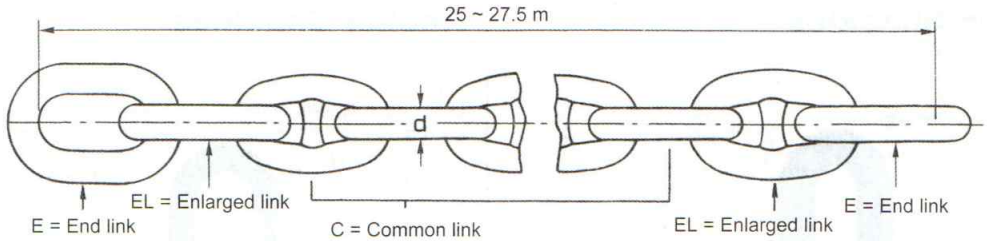

Swivel

Chain Dia (d)	Outside Length of Common Link (6d)	Outside Width of Common Link (3.6d)	Class II		Class III	
			Proof Test Load	Breaking Test Load	Proof Test Load	Breaking Test Load
mm	mm	mm	kN	kN	kN	kN
28	168	100.8	321	449	449	624
30	180	108.0	368	514	514	735
32	192	115.2	417	583	583	833
34	204	122.4	468	655	655	937
36	216	129.6	523	732	732	1,050
38	228	136.8	581	812	812	1,160
40	240	144.0	640	896	896	1,280
42	252	151.2	703	981	981	1,400
44	264	158.4	769	1,080	1,080	1,540
46	276	165.6	837	1,170	1,170	1,680
48	288	172.8	908	1,270	1,270	1,810
50	300	180.0	981	1,370	1,370	1,960
52	312	187.2	1,060	1,480	1,480	2,110
54	324	194.4	1,140	1,590	1,590	2,270
56	336	201.6	1,220	1,710	1,710	2,430
58	348	208.8	1,290	1,810	1,810	2,600
60	360	216.0	1,380	1,940	1,940	2,770
62	372	223.2	1,470	2,060	2,060	2,940
64	384	230.4	1,560	2,190	2,190	3,130
66	396	237.6	1,660	2,310	2,310	3,300
68	408	244.8	1,750	2,450	2,450	3,500
70	420	252.0	1,840	2,580	2,580	3,690
73	438	262.8	1,990	2,790	2,790	3,990
76	456	273.6	2,150	3,010	3,010	4,300
78	468	280.8	2,260	3,160	3,160	4,500
81	486	291.6	2,410	3,380	3,380	4,820
84	504	302.4	2,580	3,610	3,610	5,160
87	522	313.2	2,750	3,850	3,850	5,500

Remark: Larger or smaller sizes than the above list are also available.

Joining with Joining Shackle



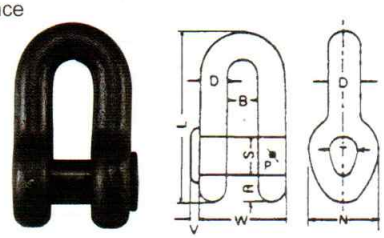


Nominal Diametr d mm	Kind of Link	Size mm									Approx. No. of Link	
		Diameter			Length			Width			Per 27.5 mtr	Per 25 mtr
		Min.	Sta	Max.	Min.	Sta	Max.	Min.	Sta	Max.		
14	C	13.0	14.0	15.5	81.9	84.0	86.1	49.2	50.4	51.6	487	441
	EL	14.4	15.4	16.9	88.8	91.0	93.2	54.6	56.0	57.4	2	2
	E	15.8	16.8	18.3	89.3	91.5	93.7	54.6	56.0	57.4	2	2
16	C	15.0	16.0	17.5	93.6	96.0	98.4	56.2	57.6	59.0	423	385
	EL	16.6	17.6	19.1	101.4	104.0	106.6	62.4	64.0	65.6	2	2
	E	18.2	19.2	20.7	105.3	108.0	110.7	62.4	64.0	65.6	2	2
17.5	C	16.5	17.5	19.0	102.4	105.0	107.6	61.5	63.0	64.5	387	353
	EL	18.2	19.2	20.7	111.0	113.8	116.6	68.3	70.0	71.7	2	2
	E	20.0	21.0	22.5	115.2	118.1	121.0	68.3	70.0	71.7	2	2
19	C	18.0	19.0	20.5	111.2	114.0	116.8	66.6	68.4	70.1	357	323
	EL	19.9	20.9	22.4	120.5	123.5	126.5	74.1	76.0	77.9	2	2
	E	21.8	22.8	24.3	125.1	128.3	131.5	74.1	76.0	77.9	2	2
20.5	C	19.5	20.5	22.0	120.0	123.0	126.0	71.9	73.8	75.6	331	301
	EL	21.5	22.5	24.0	130.0	133.3	136.6	80.0	82.0	84.0	2	2
	E	23.6	24.6	26.1	135.0	138.4	141.8	80.0	82.0	84.0	2	2
22	C	21.0	22.0	23.5	128.7	132.0	135.3	77.2	79.2	81.1	307	279
	EL	23.2	24.2	25.7	139.5	143.0	146.5	85.8	88.0	90.2	2	2
	E	25.4	26.4	27.9	144.8	148.5	152.2	85.8	88.0	90.2	2	2
24	C	23.0	24.0	25.5	140.4	144.0	147.6	84.3	86.4	88.5	281	255
	EL	25.4	26.4	27.9	152.1	156.0	159.9	93.6	96.0	98.4	2	2
	E	27.8	28.8	30.3	158.0	162.0	166.0	93.6	96.0	98.4	2	2
25	C	24.0	25.0	26.5	146.3	150.0	153.7	87.8	90.0	92.2	269	245
	EL	26.5	27.5	29.0	158.5	162.5	166.5	97.5	100.0	102.5	2	2
	E	29.0	30.0	31.5	164.6	168.8	173.0	97.5	100.0	102.5	2	2
26	C	25.0	26.0	27.5	152.1	156.0	159.9	91.3	93.6	95.9	259	235
	EL	27.6	28.6	30.1	164.8	169.0	173.2	101.4	104.0	106.6	2	2
	E	30.2	31.2	32.7	171.2	175.5	179.8	101.4	104.0	106.6	2	2
28	C	27.0	28.0	29.5	163.8	168.0	172.2	98.3	100.8	103.3	241	219
	EL	29.8	30.8	32.3	177.5	182.0	186.5	109.2	112.0	114.8	2	2
	E	32.6	33.6	35.2	184.3	189.0	193.7	109.2	112.0	114.8	2	2
30	C	29.0	30.0	31.5	175.5	180.0	184.5	105.3	108.0	110.7	225	203
	EL	32.0	33.0	34.7	190.2	195.0	199.8	117.0	120.0	123.0	2	2
	E	35.0	36.0	37.8	197.5	202.5	207.5	117.0	120.0	123.0	2	2
32	C	31.0	32.0	33.6	187.2	192.0	196.8	112.4	115.2	118.0	209	191
	EL	34.2	35.2	37.0	202.8	208.0	213.2	124.8	128.0	131.2	2	2
	E	37.4	38.4	40.3	210.6	216.0	221.4	124.8	128.0	131.2	2	2
34	C	33.0	34.0	35.7	198.9	204.0	209.1	119.4	122.4	125.4	197	179
	EL	36.4	37.4	39.3	216.5	222.0	227.5	132.6	136.0	139.4	2	2
	E	38.8	40.8	42.8	223.8	229.5	235.2	132.6	136.0	139.4	2	2
36	C	35.0	36.0	37.8	210.6	216.0	221.4	126.4	129.6	132.8	185	169
	EL	38.6	39.6	41.6	228.2	234.0	239.8	140.4	144.0	147.6	2	2
	E	41.2	43.2	45.4	237.0	243.0	249.0	140.4	144.0	147.6	2	2
38	C	37.0	38.0	39.9	222.3	228.0	233.7	133.4	136.8	140.2	175	159
	EL	39.8	41.8	43.7	240.9	247.0	253.1	148.2	152.0	155.8	2	2
	E	43.6	45.6	47.5	249.6	256.0	262.4	148.2	152.0	155.8	2	2
40	C	39.0	40.0	42.0	234.0	240.0	246.0	140.4	144.0	147.6	167	151
	EL	42.0	44.0	46.2	253.5	260.0	266.5	156.0	160.0	164.0	2	2
	E	46.0	48.0	50.4	263.3	270.0	276.7	156.0	160.0	164.0	2	2
42	C	40.0	42.0	44.1	245.7	252.0	258.3	147.5	151.2	154.9	159	143
	EL	44.2	46.2	48.5	266.2	273.0	279.8	163.8	168.0	172.2	2	2
	E	48.4	50.4	52.9	276.5	283.5	290.6	163.8	168.0	172.2	2	2
44	C	42.0	44.0	46.2	257.4	264.0	270.6	154.5	158.4	162.3	151	137
	EL	46.4	48.4	50.8	278.9	286.0	293.1	171.6	176.0	180.4	2	2
	E	50.8	52.8	55.4	289.6	297.0	304.4	171.6	176.0	180.4	2	2

Joining Shackles

Grilletes de Unión　ジョイニングシャックル　连接钩环

D = 1.3d + Tolerance
L = 7.1d
W = 4d
P = 0.3d
R = 0.8d
N = 2.8d
S = 1.6d
V = 0.2d
T = 1.2d
B = 1.4d



Size of chain Applied (d)		D 1.3d	L 7.1d	S 1.6d	W 4d	B 1.4d	Weight/pce
m/m	in	m/m	m/m	m/m	m/m	m/m	kg
28	1-1/8	36	199	45	112	39	5.6
30	1-3/16	39	213	48	120	42	6.8
32	1-1/4	42	227	51	128	45	7.9
34	1-5/16	44	241	54	136	48	10.0
36	1-3/8	47	256	58	144	50	12.0
38	1-1/2	49	270	61	152	53	13.9
40	1-9/16	52	284	64	160	56	15.6
42	1-5/8	55	298	67	168	59	17
44	1-3/4	57	312	70	176	62	20
46	1-13/16	60	327	74	184	64	23
48	1-7/8	62	341	77	192	67	25
50	2	65	355	80	200	70	30
52	2-1/16	68	370	83	208	73	35
54	2-1/8	70	383	86	216	76	40
56	2-3/16	73	398	90	224	78	45
58	2-1/4	75	412	93	232	81	50
60	2-3/8	78	426	96	240	84	53
62	2-1/2	81	440	99	248	87	60
64	2-9/16	83	454	102	256	90	65
66	2-5/8	86	469	106	264	92	70
68	2-11/16	88	483	109	272	95	80
70	2-3/4	91	497	112	280	98	87
73	2-7/8	95	518	117	292	102	95
76	3	99	540	122	304	106	110
78	3-1/16	101	554	125	312	109	120
81	3-3/16	105	575	130	324	113	130
84	3-5/16	109	596	134	336	118	147
87	3-7/16	113	618	139	348	122	160

Remark: Shackles of sizes other than those listed above are also available upon request.

How to order: 23 - 11 - 78

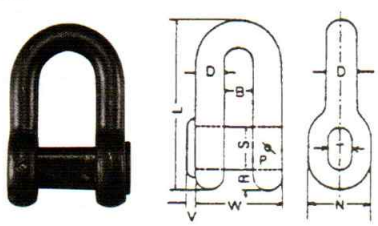
Joining shackle for 28(d) mm stud link anchor chain cable, ST2 with certificate

Note: When ordering, be sure to state the size of the anchor chain for which these shackles are to be used. These shackles are proof and break tested to the same specification loads as the anchor chain with which they are used.

Anchor Shackles

Grilletes de Ancla　アンカーシャックル　锚钩环

D = 1.4d + Tolerance
L = 9d
W = 5.05d + *α*
P = 0.4d
R = 0.8d
N = 3.0d
S = 2.1d
V = 0.3d
T = 1.4d



Size of chain Applied (d)		D 1.4d	L 9d	S 2.1d	W 5.0 5d+ α	B	Weight/ pce
m/m	in	m/m	m/m	m/m	m/m	m/m	kg
28	1-1/8	39	252	59	151	73	9.4
30	1-3/16	42	270	63	160	76	11.6
32	1-1/4	45	288	67	169	79	12.7
34	1-5/16	48	306	71	180	85	15.8
36	1-3/8	50	324	76	187	86	18.4
38	1-1/2	53	342	80	196	90	21.4
40	1-9/16	56	360	84	210	98	25.1
42	1-5/8	59	378	88	219	101	30
44	1-3/4	62	396	92	226	103	35
46	1-13/16	64	414	97	236	107	40
48	1-7/8	67	432	101	244	110	45
50	2	70	450	105	255	115	55
52	2-1/16	73	468	109	263	118	60
54	2-1/8	76	486	113	273	122	65
56	2-3/16	78	504	118	283	127	70
58	2-1/4	81	522	122	293	131	80
60	2-3/8	84	540	126	303	135	90
62	2-1/2	87	558	130	314	140	100
64	2-9/16	90	576	134	324	141	115
66	2-5/8	92	594	139	334	149	130
68	2-11/16	95	612	143	344	153	140
70	2-3/4	98	630	147	354	158	150
73	2-7/8	102	657	153	369	165	165
76	3	106	684	160	384	171	185
78	3-1/16	109	702	164	394	176	200
81	3-3/16	113	729	170	410	180	220
84	3-5/16	118	756	176	425	188	245
87	3-7/16	122	783	183	440	195	270

Remark: Shackles of sizes other than those listed above are also available upon request.

How to order: 23 - 11 - 79

Anchor shackle for 28(d) mm stud link anchor chain cable, ST2 with certificate

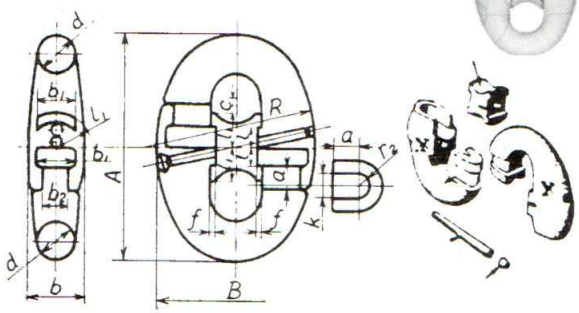
Note: When ordering, be sure to state the size of the anchor chain for which these shackles are to be used. These shackles are proof and break tested to the same specification loads as the anchor chain with which they are used.

Kenter Shackles

Grilletes de Tipo Kenter

ケンターシャックル　双半式连接钩环





Dimension

Unit: mm

A	B	a	b	b_1	b_2	C
6d	4.2d	0.67d	1.52d	1.1d	0.73d	Approx. 0.415d
f	k	l	l_1		R	r_2
0.106d	0.73d	0.5d	Approx. 0.915d		4.4d	0.36d

Remark: "d" is the nominal diameter of the chain.

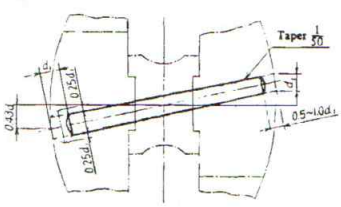
How to order: 23 - 11 - 80

Kenter shackle for diam. mm(d) stud link anchor chain cable, (class of chain) with certificate

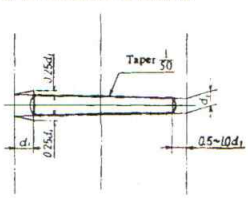
Taper Pins

Pasadores Cónicos　テーパーピン　圆柱销

For Kenter Shackle



For Joining Shackle and Anchor Shackle



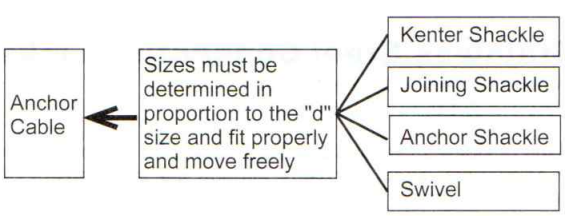
Dimension

Unit: mm

Kind of shackle \ Nominal dia. of chain	24-28	30-38	40-46	48-54	56-62	64-70	73-78	80-87
Joining shackle d1	6	8	10	12	14	16	18	20
Kenter shackle and anchor shackle d1	8	10	12	14	16	20	22	24

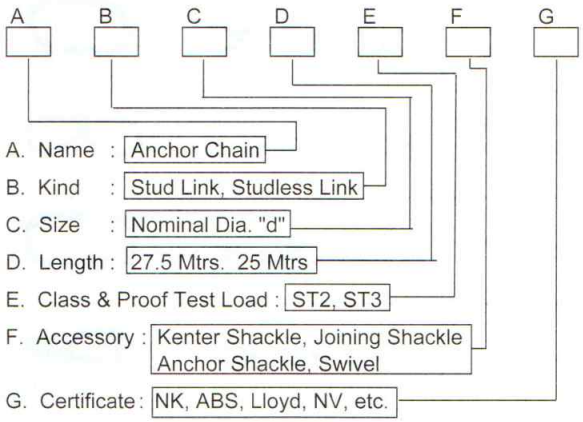
Chain & Shackle

Cadena y Grillete　チェーン＆シャックル　链条和卸扣



Guide of How to order

When ordering, please fill the following column.



Chains for General Use

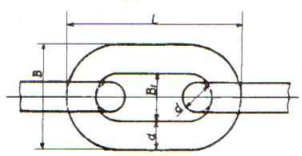
(Ref. JIS F 2106-1988)

Cadenas de Uso General

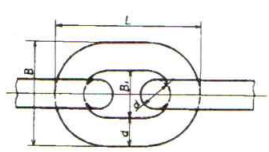
船用一般チェーン　普通无档链环（长环）

Galvanized, rolled steel chains for general uses such as for guard or fence chains or for accommodation chain ladder slings. Two types of chains, short link and long link are available. Please specify the total length of the chain required in meters when ordering.





Long Chain



Short Chain

Unit Per Mtr.

CODE	Nom. Size	Dimensions mm d	L	B	B1	SWL Tons	Wt. Kg. Per Mtr.
Long Link							
23 11 01	6	6	36	21	9	0.2	0.7
02	8	8	48	28	12	0.4	1.2
03	9	9	54	32	14	0.6	1.6
04	11	11	66	39	17	0.8	2.6
05	13	13	78	46	20	1.2	3.4
23 11 06	16	16	96	56	24	1.8	5.1
07	19	19	114	67	29	2.5	7.3
Short Link							
23 11 11	6	6	30	21	9	0.2	0.8
12	8	8	40	28	12	0.4	1.4
13	9	9	45	32	14	0.6	1.8
14	11	11	55	39	17	0.8	2.9
15	13	13	65	46	20	1.2	4.0
23 11 16	16	16	80	56	24	1.8	5.9
17	19	19	95	67	29	2.5	8.3

General Purpose Chains

Cadenas para Propósitos Generales　雑用チェーン　铁链条

General purpose chain for ordinary applications not required high tensile strength. Used for tow chains, binding or tie down chains made of stainless steel or brass. Please specify type of chain, kind of material, size of link, required working load, required overall length, etc.

Type No.	Type Name	Appearance	Size
1	Welded Curb		
2	Double Loop Coil		
3	Heavy Link		
4	Sash		

Stainless Steel

Unit Per Mtr.

CODE	Type No.	Type Name	Body Diam. mm	A×B×C mm	Weight grm/ mtr	Recommendable Working Load Kg
23 11 21	1	Welded Curb	2.0	8.7×3.4	82	60
23 11 22	2	Double Loop Coil	2.0	28×5.5	86	80
23 11 23	3	Heavy Link	4.0	26×6.0	266	200
24			5.0	27×8.0	430	250
25			6.0	31×9.0	633	350
23 11 26	4	Sash	0.5 (Thick)	15.2×2.2×5.5	24	35
27			0.7 (Thick)	14.8×2.7×6.4	46	70
28			0.8 (Thick)	14.4×4.0×8.0	52	70

Brass

Unit Per Mtr.

CODE	Type No.	Type Name	Body Diam. mm	A×B×C mm	Weight grm/ mtr	Recommendable Working Load Kg
23 11 41	1	Welded Curb	2.0	8.9×3.4	88	50
23 11 42	2	Double Loop Coil	2.0	28×5.5	88	60
23 11 43	4	Sash	0.5 (Thick)	15.2×2.2×5.5	28	15
44			0.7 (Thick)	14.8×2.7×6.4	46	30
45			0.8 (Thick)	14.4×4.0×8.0	66	40

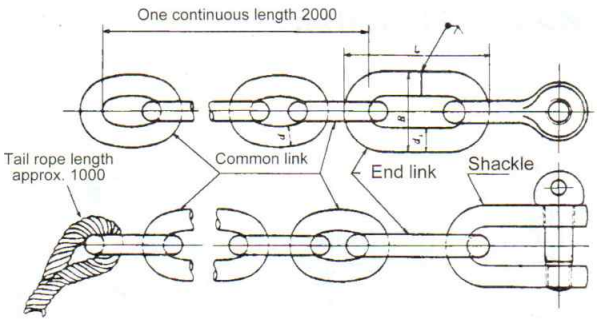
Chain Stoppers

(Ref. JIS F3406-1990)

Bozas de Cadena　チェーンストッパー　止链器（装货用）

A length of chain, usually 2 mtrs, used for wire ropes for cargo handling or the mooring of ships. One end is furnished with a tail rope and the other end with an end link and shackle.





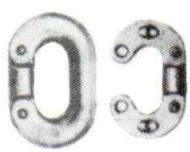
Unit Per Lgh.

CODE	Chain Diam. mm	End Link Diam. mm	Shackle Type & Size mm	S.W.L. Tons	Wt. Per Lgth. Kg	Applicable with rope Diam. mm
Cargo Handling (Chain Length 2 mtrs)						
23 11 31	8	9	SC 10	0.6	3.66	16 - 18
32	10	13	SC 12	0.8	5.44	-
Mooring (Chain Length 2 mtrs)						
23 11 35	6	8	SD 10	0.3	2.28	16
36	8	9	SD 12	0.6	3.66	18
37	10	13	SD 14	0.8	5.44	20-22.4
38	12	13	SD 16	1.0	8.24	24-28
39	14	16	SD 20	1.5	10.70	24-28
23 11 40	16	19	SD 22	2.0	13.80	24-28

Connecting Links

(Missing Links)

Enlaces de conexión (Enlaces que faltan)
コネクティング・リンク　缺失的链接



Drop forged, heat treated steel. Used for the temporary or permanent repair of chains through the replacement of individual lengths. When ordering, please specify whether galvanized or black steel links will be required.

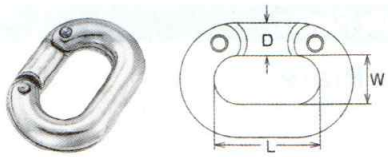
Unit Per Pc.

Black			Galvanized		
CODE	Link Diam. mm	Overall Dimension mm	CODE	Link Diam. mm	Overall Dimension mm
23 11 51	8	40 × 28	**23 11 66**	8	40 × 28
52	9	45 × 32	**67**	9	45 × 32
53	11	56 × 38	**68**	11	56 × 38
54	13	59 × 42	**69**	13	59 × 42
55	16	77 × 54	**70**	16	77 × 54
23 11 56	19	95 × 65	**23 11 71**	19	95 × 65
57	22	112 × 75	**72**	22	112 × 75
58	25	124 × 88	**73**	25	124 × 88
59	28	138 × 97	**74**	28	138 × 97
60	32	158 × 113	**75**	32	158 × 113
23 11 61	38	187 × 135	**23 11 76**	38	187 × 135

Stainless Steel Connecting Links

Eslabones de Conexión de Acero Inoxidable
ステンレス製連結リンク　不锈钢连接件

Made of stainless steel to resist rust. Used for the temporary or permanent repair of chains through the replacement of individual lengths.



Unit Per Pc.

CODE	Working Load Limit		Size mm			Weight grm
	kgf	kN	D	L	W	
23 11 85	200	1.96	8	24	12	35
86	300	2.94	10	30	14.5	60
87	400	3.92	11	33	17	86
88	550	5.39	13	37	19	128
89	800	7.84	16	48	24	259

Steel Round Rings

Argollas (Anillas) de Acero　モッコリング　钢圆环



Flush butt welded steel ring for use with a cargo sling, cargo hook, chain, etc. Available in original black steel colour only.

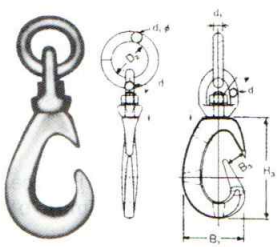
Unit Per Pc.

CODE	Diam. ×I.D. mm	Wt. kg	CODE	Diam. × I.D. mm	Wt. kg
23 11 91	25 × 125	1.82	**23 11 95**	36 × 150	4.70
92	28 × 125	2.32	**96**	38 × 150	5.30
93	32 × 125	3.11	**97**	50 × 200	12.0
94	32 × 150	3.60			

5. Cargo Hooks

Cargo Hooks
with Swivel Eye
(Ref. JIS F2105-1990)

Gancho de Carga Giratorio
スイベル カーゴフック
转环式吊货钩



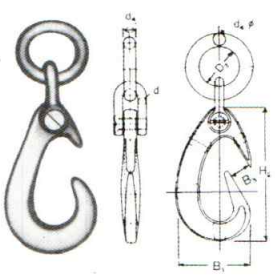
Made of high tensile, heat treated carbon steel. Provided in its original color with a swivel and ring. Specify the required S.W.L. when ordering.

Unit Per Pc.

CODE	SWL		Size mm			Weight kg
			Hook	Ring		
	kN	tf	B_3	D_1	D_2	
23 12 01	9.8	1	38	22	75	6.0
02	19.6	2	44	25	85	12.0
03	29.4	3	47	32	95	20.0
04	49	5	50	42	120	36.3

Cargo Hooks
with Shackle
(Ref. JIS F2105-1990)

Gancho de Carga Grillete
固定式カーゴフック
卸扣式带圆环吊货钩



Made of high tensile, heat treated carbon steel. Provided in its original colour with a countersunk screw pin shackle and ring. Please specify the required S.W.L. when ordering.

Unit Per Pc.

CODE	SWL		Size mm			Weight kg
			Hook	Ring		
	kN	tf	B_3	D_1	D_2	
23 12 06	9.8	1	38	22	75	6.0
07	19.6	2	44	25	85	11.0
08	29.4	3	47	32	95	18.0
09	49	5	50	42	120	33.0

Seattle Pattern Cargo Hooks

Gancho de Carga, Modelo "Seattle"
シャトル式（ケンカ巻）カーゴフック
升降式吊货钩（双吊杆用）



Drop forged steel provided in its original colour. Composed of a swivel eye and ring connected to two eyes and swivels. When ordering, please specify the required safe working load of the cargo hook from the sample given below.

Unit Per Pc.

CODE	S.W.L. Ton	Estimated Weight Kg	Hook Inner Length mm.	Ring I.D. mm.
23 12 11	3	20	180	100
12	5	40	220	140
13	10	60	250	160

Hoist Eye Hooks with Latch

Gancho de Carga con Ojo y con Gatillo
鍛造環及びバネ付フック　眼环式安全货钩



Drop forged and heat treated. Fitted with a safety spring latch.

Unit Per Pc.

CODE	S.W.L. Ton	Eye ID mm	Opening mm	Overall Length mm
23 12 31	1/2	19	25	127
32	1	25	32	150
33	2	33	36	183
34	3	37	40	219
35	5	49	52	277
23 12 36	8	60	64	356
37	10	68	71	397

Swivel Eye Cargo Hooks
with Latch

Gancho de Carga Giratorio con Gatillo
スイベル式カーゴフック　转环式安全吊货钩



Drop forged and heat treated from a special bar steel. When ordering, please specify the safe working load required for the use of the cargo hooks.

Unit Per Pc.

CODE	S.W.L. Ton	Overall		Throat Opening mm	Swivel Ring Clear Width mm
		Length mm	Width mm		
23 12 51	1	168	81	26	38
52	1-1/2	194	92	27	44
53	2	206	104	31	44
54	3	244	125	38	51
55	5	315	165	48	64

Safety Latch Hooks

Gancho de Carga con Gatillo de Seguridad
ラッチロックフック　安全套锁钩



Drop forged and heat treated. When released, the latch closes automatically and will not open unless a release button on the body is pushed. When ordering, please specify the safe working load from the examples in the table below.

Unit Per Pc.

CODE	S.W.L. Ton	Eye Diam. I.D. mm	Eye Diam. Width mm	Opening mm	Overall Length mm
23 12 41	1.2	22	11.5	29	141.5
45	2	28	14	37	176
42	3.2	34	16	45	214
43	5.3	44	20	55	266
44	8	56	26	62	328
23 12 46	10	60	30	68	382
47	12	70	32	80	414
48	17	80	35	100	445
49	20	90	40	120	526

Swivel Type Latch Lock Hooks

Gancho de Seguridad de Cierre Giratorio
スイベル式ラッチロックフック　轉環式鉤鎖



Drop forged and heat treated from a special bar steel. Safety hook with latch type closing mechanism which automatically closes when hook is loaded. Unlocking the trigger button on the hook will easily release the lock and open the hook. When ordering, please specify the safety working load required for the use of the cargo hooks.

Unit Per Pc.

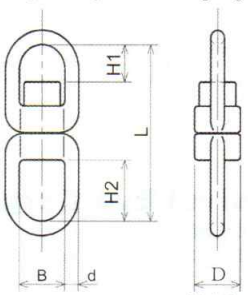
CODE	Working Load Limit Ton	Overall Length mm	Throat Opening mm	Swivel Ring ID mm
23 12 61	1.2	181	29	33 x 22.5
62	2.0	220	37	38 x 27
63	3.2	263	45	44 x 37
64	5.3	339	55	47 x 47
65	8.0	412	62	62 x 65
23 12 66	10.0	462	68	72 x 69

Forged Steel Regular Swivels

Cabeza Giratoria Regular de Hierro Forjado　鍛造スイベル　鍛造鋼轉環

Forged steel swivel for chain or ropes to prevent tangling.





Unit Per Pc.

CODE	Nominal Size	Size mm L	Size mm B	Size mm D	Working Load Limit Ton	Weight kg
23 12 71	9	95	30	30	0.4	0.32
72	13	125	32	35	0.7	0.65
73	16	145	37	38	1.0	1.2
74	19	180	42	50	1.5	2.1
75	22	200	47	55	2.0	2.9
23 12 76	25	228	54	60	2.5	4.2
77	28	250	59	65	3.0	6.4
78	32	285	65	80	4.5	10.0
79	38	335	75	85	6.0	15.6
80	44	362	84	102	8.0	19.0

6. Delta Plates

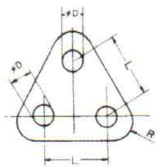
Delta Plates

(Monkey Face)

Placas Trianguiares　デルタプレート（三角板）　三角板

Equilateral triangles designed for cargo working or towing. Made from drop forged, natural coloured steel plate with 3 holes for attaching shackles.





Unit Per Pc.

CODE	S.W.L. ton	Dimensions mm L	Dimensions mm Dφ	Dimensions mm R	Dimensions mm Thick	Countersink Shackle mm
23 12 81	2.0	54	23	25	22	18
82	3.0	66	28	30	25	22
83	4.8	84	36	39	35	28
84	7.0	102	42	47	40	34
85	10.0	120	50	55	45	40

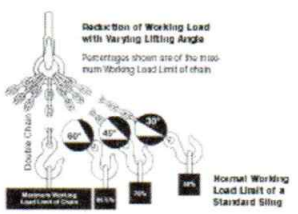
7. Sling Chains & Hooks

Sling Chains

Eslinga de Cadena　スリングチェーン　链条

Available single leg type, 2-leg type, or 3-leg type sling chain suitable for overhead lifting. Slings are furnished preassembled to the alloy steel chain with link or hook at both ends. 2-leg and 3-leg type chain slings provide more stability and strength than single leg chain sling. All attachments are mechanically connected to chain. The drop forged identification tag is attached to the master end coupling link of each chain sling. Please specify chain size, type and reach when ordering.

How Lifting Angles Reduce Working Load Limits of Slings



Cam-Alloy Chain Specifications

Total Size Inch	Total Size mm	Nominal Dimensions Material Diam. mm	Inside Dimensions mm Length	Inside Dimensions mm Width	Working Load Limit Lbs	Working Load Limit Kg	Weight Lbs/ 100 ft.	Links/ ft.
7/32	5.5	6	18	8	2,100	970	43	17.5
9/32	7	7	22	10	4,300	1,950	74	13.8
3/8	10	10	31	14	8,800	3,990	148	10.0
1/2	13	13	40	19	15,000	6,800	250	7.8
5/8	16	16	49	22	22,600	10,250	379	6.5
3/4	20	20	61	26	35,300	16,000	610	4.9
7/8	22	22	69	31	42,700	19,400	775	4.4
1	26	25	71	36	47,700	21,600	965	4.3
1-1/4	32	32	89	44	72,300	32,800	1,525	3.5

Single Leg Type



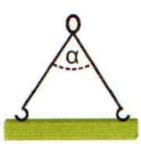
Chain Size		Oblong Link			Working Load Limit	
Inch	mm	Nominalk Size Material mm	Inside Dimensions mm Width	Length	Lbs	Kg
7/32	5.5	10	38	76	2,100	970
9/32	7	15	64	127	4,300	1,950
3/8	10	21	76	152	8,800	4,000
1/2	13	29	102	203	15,000	6,800
5/8	16	29	102	203	22,600	10,300
3/4	20	32	102	203	35,300	16,000
7/8	22	41	133	267	41,700	19,400
1	26	48	152	305	47,700	21,600
1-1/4	32	51	178	356	72,300	32,800

2-Leg Type



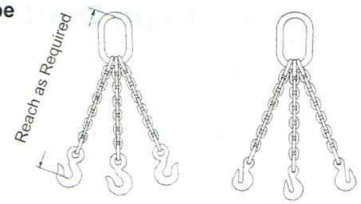
Chain Size		Oblong Link		
Inch	mm	Nominalk Size Material mm	Inside Dimensions mm Width	Length
7/32	5.5	10	38	76
9/32	7	15	64	127
3/8	10	21	76	152
1/2	13	29	102	203
5/8	16	32	102	203
3/4	20	41	133	267
7/8	22	48	152	305
1	26	51	178	356
1-1/4	32	57	203	406

Working Load Limit



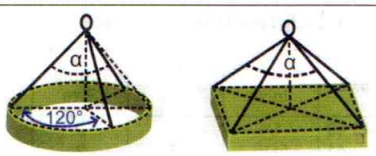
Chain Size		(a) at 60°		(a) at 90°		(a) at 120°	
Inch	mm	Lbs	Kg	Lbs	Kg	Lbs	Kg
7/32	5.5	3,600	1,630	3,000	1,360	2,100	970
9/32	7	7,400	3,400	6,100	2,700	4,300	1,950
3/8	10	15,200	6,900	12,400	6,900	8,800	3,990
1/2	13	26,000	11,800	21,200	9,600	15,000	6,800
5/8	16	39,100	17,700	32,000	14,500	22,600	10,300
3/4	20	61,100	27,700	49,900	22,600	35,300	16,000
7/8	22	74,000	33,500	60,400	27,350	42,700	19,400
1	26	82,600	37,900	67,400	31,000	47,700	21,600
1-1/4	32	125,200	56,800	102,200	46,400	72,300	32,800

3-Leg, 4-Leg Type



Chain Size		Oblong Link		
Inch	mm	Nominalk Size Material mm	Inside Dimensions mm Width	Length
7/32	5.5	15	64	76
9/32	7	21	76	127
3/8	10	29	102	152
1/2	13	32	102	203
5/8	16	41	133	203
3/4	20	48	152	267
7/8	22	51	178	305
1	26	57	203	356
1-1/4	32	70	229	406

Working Load Limit



Chain Size		(a) at 60°		(a) at 90°		(a) at 120°	
Inch	mm	Lbs	Kg	Lbs	Kg	Lbs	Kg
7/32	5.5	5,450	2,470	4,450	2,020	3,140	1,430
9/32	7	11,200	5,100	9,100	4,100	6,450	2,900
3/8	10	22,800	10,300	18,600	8,400	13,200	6,000
1/2	13	39,000	17,700	31,800	14,400	22,500	10,200
5/8	16	58,700	26,600	47,900	21,700	33,900	15,400
3/4	20	91,700	41,600	74,900	34,000	53,000	24,000
7/8	22	110,900	50,250	90,600	41,050	64,000	29,050
1	26	123,900	56,900	101,200	46,500	71,500	32,800
1-1/4	32	187,800	85,200	153,400	69,600	108,400	49,200

How to order chain slings.

23 - 11 - 77: Chain sling with the following information;

1. Determine the maximum load to be lifted.
2. Refer to the table above and choose the proper type of chain sling (single, double, etc) dictated by the size, shape and weight of the load.
3. Estimate the approximate angle between a leg of the sling and the load during operation.
4. Select proper attachments (hooks and master links) for your chain sling.
5. Determine the overall reach from bearing point on master link to bearing point on attachment.
6. Refer to the Working Load Limit Chart and to your predetermined angle of the type sling you have selected.
7. Choose the chain size which meets your requirements.

Note: Angle to the load on multiple leg slings will be 60° or greater as long as the distance between lifting eyes of load is not greater than reach shown on identification tag.

Eliminator Single/Double Hooks

A-1361/A-1362

Enganche sencillo/doble Eliminator
エリミネーターフック　ELIMINATOR 単 / 双挂钩

The Crosby® ELIMINATOR® combines selected features and functionality of a master link, connecting link, grab hook and adjuster legs to provide you with one fitting that is suitable for applications that require an adjustable length chain sling. Made of forged alloy steel - quenched and tempered. It can be used for personnel lifting applications and meets the intent of OSHA Rule 1926.1431(g)(1)(i) (A) and 1926.1501(g)(4)(iv) (B). Suitable for use with Grade 100 and Grade 80 chain. Use the A-1361 and A-1362 in combination to make 3 leg chain slings. All sizes are RFID (Radio Frequency Identification) equipped.



A-1361 Single Hook



A-1362 Double Hook

A-1361 Single Hook

Unit Per Pc.

CODE	Chain Size		Frame Size	Working Load Limit (t)	Weight Each (kg)
	Inch	mm			
23 43 40	1/4	7	2	2.0	1.76
41	5/16	8	2	2.6	1.76
42	3/8	10	3	4.0	2.94
43	1/2	13	4	6.8	6.12
44	5/8	16	5	10.3	10.9

Note : Proof tested at 2.5 times the Working Load Limit
Name of Mfr. : Crosby®

A-1362 Double Hook

Unit Per Pc.

CODE	Chain Size		Frame Size	Working Load Limit (t)	Weight Each (kg)
	Inch	mm			
23 43 45	1/4	7	2	3.9	2.13
46	5/16	8	2	5.0	2.13
47	3/8	10	3	8.0	3.67
48	1/2	13	4	13.6	7.84
49	5/8	16	5	20.5	14.3

Note : Proof tested at 2 times the Working Load Limit
Name of Mfr. : Crosby®

Clevis Sling Hooks

L-1339

Gancho de Clevis Sling
クレビススリングフック　吊鉤

Forged alloy steel quenched and tempered. Suitable for use with Grade 100 and Grade 80 chain.



L-1339

Unit Per Pc.

CODE	Chain Size (mm)	Working Load Limit (t)	Weight (kg)
23 43 50	6	1.5	0.29
51	7	2.0	0.72
52	8	2.6	0.71
53	10	4.0	1.17
55	13	6.8	2.39
23 43 56	16	10.3	4.45
57	18-20	16.0	8.30
58	22-23*	21.0	11.2

*22-23mm size does not have cam, latch attaches to unique pin.
Name of Mfr. : Crosby®

Cradle Grab Hooks

A-1338

Ganchos de Agarre para Cunas
クレードルグラブフック　揺籃抓钩

Forged alloy steel quenched and tempered. Innovative cradle design allows for 100% efficiency of Grade 100 chain, suitable for use with Grade 100 and 80 chain.



A-1338

Unit Per Pc.

CODE	Chain Size (mm)	Working Load Limit (t)	Weight (kg)
23 43 61	7	2.0	0.20
62	8	2.6	0.45
63	10	4.0	0.82
65	13	6.8	1.18
66	16	10.3	3.18

Name of Mfr. : Crosby®

Eye Hooks

L-320AN

Ganchos de ojo　アイフック　挂钩

Alloy steel quenched and tempered.



L-320AN

Unit Per Pc.

CODE	Opening Size (mm)	Working Load Limit (t)	Weight (kg)
23 43 71	22.6	1	0.28
72	23.1	1.5	0.40
73	25.4	2	0.65
75	27.7	3	0.94
76	34.5	5	1.95
23 43 77	40.9	7	3.76
78	53.0	11	6.80
79	57.5	15	9.42
80	76.5	22	17.9

Name of Mfr. : Crosby®

Latching Eye Hooks

S-315A

Gancho con Seguro
ラッチングアイフック
鑄造彈簧鎖型掛鉤（带眼）



S-315A

Hook is forged alloy steel, quenched and tempered with integrated heavy duty latch.

Unit Per Pc.

CODE	Chain Size (mm)	Working Load Limit for Wire Rope (Short Tons)	Overall Length mm	Weight (kg)
23 43 81	6	1	104.6	0.25
82	7 - 8	2	144.9	0.59
83	10	3	186.5	1.18
84	13	5	228.4	2.13
85	16	7	279	3.88

Name of Mfr. : Crosby®

Eye Hooks

with Locking Latch S-1316

Ganchos de Ojo con Pestillo de Bloqueo S-1316
ロック・ラッチ付きアイフック　带锁和闩的挂钩

Forged alloy steel, quenched & tempered.



Recessed trigger design is flush with the hook body, protecting the trigger from potential damage. Suitable for use with Grade 100 and Grade 80 chain.

Unit Per Pc.

CODE	Chain Size (mm)	Grade 10 Alloy Chain W.L.L (t) (4:1)	Working Load Limit (t) (5:1)	Overall Length (mm)	Weiht Each (kg)
23 46 01	6	1.45	1.00	100	0.39
02	7 - 8	2.60	1.90	135	0.82
03	10	4.00	2.50	167	1.54
04	13	6.80	5.62	209	2.72
05	16	10.3	7.53	256	6.83
23 46 06	18-20	16.0	9.98	274	8.61
07	22	20.0	12.0	317	12.70
08	26	27.1	-	371	22.45

Name of Mfr.: Crosby®

Swivel Hooks

S-1326

Ganchos giratorios スイベルフック 旋转挂钩



Forged alloy steel, quenched & tempered.

The S-1326 hook is a positioning device and is not intended to rotate under load. Rated for both wire rope and for use with Grade 80/100 chain.

Unit Per Pc.

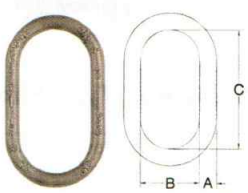
CODE	Chain Size (mm)	Grade 10 Alloy Chain W.L.L (t) (4:1)	Working Load Limit (t) (5:1)	Overall Length (mm)	Weight (kg)
23 46 11	6	1.45	1.16	156	0.57
12	7 - 8	2.60	2.1	193	1.18
13	10	4.00	3.2	224	2.13
14	13	6.80	5.4	284	3.92
15	16	10.3	8.2	328	7.71
23 46 16	18-20	16.0	12.8	358	10.9
17	22	20.0	16.0	417	13.2

Name of Mfr.: Crosby®

Master Links

A-342

Anillas Maestra
マスターリンク 通用吊環



Made of alloy steel, quenched & tempered.

Unit Per Pc.

CODE	Diam. Inches	Dimension (mm) A	B	C	Working Load Limit (t)	Weight (kg)
23 44 01	1/2	13	71.1	127	3.40	0.59
02	5/8	16	76.2	152	4.00	0.69
03	3/4	19	81.3	152	5.60	0.91
09	7/8	22	95.3	162	6.90	1.50
04	1	26	109	191	11.8	2.77
05	1-1/4	32	140	241	17.7	5.44
23 44 06	1-1/2	38	150	267	27.7	8.44
07	1-3/4	44	152	305	38.5	11.4
08	2	51	178	356	46.5	16.8

Name of Mfr. : Crosby®

Weldless Sling Links

G-341

Eslabones de Forma de Pera
スリングリンク 無縫吊環



G-341

Forged from a special quality carbon and alloy bar steel. Weldless and available in galvanized (G) alloy steel.

Unit Per Pc.

CODE	Diam. (mm)	Working Load Limit Single Pull (t)	Weight (kg)
23 44 11	10	0.82	0.10
12	13	1.32	0.25
13	16	1.91	0.48
14	19	2.72	0.85
15	22	3.76	1.25
23 44 16	25	4.90	1.97
17	32	7.60	3.45
18	35	9.30	5.13

Name of Mfr. : Crosby®

Connecting Links

A-1337

Enlaces de Conexión
コネクティングリンク 连接链接



A-1337

Forged alloy steel, quenched and tempered. Locking system that provides for simple assembly and disassembly, no special tools needed. Suitable for use with both Grade 80 and 100 chain.

Unit Per Pc.

CODE	Chain Size (mm)	Working Load Limit (t)	Weight (kg)
23 44 31	7	2.0	0.13
32	8	2.6	0.19
39	10	4.0	0.35
33	13	6.8	0.73
34	16	10.3	1.41
23 44 35	20	16.0	2.90
36	22	19.4	3.56
37	26	27.1	5.01
38	32	41.0	9.53

Name of Mfr. : Crosby®

Alloy Chain

Spectrum 8 & 10

Cadena Grado アロイチェーン 鑄造鏈

Made from a heat treated alloy steel. Spectrum 8 is finished with black paint. Spectrum 10 is 25% stronger than grade 80 alloy chain and finished with red paint for 6-16mm and black paint for 20-32mm.



Spectrum 8 (Grade 80)

Unit Per Mtr.

CODE	Chain Size (mm)	Working Load Limit (t)	Meters per Drum	Weight per Meter (kg)
23 44 41	6	1.1	200	0.8
30	7	1.5	200	1.1
42	8	2.0	200	1.4
43	10	3.2	200	2.3
44	13	5.4	150	3.8
23 44 45	16	8.2	100	5.6
46	19	11.6	50	7.8
40	20	12.8	50	9.9
47	22	15.5	50	10.6
48	23	16.0	50	11.8
23 44 49	26	21.6	50	14.8
50	32	32.8	50	21.6

Name of Mfr. : Crosby®

Spectrum 10 (Grade 100)

Unit Per Mtr.

CODE	Chain Size (mm)	Working Load Limit (t)	Meters per Drum	Weight per Meter (kg)
23 44 10	6	1.5	200	0.9
19	7	1.95	200	1.2
20	8	2.6	200	1.6
29	10	4.0	200	2.5
69	13	6.8	150	4.1
23 44 70	16	10.3	100	6.2
96	20	16.0	50	9.4
97	23	21.0	50	13.0
98	26	27.1	50	16.4
99	32	41.0	50	25.8

Name of Mfr.: Crosby®

Forged Regular Swivels

G-402

Eslabón Giratorio Regular
鍛造レギュラースイベル
鍛造通用型旋環



G-402

Quenched, tempered and hot dip galvanized.

Unit Per Pc.

CODE	Body Size (mm)	Working Load Limit (t)	Weight (kg)
23 44 51	6	0.39	0.10
52	8	0.57	0.18
53	10	1.02	0.32
54	13	1.63	0.60
55	16	2.36	1.13
23 44 56	19	3.27	1.82
57	22	4.54	2.83
58	25	5.67	4.06
59	32	8.16	7.42
60	38	20.50	20.80

Name of Mfr. : Crosby®

Sling Saver Web Connectors

S-280

Conectores de redes para economizar eslingas
スリング・金属金具接続用補助コネクター
吊绳与金属配件连接用辅助连接器



Increasing synthetic sling efficiency as compared to standard anchor and chain shackle bows and conventional eye hooks. This allows 100% of the slings rated Working Load Limit to be achieved. Allowing better load distribution on internal fibers.

Durable vinyl cover that protects sling at eye, and keeps sling positioned correctly on spool.

Unit Per Pc.

CODE	Round Sling Size (No.)	Web Slings			Working Load Limit (t)	Weight Each (kg)
		Webbing Width (mm)	Eye Width (mm)	Ply		
23 44 61	1 & 2	50	50	2	2.95	0.68
62	3	35	75	2	4.08	0.86
63	4	50	100	2	5.67	1.32
64	5 & 6	75	150	2	7.70	2.31

Note : Maximum Proof Load is 2 times the Working Load Limit.
Name of Mfr. : Crosby®

Sling Saver Web Sling Shackles

S-281

Grilletes de eslingas de redes para economizar eslingas
スリング・金属金具間接続用シャックル　吊绳与金属配件连接用卸扣



Designed to connect synthetic web slings and synthetic round slings to eyebolts, pad eyes, and lifting lugs. All alloy construction.

Increased radius of bow gives wider sling bearing surface resulting in an increased area for load distribution, thus: Increasing synthetic sling efficiency as compared to standard anchor and chain shackle bows and conventional eye hooks.

Unit Per Pc.

CODE	Round Sling Size (No.)	Web Slings			Working Load Limit (t)	Weight Each (kg)
		Webbing Width (mm)	Eye Width (mm)	Ply		
23 44 65	1 & 2	50	50	2	2.95	0.54
66	3	35	75	2	4.08	0.68
67	4	50	100	2	5.67	1.13
68	5 & 6	75	150	2	7.70	1.95

Note : Maximum Proof Load is 2 times the Working Load Limit.
Name of Mfr. : Crosby®

Sling Saver Web Sling Shackles

S-252/S-253

Grilletes de eslingas de redes para economizar eslingas
スリング・金属金具間接続用シャックル　吊绳与金属配件连接用卸扣

Same shackle to model S-280, but available in size 3.25 to 50 metric tons and in both a Screw Pin and Bolt, Nut and Cotter Pin configuration. Bolt (Pin) has a larger diameter that provides better load distribution.



S-252　　S-253

S-252 Bolt Type Sling Shackle

Unit Per Pc.

CODE	Round Sling Size (No.)	Web Slings Eye Width (mm)	Working Load Limit (t)	Weight Each (kg)
23 44 71	1 & 2	25	3.25	0.64
72	3 & 4	35	6.5	1.09
73	5 & 6	50	8.75	1.86
74	7 & 8	75	12.5	3.63
75	9 & 10	100	20.5	7.67
23 44 76	11 & 12	125	35	15.9
77	13	150	50	26.1

Note : Maximum Proof Load is 2.5 times the Working Load Limit.
Name of Mfr. : Crosby®

S-253 Screw Pin Sling Shackle

Unit Per Pc.

CODE	Round Sling Size (No.)	Web Slings Eye Width (mm)	Working Load Limit (t)	Weight Each (kg)
23 44 78	1 & 2	25	3.25	0.64
79	3 & 4	35	6.5	1.00
80	5 & 6	50	8.75	1.72
81	7 & 8	75	12.5	3.31
82	9 & 10	100	20.5	6.89
23 44 83	11 & 12	125	35	14.0
84	13	150	50	23.6

Note : Maximum Proof Load is 2.5 times the Working Load Limit.
Name of Mfr. : Crosby®

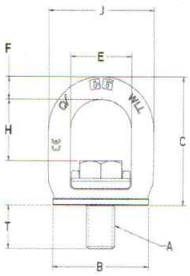
Slide-loc Lifting Points

SL-150

Puntos de suspensión con juntas deslizantes
スライドロックリフティングポイント　滑锁吊点部件

Available in capacities from 0.5 to 3.2 metric tons. Bail is Forged Alloy Steel – Quenched and Tempered, and swivels 360° degree. Meets the Machinery Directive 2006/42/EC guidelines and is marked with CE accordingly.





Unique locking mechanism makes the lifting point well suited for quick attachment to load surface. No need for tools.

Metric Thread

Unit Per Pc.

CODE	Bolt Size	Dimensions (mm)		Effective Thread Projection Length	Working Load Limit (ton)	Weight Each (kg)
		E	H	T		
23 44 91	M10 × 1.5 × 25	28.0	27.8	14.6	0.50	0.14
92	M12 × 1.75 × 30	33.0	32.9	18.3	0.75	0.23
93	M16 × 2 × 40	37.0	37.0	24.5	1.50	0.50
94	M20 × 2.5 × 50	43.9	43.6	31.0	2.30	0.94
95	M24 × 3 × 60	52.8	52.8	37.0	3.20	1.60

Note : Ultimate load is 4 times the Working Load Limit.
Name of Mfr. : Crosby®

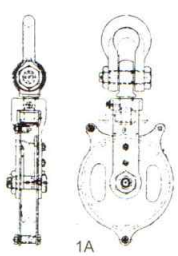
8. Steel Cargo Blocks

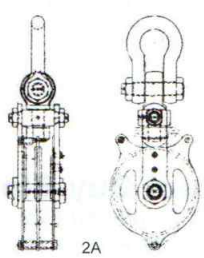
Steel Cargo Blocks

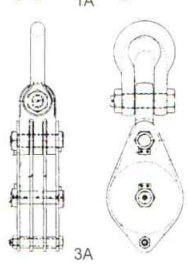
without Becket

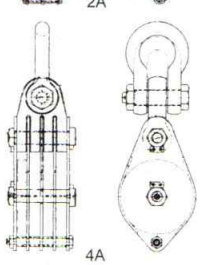
(Ref. JIS F 3421-1989)

Bloques de Carga de Acerosin Becket
船用荷役鋼製滑車 ベケット付き
钢制货物块 不带贝克特


1A


2A


3A


4A

How to order: CODE

Cargo block, steel, without becket, TYPE, NO. of SHEAVE and SHEAVE DIA.

Without Becket

Unit Per Pc.

CODE	Type	Sheave		Wire Rope Dia mm	Shackle SB or BB	SWL		Weight kg
		No.	Dia. mm			kN	tf	
23 15 01	1A	1	220	12.5	22	13.7	1.4	16
02			240	14	26	17.2	1.75	21
03			280	16	30	22.1	2.25	33
04			340	20	34	34.3	3.5	52
05			430	25	42	53.9	5.5	84
06			480	28	48	68.6	7.0	123
23 15 07	2A	2	240	14	34	63.7	6.5	47
08			280	16	38	83.4	8.5	67.5
09			340	20	46	127.5	13	114
10			430	25	60	206	21	205
11			480	28	70	275	28	314
23 15 12	3A	3	430	25	75	314	32	382
23 15 13	4A	4	430	25	80	392	40	490
23 15 14	1A	1	410	24	40	49	5	74
15	2A	2	410	24	60	186	19	145
16	3A	3	410	24	70	284	29	302
17	4A	4	410	24	80	353	36	370

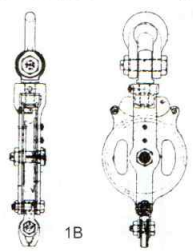
Denotes: 1-Single Block, 2-Double, 3-Triple, 4-Quadruple, A-Without Becket

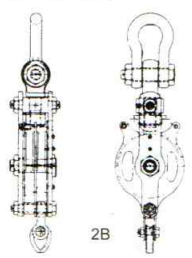
Steel Cargo Blocks

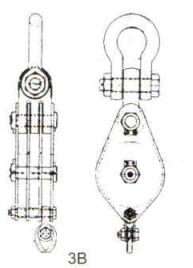
with Becket

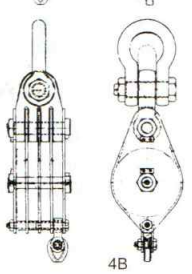
(Ref. JIS F 3421-1989)

Bloques de Carga de Acero con Becket
船用荷役鋼製滑車 ベケット付き　钢制货梯 带贝克特


1B


2B


3B


4B

How to order: CODE

Cargo block, steel, with becket, TYPE, NO. of SHEAVE and SHEAVE DIA.

With Becket

Unit Per Pc.

CODE	Type	Sheave		Wire Rope Dia mm	Shackle SB or BB	SWL		Weight kg
		No.	Dia mm			kN	tf	
23 15 21	1B	1	220	12.5	26	13.7	1.4	21
22			240	14	30	17.2	1.75	29
23			280	16	34	22.1	2.25	45
24			340	20	42	34.3	3.5	73
25			430	25	55	53.9	5.5	135
26			480	28	60	68.6	7.0	188
23 15 27	2B	2	240	14	38	78	8	59
28			280	16	40	98	10	79
29			340	20	55	157	16	155
30			430	25	65	245	25	253
31			480	28	75	333	34	381

(to be continued)

Unit Per Pc.

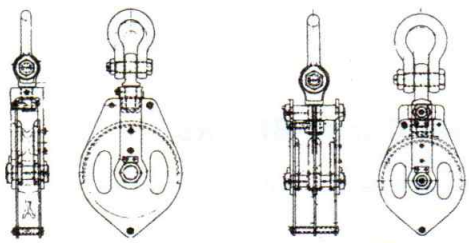
CODE	Type	Sheave No.	Sheave Dia mm	Wire Rope Dia mm	Shackle SB or BB	SWL kN	SWL tf	Weight kg
23 15 32	3B	3	430	25	80	353	36	416
23 15 33	4B	4	430	25	85	431	44	527
23 15 34	1B	1	410	24	50	49	5	81
35	2B	2	410	24	65	226	23	190
36	3B	3	410	24	75	324	33	309
37	4B	4	410	24	80	392	40	398

Denotes: 1-Single Block, 2-Double, 3-Triple, 4-Quadruple
B-With Becket

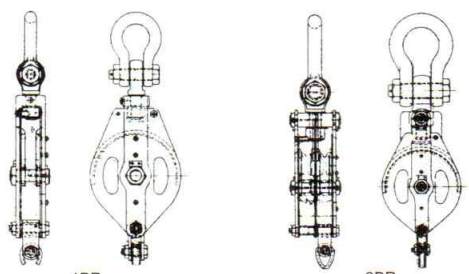
Steel Plate Cargo Blocks

with Roller Bearing
(Ref. JIS F 3429-1995)

Motones de Carga con Rodamiento Tipo Japanés
船用荷役鋳鋼製滑車（ころ軸受入り） 无索环单滑轮轴承吊货滑车



Without Becket



With Becket

How to order : CODE

Cargo block, steel plate, with roller bearing, WITHOUT or WITH BECKET, TYPE, NO. of SHEAVE and SHEAVE DIA

Without Becket

Unit Per Pc.

CODE	Type	Becket	Sheave Nos	Sheave Dia mm	Dia W.R. mm	Shackle SB or BB	SWL Tons	Wgt. kg
23 15 51	1AR	W/out	S'gle	340	20	34	3.5	58
52				430	25	42	5.5	96
53				480	28	48	7.0	131
23 15 54	2AR	W/out	D'ble	340	20	46	13.0	122
55				430	25	60	21.0	227

Denotes: 1-Single Block, 2-Double Block
R-With Roller Bearing, A-Without Becket

With Becket

Unit Per Pc.

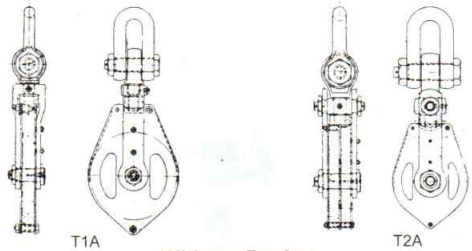
CODE	Type	Becket	Sheave Nos	Sheave Dia mm	Dia W.R. mm	Shackle SB or BB	SWL Tons	Wgt. kg
23 15 56	1BR	With	S'gle	340	20	42	3.5	77
57				430	25	55	5.5	147
58				480	28	60	7.0	198
23 15 59	2BR	With	D'ble	340	20	55	16.0	160
60				430	25	65	25.0	259

Denotes: 1-Single Block, 2-Double Block
B-With Becket, R-With Roller Bearing

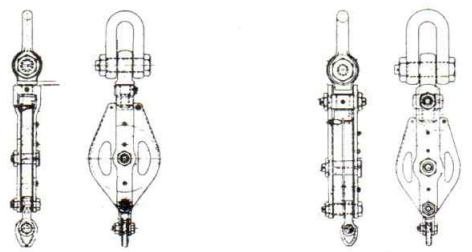
Steel Blocks

for Topping Unit
(Ref. JIS F 3427-1990)

Motones de Carga con Rodamiento
船用荷役つり索鋼製滑車 无索环钢制单滑轮转子轴承吊货滑车



Without Becket



With Becket

How to order: CODE

Block, steel, for topping unit, WITHOUT or WITH BECKET, TYPE, NO. of SHEAVE and SHEAVE DIA.

Without Becket

Unit Per Pc.

CODE	Type	Becket	Sheave Nos	Sheave Dia mm	Dia W.R. mm	Shackle	SWL Tons	Wgt. kg
23 15 66	T1A	W/out	S'gle	460	33.5	SB 60	11	143
67	T2A		D'ble	460	33.5	SB 85	42	330

Denotes: T - For Topping Unit
1 - Single Block, 2 - Double Block
A - Without Becket

With Becket

Unit Per Pc.

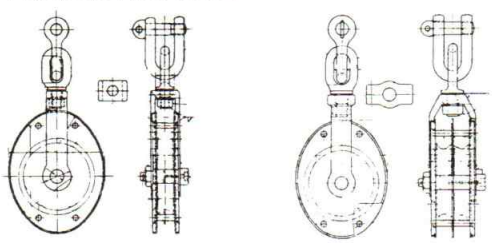
CODE	Type	Becket	Sheave Nos	Sheave Dia mm	Dia W.R. mm	Shackle	SWL Tons	Wgt. kg
23 15 68	T1B	With	S'gle	460	33.5	SB 75	11	217
69	T2B		D'ble	460	33.5	SB 90	50	350

Denotes: T - For Topping Unit
1 - Single Block, 2 - Double Block
B - With Becket

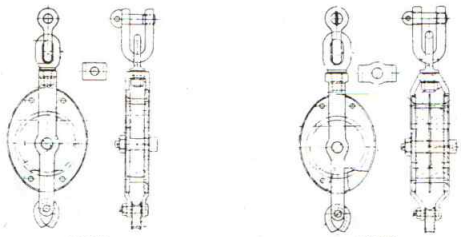
Steel Guy Blocks

with Swivel for Fibre Rope
(Ref. JIS F 3419-1990)

Motones de Cáncamo Giratorio para Cuerda
船用ロープガイ鋼製滑車（スイベル付）
无索环钢制转动式单滑轮导索滑车



Without Becket



With Becket

How to order: CODE

Guy block, steel, with swivel for fibre rope, WITHOUT or WITH BECKET, TYPE, NO. of SHEAVE and SHEAVE DIAM.

Unit Per Pc.

CODE	Type	Becket	Sheave Nos	Sheave Dia mm	Dia W.R. mm	Shackle	SWL Tons	Wgt. kg
23 15 71	MS1A	W/out	S'gle	160	24	SD 22	0.50	10.4
72	MS2A	"	D'ble	160	24	SD 24	1.80	14.5
73	MS1B	With	S'gle	160	24	SD 22	0.47	11.49
74	MS2B	"	D'ble	160	24	SD 24	2.20	15.50

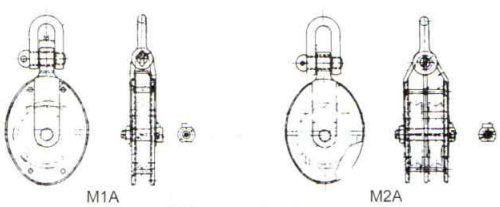
Denotes: M - For Hemp or Synthetic Fibre Rope
S - Wih Swivel
1 - Single Block, 2 - Double Block
A - Without Becket, B - With Becket

Steel Blocks

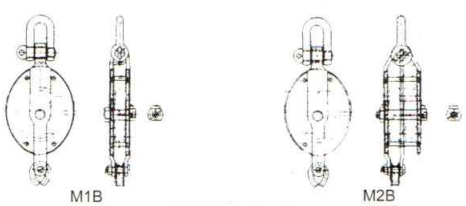
for Fibre Rope Guy

(Ref. JIS F 3424-1990)

Motones para Cuerda
船用ロープガイ鋼製滑車　船用鋼製遵索用轉動滑車



Without Becket



With Becket

How to order: CODE

Block, steel, for fibre rope guy, WITHOUT or WITH BECKET, TYPE, No. of SHEAVE and SHEAVE DIAM.

Unit Per Pc.

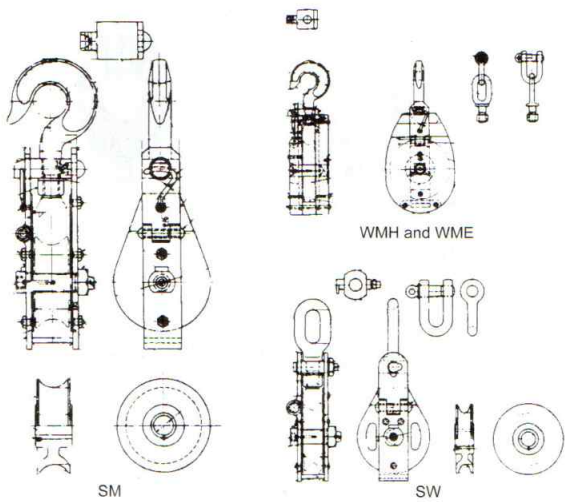
CODE	Type	Becket	Sheave Nos	Sheave Dia mm	Dia F.R. mm	Shackle	SWL Tons	Wgt. kg
23 15 76	M1A	W/out	S'gle	160	24	SD 22	0.50	8.88
77	M2A	"	D'ble	160	24	SD 24	1.80	14.4
78	M1B	With	S'gle	160	24	SD 22	0.47	10.0
79	M2B	"	D'ble	160	24	SD 24	2.20	15.0

Denotes: M - For Hemp or Synthetic Fibre Rope
1 - Single Block, 2 - Double Block
A - Without Becket, B - With Becket

Steel Snatch Blocks

(Ref. JIS F 3422-1990)

Pastecas de Acero　船用切欠き滑車　钩头式钢制开口滑车



How to order: CODE

Snatch block, steel, for USE, TYPE, SHEAVE DIAM.

Unit Per Pc.

CODE	Accessory	Nominal Size mm	Sheave Dia mm	Rope Dia mm	SWL kN	SWL tf	Wgt. kg
Type SM - Steel Snatch Block for Hemp or Synthetic Fibre Rope							
23 15 81	With Hook	200	200	65	12.3	1.25	30
Type SW - Steel Snatch Block for Wire Rope							
23 15 82	With Eye	160	160	20	9.8	1.0	12.1
83		200	200	25	19.6	2.0	27.1
84		240	240	28	29.4	3.0	47.6
Type WM - Wooden Snatch Block for Hemp or Synthetic Fibre Rope							
23 15 85	With Hook	260	160	24	4.9	0.5	10.0
86		330	200	30	7.4	0.75	17.8
23 15 87	With Eye	260	160	24	4.9	0.5	10.8
88		330	200	30	7.4	0.75	17.2

Denotes: S - Steel, W - Wood, M - Hemp or Synthetic Fibre Rope
2nd W - Wire Rope, H-Hook, E-Eye
Note: SM, SW - Nominal size is diameter of sheave.
WMH, WME - Nominal size is height of shell.

9. Wood Cargo Blocks

Internal Bound Wood Blocks

(Ref. JIS F 3426-1990)

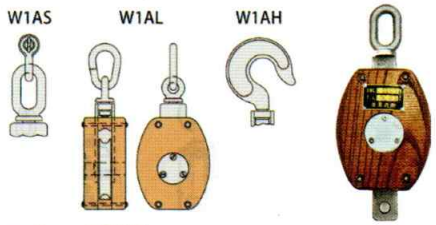
Motones y Cuadernales sin /con Gancho Cáncamo o Grillete
船用鋼帯木製滑車　钩头式单滑轮铁带木滑车

Code Table for Internal Bound Wood Blocks

Becket	Accessory	Model	Code No.
Without Becket	With Hook	W1AH	23 16 01 - 05
		W2AH	23 16 51 - 55
	With Link	W1AL	23 16 06 - 11
		W2AL	23 16 56 - 59
		W3AL	23 17 01 - 05
	With Shackle	W1AS	23 16 12 - 25
		W2AS	23 16 60 - 69
		W3AS	23 17 06 - 15
With Becket	With Hook	W1BH	23 16 31 - 35
		W2BH	23 16 71 - 75
	With Shackle	W1BS	23 16 36 - 45
		W2BS	23 16 76 - 85
		W3BS	23 17 21 - 30

Denotes: A - Without Becket, B - With Becket
H - With Hook, L - With Link
S - With Shackle

Single Sheave without Becket supplied with Hook, Link or Shackle



How to order: CODE

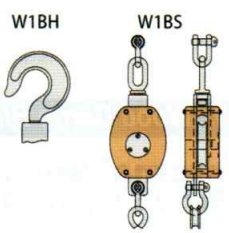
Wood block, single sheave, without becket, SYMBOL, TYPE, and SHELL HEIGHT

Unit Per Pc.

CODE	Symbol	Type	Becket	Shell Height	Sheave Nos	Sheave Size	Rope Size	SWL Tons	Wgt. kg
23 16 01				140		90	14	0.18	2.32
02				180		120	18	0.29	3.62
03	W1AH	Hook	W/ out	200	S'gle	130	20	0.35	4.73
04				220		140	22	0.42	6.48
05				240		160	24	0.50	8.44
23 16 06				180		120	18	0.29	3.62
07				200		130	20	0.35	4.73
08	W1AL	Link	W/ out	220	S'gle	140	22	0.42	6.48
09				240		160	24	0.50	8.44
10				280		180	28	0.66	12.11
11				300		200	30	0.75	14.24
23 16 12		Shackle SC 10 SD 12		140		90	14	0.18	2.32
13									
14		SC 10 SD 12		180		120	18	0.29	3.62
15									
16		SC 12 SD 14		200		130	20	0.35	4.73
17									
18	W1AS	SC 12 SD 16	W/ out	220	S'gle	140	22	0.42	6.48
19									
20		SC 14 SD 20		240		160	24	0.50	8.44
21									
22		SC 16 SD 20		280		180	28	0.66	12.11
23									
24		SC 18 SD 22		300		200	30	0.75	14.24
25									

Denotes: W - Wood, 1 - Single Block, L - Link, H - Hook
S - Shackle, A - Without Becket
Note: Nominal size is height of shell.

Single Sheave with Becket supplied with Hook or Shackle



How to order: CODE

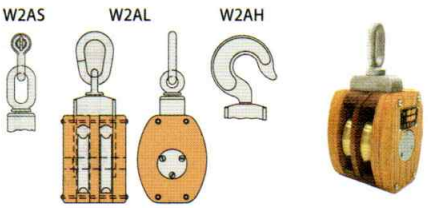
Wood block, single sheave, with becket, SYMBOL, TYPE, and SHELL HEIGHT

Unit Per Pc.

CODE	Symbol	Type	Becket	Shell Height	Sheave Nos	Sheave Size	Rope Size	SWL Tons	Wgt. kg
23 16 31				140		90	14	0.17	2.77
32				180		120	18	0.27	4.82
33	W1BH	Hook	With	200	S'gle	130	20	0.33	5.77
34				220		140	22	0.40	8.16
35				240		160	24	0.47	10.33
23 16 36		Shackle SC 10 SD 12		140		90	14	0.17	2.77
37									
38		SC 12 SD 16		180		120	18	0.27	4.82
39									
40	W1BS	SC 14 SD 16	With	200	S'gle	130	20	0.33	5.77
41									
42		SC 14 SD 20		220		140	22	0.40	8.16
43									
44		SC 18 SD 22		240		160	24	0.47	10.33
45									

Denotes: W - Wood, 1 - Single Block, B - With Becket, H - Hook, S - Shackle
Note: Nominal size is height of shell.

Double Sheaves without Becket supplied with Hook, Link or Shackle



How to order: CODE

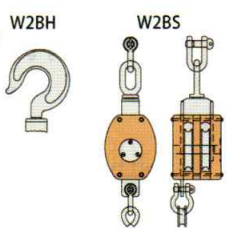
Wood block, double sheave, without becket, SYMBOL, TYPE, and SHELL HEIGHT

Unit Per Pc.

CODE	Symbol	Type	Becket	Shell Height	Sheave Nos	Sheave Size	Rope Size	SWL Tons	Wgt. kg
23 16 51				140		90	14	0.66	3.69
52				180		120	18	1.10	6.30
53	W2AH	Hook	W/out	200	D'ble	130	20	1.30	8.96
54				220		140	22	1.60	10.55
55				240		160	24	1.80	14.18
23 16 56				180		120	18	1.10	6.30
57	W2AL	Link	W/out	200	D'ble	130	20	1.30	8.96
58				220		140	22	1.60	10.55
59				240		160	24	1.80	14.18
23 16 60		Shackle SC 12 SD 14		140		90	14	0.66	3.69
61									
62		SC14 SD20		180		120	18	1.10	6.30
63									
64	W2AS	SC16 SD20	W/out	200	D'ble	130	20	1.30	8.96
65									
66		SC18 SD22		220		140	22	1.60	10.55
67									
68		SC18 SD22		240		160	24	1.80	14.18
69									

Denotes: W - Wood, 2 - Double Block, A - Without Becket, H - Hook, L - Link, S - Shackle
Note: Nominal size is height of shell.

Double Sheaves with Becket supplied with Hook or Shackle



How to order : CODE

Wood block, double sheave, with becket, SYMBOL, TYPE, and SHELL HEIGHT

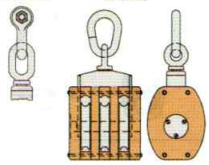
Unit Per Pc.

CODE	Symbol	Type	Becket	Shell Height	Sheave Nos	Sheave Size	Rope Size	SWL Tons	Wgt. kg
23 16 71				140		90	14	0.79	4.39
72				180		120	18	1.30	7.30
73	W2BH	Hook	With	200	D'ble	130	20	1.60	10.11
74				220		140	22	1.90	12.12
75				240		160	24	2.20	17.04
23 16 76		Shackle SC 12 SD 16		140		90	14	0.79	4.39
77									
78		SC 16 SD 20		180		120	18	1.30	7.30
79									
80	W2BS	SC 18 SD 22	With	200	D'ble	130	20	1.60	10.11
81									
82		SC 18 SD 22		220		140	22	1.90	12.12
83									
84		SC 20 SD 24		240		160	24	2.20	17.04
85									

Denotes: W - Wood, 2 - Double Block, B - With Becket, H - Hook, S - Shackle
Note: Nominal size is height of shell.

Triple Sheaves without Becket
supplied with Link or Shackle

W3AS W3AL



How to order: CODE
Wood block, triple sheave, without becket, SYMBOL, TYPE, and SHELL HEIGHT

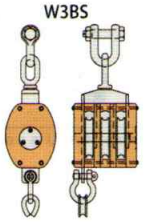
Unit Per Pc.

CODE	Symbol	Type	Becket	Shell Height	Sheave Nos	Sheave Size	Rope Size	SWL Tons	Wgt. kg
23 17 01	W3AL	Link	W/out	200	T'ple	130	20	1.8	12.25
02				220		140	22	2.1	16.24
03				240		160	24	2.5	20.65
04				280		180	28	3.3	29.08
05				300		200	30	3.8	35.89
23 17 06	W3AS	Shackle SC 18 SD 22	W/out	200	T'ple	130	20	1.8	12.25
07									
08		SB 20 SD 24		220		140	22	2.1	16.24
09									
10		SB 22 SD 26		240		160	24	2.5	20.65
11									
12		SB 24 SD 28		280		180	28	3.3	29.08
13									
14		SB 26 SD 30		300		200	30	3.8	35.89
15									

Denotes: W - Wood, 3 - Triple Block, A - Without Becket, L - Link, S - Shackle
Note: Nominal size is height of shell.

Triple Sheaves with Becket
supplied with Shackle

W3BS



How to order: CODE
Wood block, triple sheave, with becket, SYMBOL, TYPE, and SHELL HEIGHT

Unit Per Pc.

CODE	Symbol	Type	Becket	Shell Height	Sheave Nos	Sheave Size	Rope Size	SWL Tons	Wgt. kg
23 17 21	W3BS	Shackle SC 18 SD 22	With	200	T'ple	130	20	2.0	13.61
22									
23		SB 20 SD 24		220		140	22	2.4	17.72
24									
25		SB 22 SD 26		240		160	24	2.8	22.87
26									
27		SB 26 SD 30		280		180	28	3.7	32.95
28									
29		SB 26 SD 34		300		200	30	4.2	42.28
30									

Denotes: W - Wood, 3 - Triple Block, B - With Becket, S - Shackle
Note: Nominal size is height of shell.

External Bound Wood Blocks
with Thimble and Shackle
(Ref. JIS F3423-1982)

Motones y Cuadernales con Guardacabos Horquillas
船用鋼索帯木製滑車 卸扣式外索単滑轮木滑车（带套环）



W1 and W2 Cross Section of Shell W1

How to order: CODE
Wood block, external bound, with thimble and shackle, TYPE, SHELL HEIGHT, TYPE of SHACKLE and THIMBLE, and NO. of SHEAVE

Unit Per Pc.

CODE	Type	Shell Height	Shackle	Thimble	Sheave Nos	Sheave Size	Rope Size	SWL Tons	Wgt. kg
23 17 41	W1	100	SD 10	B 8	S'gle	65	10	0.40	0.62
42		120	SD 12	B 10		80	12	0.52	1.10
43		140	SD 14	B 12		90	14	0.72	2.74
44		180	SD 20	B 16		120	18	1.16	3.90
23 17 45	W2	100	SD 10	B 8	D'ble	65	10	0.70	0.72
46		120	SD 12	B 10		80	12	0.98	1.44
47		140	SD 14	B 12		90	14	1.32	4.48
48		180	SD 20	B 16		120	18	2.20	8.58

Denotes: W - Wood, 1 - Single Block, 2 - Double Block
Note: Nominal size is height of shell.

Handy Billy

Bombillo Portátil de Achique (Billy Cómodo)
テークル 手动滑车

A tackle comprising of a rope and a double and single block. Used in light lifting work around the ship.



Combination Table

Rope Diam mm	Block Type Upper	Block Type Lower	S.W.L. Ton
14	140W2AS	140W1BS	0.17
18	180W2AS	180W1BS	0.27
20	200W2AS	200W1BS	0.33
22	220W2AS	220W1BS	0.40
24	240W2AS	240W1BS	0.47

Note: Length of rope is indefinite.
Denotes: W - Wood, 1 - Single Block, 2 - Double Block
A - Without Becket, B - With Becket, S - Shackle

Lashing Snatch Blocks

Pastecas de Retorno para Cables, de Bisagra
ラッシングスナッチブロック 捆绑用凹槽滑车

Has a safe and easily operated locking device with a 150 mm sheave diam. Applicable wire rope sizes are 18, 20 and 22 mm diameter. Weight 12 kg. S.W.L. 5 tons. Test load 15 tons.



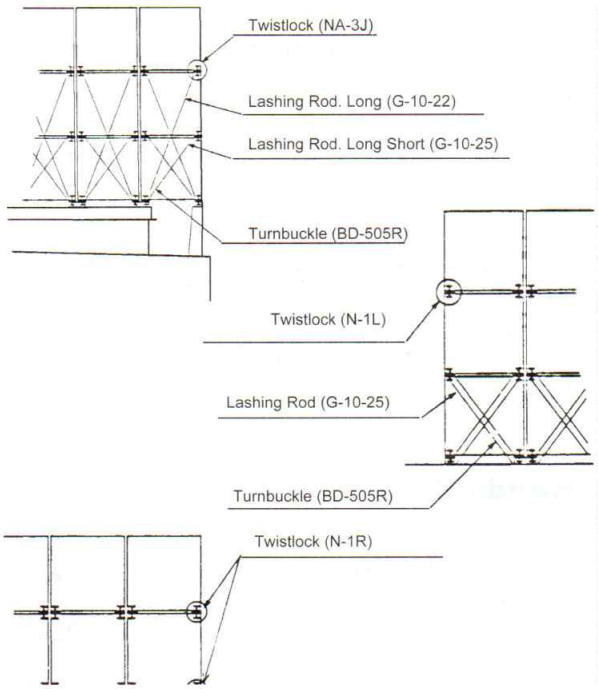
23 17 51	Lashing snatch block, 150 mm S.W.L. 5 tons	Pc.

10. Container Lashings

Container Lashing and Securing Gears

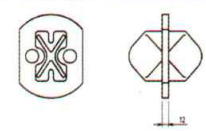
Trincage de Contenedores
コンテナーラッシング用具 集装箱底角（镀锌）

The lashing gear and lashing systems described below will ensure the safety of cargo during transport, secured efficiently with the minimum amount of lashing used. From among a wide range of products, the most popular models are illustrated below with the respective specifications.

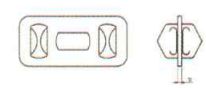


Stackers

Unit Per Pc.

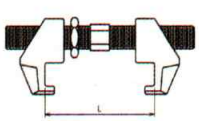


CODE	**23 18 01**
Model	M-1G
Type	Single Stacker
Flange Thickness	12 mm
Weight	2.8 kg
Finish	Galvanized



CODE	**23 18 02**
Model	M-3
Type	Double Stacker
Flange Thickness	12 mm
Pitch of Cone to Cone	204 mm
Weight	8.3 kg
Finish	Painted with Primer

Bridge Fittings

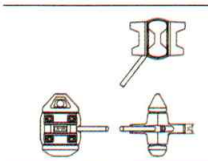


Unit Per Pc.

CODE	**23 18 06**
Model	L-3L
Feature	Allowable container distance: L: 102 - 294 mm
Weight	4.9 kg
Finish	Galvanized

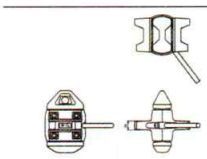
Twistlocks

Unit Per Pc.

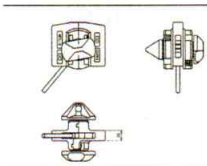


CODE	**23 18 11**
Model	N-1R
Feature	Right Hand Lock
Flange Thickness	25 mm
Weight	5.6 kg
Min. B.L.	500 kN
Finish	Galvanized

(to be continued)



CODE	**23 18 12**
Model	N-1L
Feature	Left Hand Lock
Flange Thickness	25 mm
Weight	5.6 kg
Min. B.L.	500 kN
Finish	Galvanized



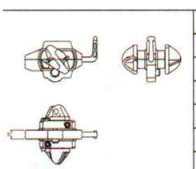
CODE	**23 18 13**
Model	MTL-2
Feature	Left Hand Lock
Flange Thickness	30 mm
Weight	6.4 kg
Min. B.L.	500 kN
Finish	Galvanized

Semi-Auto Twistlocks

When loading the containers, put the semi-auto twistlocks in the bottom corner fittings of the containers at quay, the twistlocks will be locked automatically by putting on the other containers. The NA-3J twistlock is locked with the handle in the horizontal position.

When unloading the containers, unlock the twistlocks by using the bar and remove the semi-auto twistlocks from the containers at quay.

Unit Per Pc.



CODE	**23 18 31**
Model	NA-3J
Feature	Horizontal Lock
Flange Thickness	29 mm
Weight	7.2 kg
Min. B.L.	500 kN
Finish	Galvanized

Note: NA-3J is a dual function type twistlock.

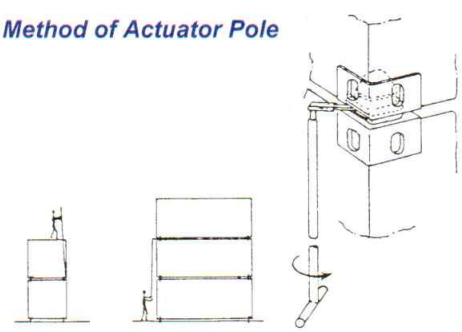
Actuator Poles (Aluminium)

Unit Per Pc.

	CODE	Model	Length	Material
	**23 18 16**	N-OV-V	1.8 m	Aluminium
	17	-14	4.3 m	
	18	-22	6.7 m	
	**23 18 21**	N-OH	1.8 m	Aluminium
	22	-14	4.3 m	
	23	-22	6.7 m	
	**23 18 26**	N-OV-U	1.8 m	Aluminium
	27	-14	4.3 m	
	28	-22	6.7 m	

Note: The above models, made of aluminum, can be divided at any length.

Handling Method of Actuator Pole



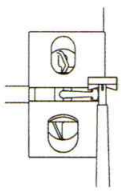
Actuator Poles (Carbon Glass Fiber)

Unit Per Pc.

CODE	Model	Length	Material
23 18 33	RL-R-50	5.0 m	Carbon Glass Fibre
34	RL-R-20	2.0 m	
35	RL-R-29 (JOINT)	2.9 m	

Note: The length of the above models, made of carbon glass fiber, cannot be changed.

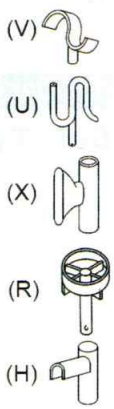
How to use (RL-R)



The shape of the head piece depends on the type of twistlock.

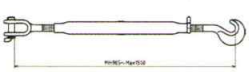
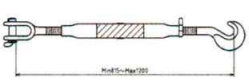
V, U, X and R: Vertical
H: Horizontal

Choose the material (aluminium or carbon glass fiber), length, and shape of the head piece.

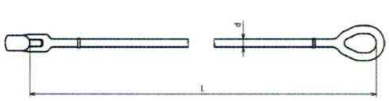


Turnbuckles

Unit Per Pc.

Size: mm	CODE	23 18 36
	Model	BD-505R
	Feature	Jaw Bolt, Hook Bolt, Pipe Body
	Size	As Per Sketch
	Weight	14.0 kg
	Min. B.L.	500 kN
	Finish	Galvanized
Size: mm	CODE	23 18 37
	Model	BF-505R
	Feature	Jaw Bolt, Hook Bolt, Flame Body
	Size	As Peer Sketch
	Weight	14.9 kg
	Min. B.L.	500 kN
	Finish	Galvanized
Size: mm	CODE	23 18 38
	Model	BD-505RS
	Feature	Jaw Bolt, Swivel Hook, Pipe Body
	Size	As Per Sketch
	Weight	11.3 kg
	Min. B.L.	500 kN
	Finish	Galvanized

Hinge Rod G-10

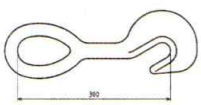


Unit Per Pc.

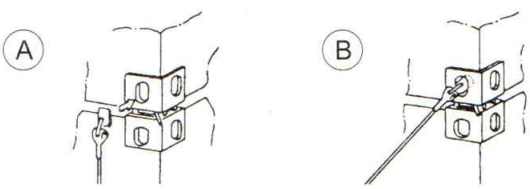
CODE	Model	Rod Diam. mm	Length mm	Proof Test Load Tons	Min. B/L Tons
		Short			
23 18 74	G-10-25	25	2,100	37.5	50.0
		Long			
23 18 76	G-10-22	22	4,700	27.0	36.0

Extension Rods

Unit Per Pc.

Size: mm	CODE	23 18 81
	Model	G-8-50
	Size	As Per Sketch
	Weight	3.0 kg
	Min. B.L.	500 kN
	Finish	Galvanized

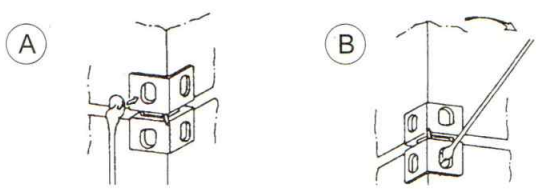
Handling Method of Lashing Rod



Upper Lashing

A Insert hinge rod into the lower end hole of third tier container.

B Swing the other end to cross lashing direction and tighten with the turnbuckle.



Lower Lashing

A Insert the hook of a short lashing rod into the lower end hole of the second tier container.

B Swing the other end to cross the lash and tighten it with the turnbuckle.



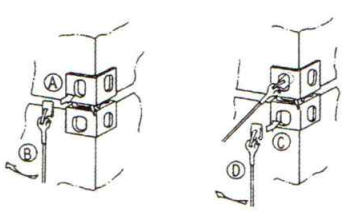
Handling method of the Hinged Lashing Rod. Same lashing rods and turnbuckles as mentioned above.

"Parallel Lashing System"

When the parallel lashing system is used, the lashing is made by applying the hinge rod to the lower end hole of the second tier container. The same hinge rod should also be applied to the upper end hole of the first tier container.

The lashing length is adjusted with the turnbuckle. A sagged, slacked, or overfastened lashing is not desirable.

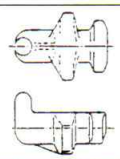
The lashing should be adjusted to the proper level with the turnbuckle.



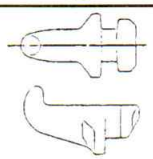
A. Insert the hinge rod into the bottom hole of the second tier container.
B. Turn the fitting to secure the internal cross lashing.
C. Insert the hinge rods into the upper end hole of the first tier container.
D. Turn the fitting to secure the internal cross lashing with the turnbuckle.

Corner Hooks

Unit Per Pc.



CODE	**23 18 83**
Model	CH-1
Weight	2.7 kg
Feature	Preferable for Bar Lashing
Finish	Galvanized



CODE	**23 18 84**
Model	CH-2
Weight	2.7 kg
Feature	Permit Crossing of 2 Lashing Bars
Finish	Galvanized

Lashing Chains

Unit Per Pc.

CODE	**23 18 91**
Model	LC-23-20
Feature	Both End Hook
B. L.	20.0 Tons
Finish	Dip Tar Epoxy
Length	As Per Request
Chain Tensioners	
CODE	**23 18 92**
Model	CT-1-20
B. L.	20.0 Tons
Finish	Dip Tar Epoxy



Cargo Lashing Belt

Cinturón de Amarre de Carga　カーゴラッシングベルト　货物绑带



Used to secure cargo or goods on deck to protect cargo from moving which leads to accidents. Typically made with a nylon or polyester and it can be fastened with metal buckle.

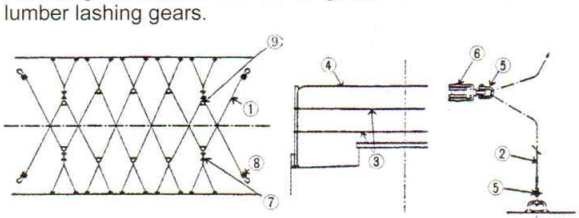
Unit Per Pc.

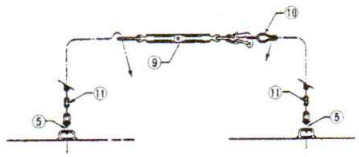
CODE	Size	Length	CODE	Size	Length
23 21 88	1"	1 mtr	**23 21 97**	2"	1 mtr
89	1"	2 mtr	**98**	2"	2 mtr
90	1"	3 mtr	**99**	2"	3 mtr

Lumber Lashing Gears

Trincage de Madera　木材ラッシング用具　木材捆绑链条

Following illustrations will be of guidance in how to order lumber lashing gears.





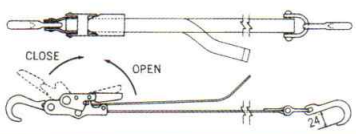
① ③ ④ Lashing Wire, Standard size is 22-26 mm ø, 6 x 24
② Pendant Wire
Loop at both ends, Standard size is 20 mm ø,6 x 24
⑤ Shackle B/L 20T or 30T
⑥ Snatch Block
⑦ Turnbuckle
⑧ Wire Rope Clip
⑨ Turnbuckle for Lumber Lashing, PTL: 8.0T, BL: 20.1T
⑩ Grab Link with long link, PTL: 5.6T, BL: 14.1T
⑪ Lashing Chain End Link at both ends BL: 18.0T

11. Car Claspers

Belt Type Car Claspers

Catraca Cinta Poliester　ベルト式カークラスパー　皮带式车辆固定器

Made of polyester belt with hooks at both end and used for fixing cars on deck for car careers. Max. length between hook and hook will be 1,350 mm and firmly secured by tightening lever.



Safe Working Load	400 kg
Max. Breaking Load	1,600 kg
Length	Max. 1,400 mm
	Min. 400 mm
Weight	0.9 kgs

23 19 01	Car clasper, belt type, normal working load 400 kg	Pc.

12. Ladders

Pilot Ladders

Escalas de Práctico　パイロットラダー　木质舷梯

Manufactured in compliance with ISO 799-1:2019

Excerpt of Pilot Ladder Rules

1. Side Ropes
Each side rope shall be mildew-resistant manila rope, or a spun thermoset polyester rope with a polypropylene core of a colour that contrasts with the spun polyester. Ropes shall have a breaking strength of at least 24 kN, and the diameter should be 20 mm (63 mm circumference).

2 Steps
The distance of inner edge of side ropes should be more than 400 mm. The centre of each hole shall be at least 50 mm from the short edge of the step. The width of step is no less than 115 mm, and thickness no less than 25 mm. Each step shall be equally spaced at 330±20 mm, of one-piece construction, of either hardwood or resilient plastic or rubber material, and its surface is grooved or patterned, or of a textured non-skid type which shall be integral with the step and shall be either moulded or cut into the step with the nominal depth of 3 mm. Non-skid adhesive sheeting may not be used.

3. The bottom 4 steps shall be made only of resilient synthetic or rubber materials. The rest of the ladder steps shall be of either hardwood or synthetic material.

4. Spreader Steps
Each spreader step shall meet the requirements for other ladder steps, except that each spreader step shall be at least 1.8 meter long.

Number of steps and relative positions of spreaders

No. of Steps	The position of Preventer Steps	No. of Steps	The position of Preventer Steps
6	5	22	5, 14
7	5	23	5, 14, 21
8	5	24	5, 14, 22
9	5	25	5, 14, 23
10	5	26	5, 14, 23
11	5	27	5, 14, 23
12	5	28	5, 14, 23
13	5	29	5, 14, 23
14	5, 12	30	5, 14, 23
15	5, 13	31	5, 14, 23
16	5, 14	32	5, 14, 23, 30
17	5, 14	33	5, 14, 23, 31
18	5, 14	34	5, 14, 23, 32
19	5, 14	35	5, 14, 23, 32
20	5, 14	36	5, 14, 23, 32
21	5, 14		

Remark: Spreader-step positions are determined by the step number counted from the bottom of the ladder.

5. Replacement Steps
Damaged steps shall be replaced with replacement steps meeting the relevant requirements in item 2 and 4, and shall not include more than two replacement steps and one replacement spreader step. If a ladder requires a third replacement step or a second replacement spreader step, it shall be rebuilt.

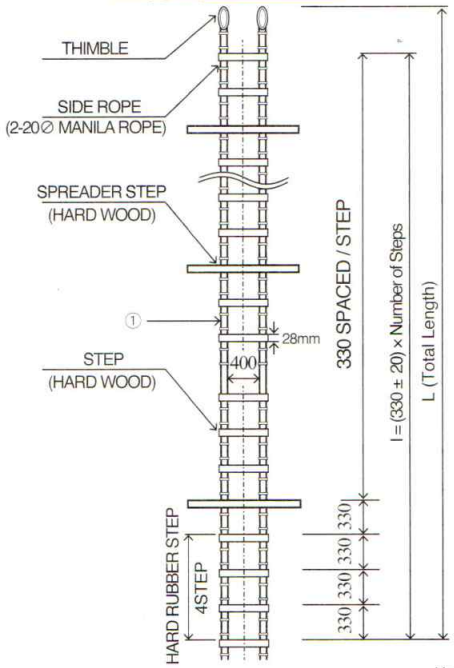
6. Step Fixing Piece
Step fixtures shall have rope seizing or purpose made arrangement such as solid nylon clamp blocks or hardwood clamp blocks to prevent the fasteners from loosening. Cable ties, u-clamps, worm driven clips are unacceptable.

7. Fastening Hardware
Each metal fastener shall be made of material which is inherently or treated to be corrosion resistant. Ferrous metal part (not stainless steel) shall be coated in accordance with ISO 1461, stainless steel part shall be of a marine grade alloy with a corrosion resistance at least equal to grade "4401-316-00l" in ISO 15510:2014, aluminium part shall be 5 254 alloy or other grade containing not more than 0.06 % copper in accordance with ISO 209:2007. Metals in contact with each other shall be galvanically compatible, or insulated to prevent galvanic corrosion in a marine environment.

8. Marking
The bottom of the top step and bottom of the lowest spreader step of the ladder shall be marked with:
a) the name and address of the manufacturer;
b) the manufacturer's model designation;
c) "ISO 799-1" and "SOLAS";
d) the year of assembly or reassembly of the ladder;
e) identification of the approved maritime safety administration, along with any approval indications required by that administration, and
f) where used, identification of an approved organization acting on behalf of the maritime safety administration.

The construction of the pilot ladder

A type pilot ladder

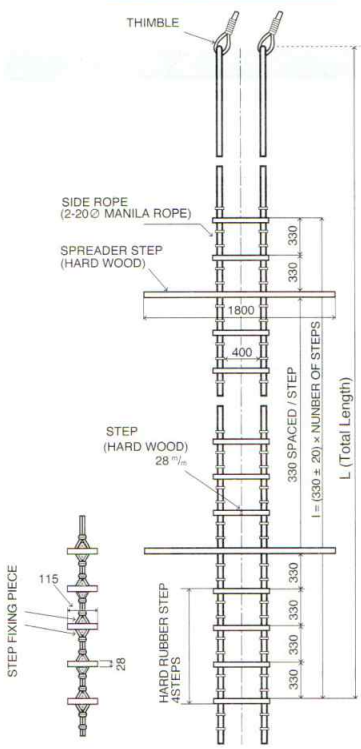


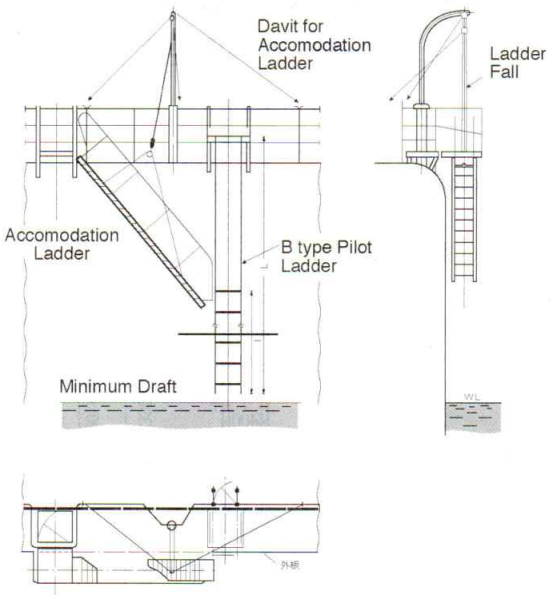
Unit Per Set

CODE	Type	Length	Numbers of	
			Total Steps	Preventer Steps
23 20 03	A	15 Mtr	45	5
04		12 Mtr	36	4
01		9 Mtr	27	3
02		6 Mtr	18	2

* Other length is also available on request.

B type pilot ladder



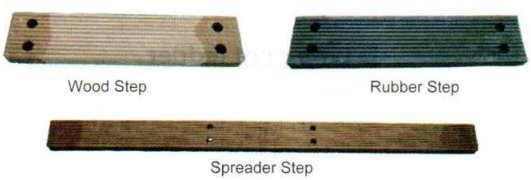


Unit Per Set

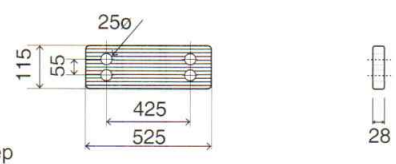
CODE	Type	Length	Numbers of	
			Total Steps	Preventer Steps
23 20 05	B	15 Mtr	45	5
06		12 Mtr	36	4
07		9 Mtr	27	3
08		6 Mtr	18	2

Remark:This length means "Step Length". Please specify the "Total length" and "Step length" when ordering B type pilot ladder.

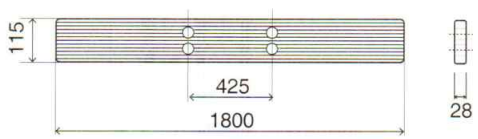
Steps



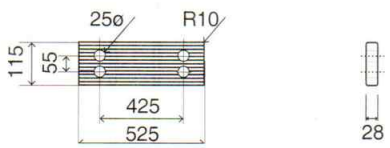
Wood Step



Spreader Step



Rubber Step



Step Fixing Piece

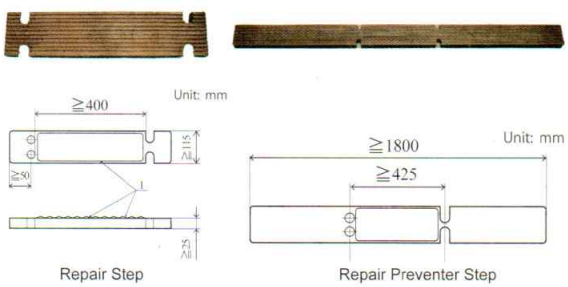
A permanent marking should be provided at regular intervals (e.g. 1 mtr) throughout the length of the ladder consistent with ladder design, use and maintenance in order to facilitate the rigging of the ladder to the required height.



Unit Per Pc.

CODE	Description	Material	Size L×W×TH mm
23 20 11 16	Step	Hard Wood Rubber	525 × 115 × 28
12	Preventer Step	Hard Wood	1,800 × 115 × 28
13	Step Fixing	Hard Wood	–

Repair Steps and Preventer Steps



Unit Per Pc.

CODE	Description	Material	Size L×W×TH mm
23 20 14	Repair Step	Hard Wood	525 × 115 × 25
15	Repair Preventer Step		1,800 × 115 × 25

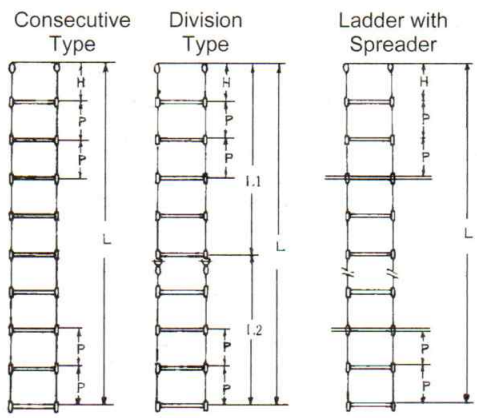
Aluminium Alloy Rope Ladders

with GS Type Oval Step

Escalas de Aleación de Alminio Tipo GS
アルミ合金 GS 型ステップロープライダー
铝合金 GS 型踏板绳梯

Aluminium alloy steps with synthetic fibre side rope. Light weight, easy handling, long life, non-corrosive, unbreakable, and very safe to the user. Suitable for various uses such as: – embarkation, liferaft, chain locker, draft survey, painting, etc.

Length of ladder, type of step, number of spreaders are optional, and are made to order according to the user's specifications.



Standard Specifications for the Rope Ladders	
Step Pitch	35 mmφ
Side Rope	14 mmφ Synthetic Fibre Rope
Step Type	GS-A, GS-B, GS-C, SD
Length	Option
Ladder Type	Consecutive Type Division Type Ladder with Spreader

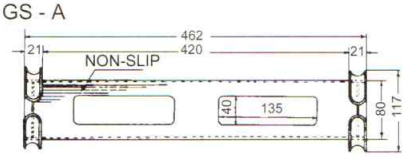
Aluminium Alloy Rope Ladder - Complete Set

How to order: 23 - 20 - 20

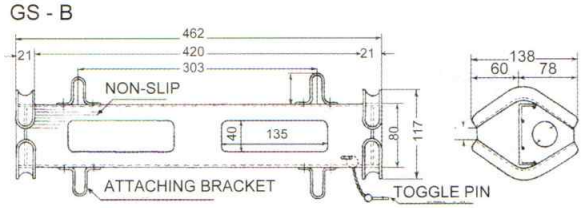
Rope Ladder, alum-alloy. (step type) x (ladder type) x (length), Specify the Ladder type, step type and length

Replacement Steps

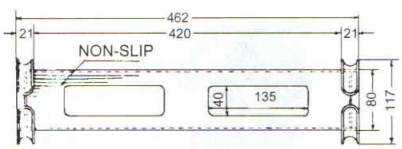
GS - A



GS - B

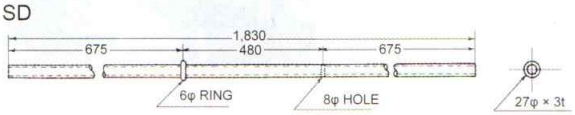


GS - C



Preventer

SD



Replacement Steps & Preventer only

CODE	Type	Size mm	Weight	Application
23 20 21	GS -A	117 × 462	580 grm	Step for general use
22	GS -B	117 × 462	650 grm	Step for using the SD
23	GS -C	117 × 462	800 grm	Step for use as the lowest step of the rope ladder and connecting another rope ladder with shackle
24	SD	27φ × 1,830	1,150 grm	A bar to prevent twisting the rope ladder, using with GS-B, IS-B type steps detachable when not required

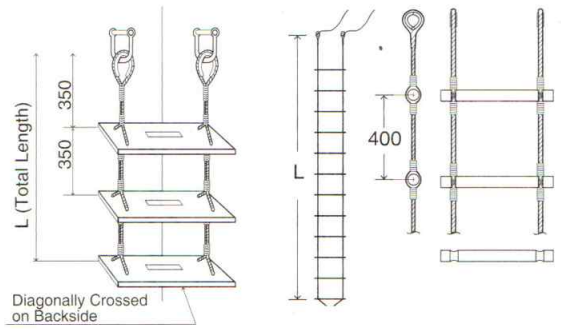
Rope Ladders

(Jacob's Ladders)

(Ref. JIS F3612-1990)

Escaleras de Bote Peldaño Plano (de Viento) なわばしご 登乗梯

Flat or round wooden rungs supported with Manila or Synthetic Fibre rope. Ideal for general purpose use.



Flat Step — Round Step (Jacob's Ladder)

Specifications			
Type	Flat Step (Ref. JIS F3612-1995)	Round Step (Jacob's Ladder)	
Size	L460×W100×T22 mm	Dia 36 mm × L460 mm	Dia 35 mm × L400 mm
Step Space	350 mm	400 mm	330 mm
Side Rope	Manila: 2×ø16 mm or Synthetic Rope: 2×ø14 mm	Manila: 2×ø18 mm or Synthetic Rope: 2×ø18 mm	
Length	User's Option		

How to order: 23 - 20 - 26

Ladder, rope, flat step, LENGTH

23 - 20 - 27

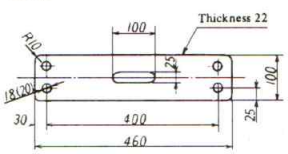
Ladder, Jacob's, round step (Dia 36 mm x L 460 mm), LENGTH

23 - 20 - 28

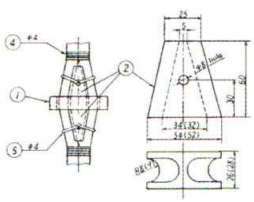
Ladder, Jacob's, round step (Dia 35 mm x L 400 mm), LENGTH (Normally supplied in European countries)

Replacement Steps and Split Distance Pieces for Flat Step Ladder

Step



Split Distance Piece



Made of hard wood and tested to withstand 735 N (75 kgf) load at the middle of the step.

23 20 41	Rope ladder step,hard wood, flat, L460 × W100 × T22 mm	Pc.
42	Split distance piece for 14 mm synthetic fibre rope, H60 × W54 × T26 mm	"
43	Split distance piece for 16 mm manila rope, H60 × W52 × T28 mm	"

Replacement Round Steps for Jacob's Ladder

Unit Per Pc.

CODE	23 20 44	23 20 45
Size mm	Dia 36 mm × L 460 mm	Dia 35 mm × L 400 mm

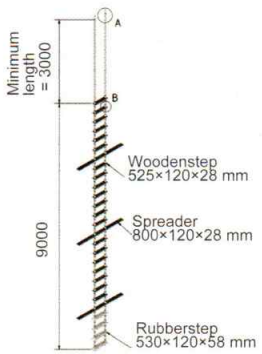
Pilot Ladders

as per latest MED/USCG Approved

Escalas de Práctico aprobadas por MED/USCG
MED/USCG 承認パイロットラダー
获 MED/USCG 认证的引航员梯

Steps have nonskidding surface and are secured with aluminium clamps. Ropes not painted or coated or covered and thimbles will be provided. Rope will be spliced to top on the ladder.

Two patterns of step thickness are available as indicated in the table below, but thinner size step is most common..



	Regular Step	Normalisation Step
Wooden Step	525 × 120 × 28 mm	525 × 115 × 63 mm
Spreader	1,800 × 120 × 28 mm	1,800 × 115 × 63 mm
Rubber Step	530 × 120 × 80 mm	530 × 120 × 80 mm

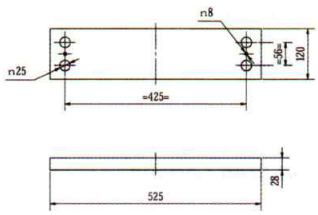
Unit Per Set

CODE	Length	Step Size
23 20 29	3 mtr	Regular
31	6 mtr	
32	9 mtr	
23 20 30	3 mtr	Normalisation
33	6 mtr	
34	9 mtr	

Regular Size Steps

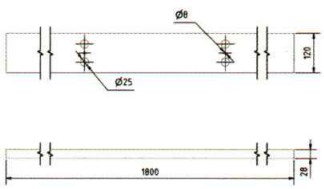


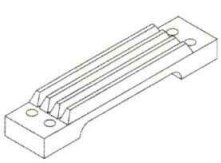
Regular Size Wooden Step



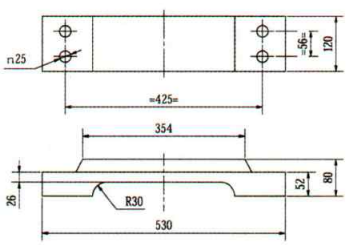


Regular Size Spreader Step

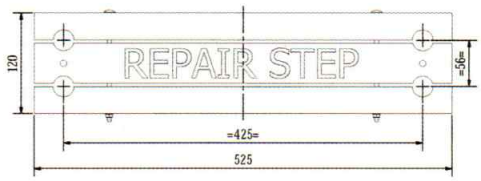




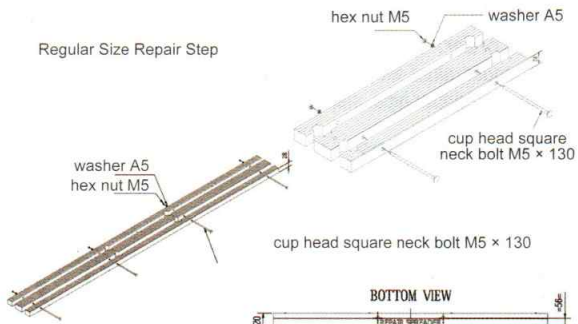
Regular Size Rubber Step

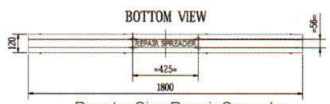


Regular Size Repair Steps



Regular Size Repair Step





Regular Size Repair Spreader

Regular Size Steps

Unit Per Pc.

CODE	Items	Size mm
23 20 35	Wooden Step	525 × 120 × 28
36	Spreader	1,800 × 120 × 28
37	Rubber Step	530 × 120 × 80
23 20 38	Repair Wooden Step	525 × 120 × 28
39	Repair Spreader	1,800 × 120 × 28

A permanent marking should be provided at regular intervals (e.g. 1 mtr) throughout the length of the ladder consistent with ladder design, use and maintenance in order to facilitate the rigging of the ladder to the required height.

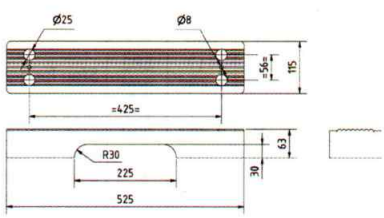




Normalisation Size Steps

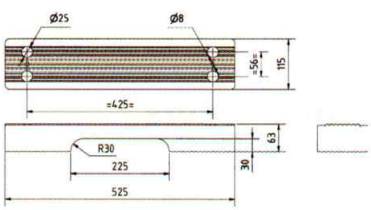


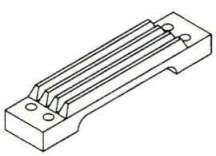
Normalisation Size Wooden Step



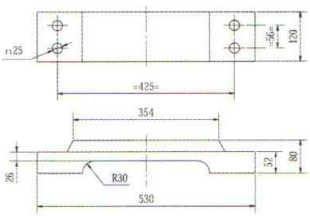


Normalisation Size Wooden Spreader

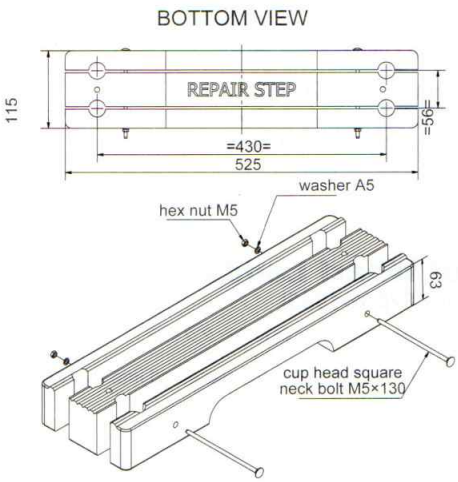




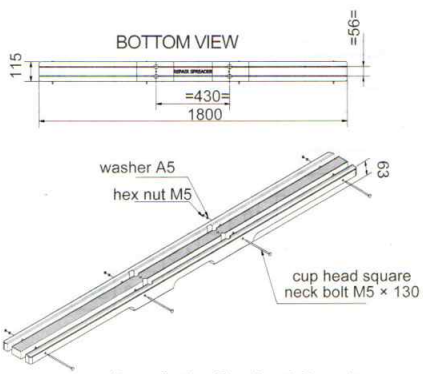
Normalisation Size
Rubber Step



Normalisation Size Repair Steps



Normalisation Size Repair Step



Normalisation Size Repair Spreader

Normalisation Size Steps

Unit Per Pc.

CODE	Items	Size mm
23 20 46	Wooden Step	525 × 115 × 63
47	Spreader	1,800 × 115 × 63
48	Rubber Step	530 × 120 × 80
23 20 49	Repair Wooden Step	525 × 115 × 63
50	Repair Spreader	1,800 × 115 × 63

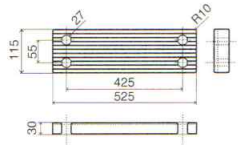
Embarkation Ladders

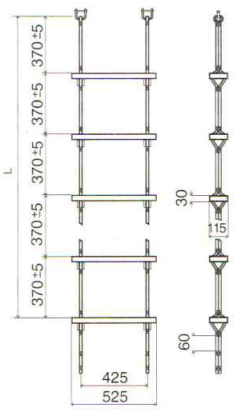
(Ref. E.L.M. J 2000)

Escaleras de embarque　乗込用はしご　救生登乗梯

The embarkation ladder is used on a merchant vessels to embark survival crafts.

Each wooden part must be hardwood that is free from knots, and each metal fastener must be made of a corrosion metal. Each side rope must be continuous from the top of the ladder to the bottom and must not be painted or otherwise coated or covered.





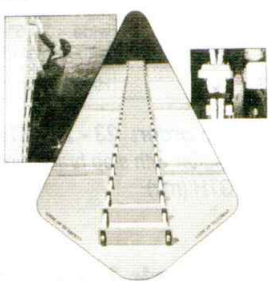
Specifications

Side Rope	Manila (or synthetic) rope with 2-3/4" cir. (22 mm dia)
Clear space between side rope	370 mm ± 5 mm
Step Size	W:115 mm x TH:30 mm x L:525 mm
Distance of center hole for each side rope	425 mm

23 20 52	Ladder, embarkation, length mtr, with further details	Set

Synthetic Step/Spreader and Rope Pilot Ladders

Escalas de Práctico Material Sintético
合成樹脂製パイロットラダー
引水梯



Steps and spreaders have hand holes and are molded from high-impact elastomer. Assembled with white dacron ropes, which have double the strength of manila ropes.

Connected by stainless steel bolts and nuts. Will resist fracturing and parting under severe conditions. Also this rope ladder conforms to USCG and meets the international requirements of the convention for SOLAS 1974.

- HIGH STRENGTH ALLOY
- STAINLESS STEEL FASTENINGS
- ELIMINATES UNRELIABLE MARLIN MOUSINGS
- EXCEEDS 2000 LB. REQUIRED LOAD TEST BY 100% MOLDED SYNTHETIC STEPS AND SPREADERS

Name of Mfr.: Coast Marine & Industrial Supply, Inc.

How to order: 23 - 20 - 56

Pilot ladder synthetic step/spreader and rope, finished length

Pilot Ladder with Step Brace Type

SOLAS Approved

Escala de Práctico con Tirante (aprobado por SOLAS)
沿え駒付きパイロットラダー　帯塾塞領航梯（SOLAS）認可

Fully comply with and exceed SOLAS Regulations and IMO Standards. These ladders are designed with new stainless steel clamping device tested to withstand loads up to 2,000

lbs (907.2 kilos). This new clamp will not slip or loosen with age. Manila rope and steps are fixed with hardwood step brace.

All steps are made from Ash hardwood, but the bottom 4 steps are furnished with in synthetic.



Pilot Ladder with all wood steps
Model No. PW

Pilot Ladder with bottom
4 - steps in synthetic
Model No. PWS

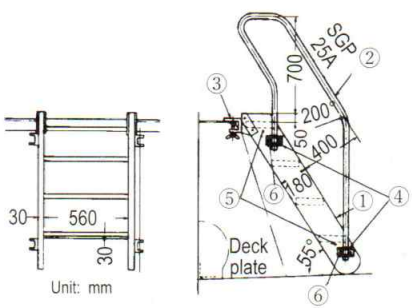
Specifications

1	Step	Ash hardwood 4.5" (115 mm) wide × 20.5" (520 mm) long × 1" (25 mm) thick.
2	Spreader	Ash hardwood 4.5" (115 mm) wide × 70" (1.8 m) long × 1" (25 mm) thick.
3	Step Brace	Ash hard wood
4	Clamp	Corrosion resistant stainless steel
5	Rope	Mildew-retardant manila 0.75" (19 mm) dia., 2.25" (65 mm) circ.
6	Lashing Ring & Thimble	Hot dipped galvanized lashing rings and thimble
7	Lanyard	10 ft. (3 mtr) lanyards with spliced in hot dipped galvanized ring and thimble for easy rope replacement
8	Lower 4 Steps	The 4 lower steps of pilot ladders are made with high impact Ultra-Poly synthetic 4.5" (115 mm) wide × 20.5" (520 mm) long × 1" (25 mm) thick with non-skid surface. Coloured safety orange.
9	Ties	High strength nylon-UV stabilized for longer life

How to order: 23 - 20 - 61
Pilot ladder with step brace type, SOLAS approved, TOTAL LENGTH (mtr)

Bulwark Ladders
(Ref. JIS F2614-1967)
Escala Amurada ブルワークラダー 舷梯

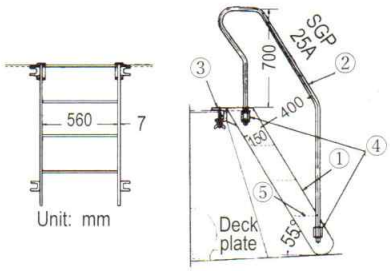
WOOD



1. Sideboard & Tread
2. Handrail
3. Securing Fitting
4. Handrail Socket
5. Tie Bolt
6. Hex. Bolt & Nut

How to order: 23 - 20 - 66
Bulwark ladder, wood, HEIGHT × WIDTH × HOOK TYPE & SIZE, (With further details if necessary)

STEEL

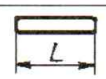
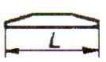
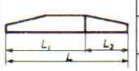


1. Side Plate
2. Handrail
3. Securing Fitting
4. Handrail Socket
5. Tread

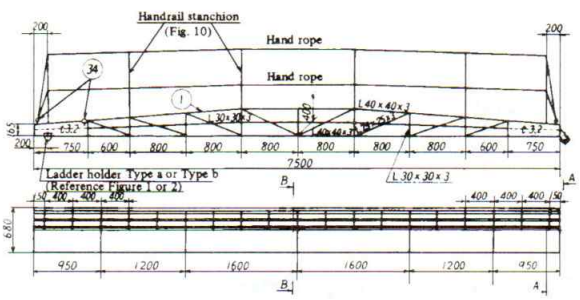
How to order: 23 - 20 - 67
Bulwark ladder, steel, HEIGHT × WIDTH × HOOK TYPE & SIZE, (With further details if necessary)

Steel Wharf Ladders
(Ref. JIS F2612-1990)
Pasarela - Escala de Muelle 鋼製ワークラダー 钢制码头梯子

These steel wharf ladders are classified into two types A (one body) and B (jointed).

Type	Shape	Dimensions m			Reference Calculated mass kg				
					Body				
		L	L_1	L_2	Part L_1	Part L_2	Total	Roller	Grand Total
A5		5	-	-	-	-	148	13	161
A7.5		7.5	-	-	-	-	188	13	201
B10		10	7	3	176	93	269	21	290
B12.5		12.5	8	4.5	262	179	441	21	462
B15		15	9	6	318	225	543	21	564

Type A-7.5



How to order: 23 - 20 - 71
Wharf ladder, steel, TYPE x OVERALL LENGTH x WIDTH, (With further details if necessary)

Handrail Stanchions and Sockets
for Steel Wharf Ladder

Pasamanos para Escalas de Muelle (Pasarelas)
鋼製ワーフラダー用スタンション及びソケット
钢制码头梯子的扶手支柱、套节

Steel made round bar for hanging hand rope at both sides of wharf ladder.

Please specify length "H" when ordering.

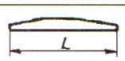
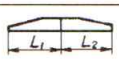
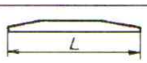
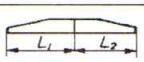
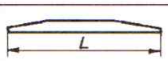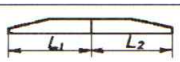


How to order: 23 - 20 - 72
Handrail stanchion and socket, steel for steel wharf ladder, LENGTH "H"

Aluminium Alloy Wharf Ladders
(Ref. JIS F2613-1990)

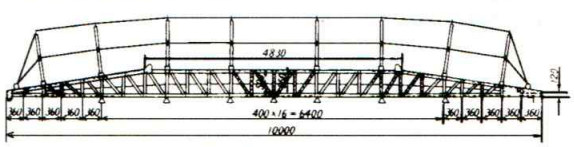
Escala de Muelle de Aluminio Aleado
アルミニウム合金製ワーフラダー　铝合金制码头梯子

These aluminium alloy wharf ladders are classified into two types A (one body) and B (jointed).

Type	Shape	Dimensions (m)			Calculated mass (kg)
		L	L_1	L_2	
A5		5	-	-	118
A7.5		7.5	-	-	168
A10		10	-	-	221
B10		-	5	5	244
A12.5		12.5	-	-	296
B12.5		-	6.25	6.25	319
A15		15	-	-	362
B15		-	7.5	7.5	388

Remarks: 1. Calculated mass does not include that of the handrail rope.
2. Calculated mass shows that of the ladder 600 mm in breadth.

Main structure A10



How to order: 23 - 20 - 76
Wharf ladder, aluminium alloy, TYPE x OVERALL LENGTH × WIDTH, (With further details if necessary)

Handrail Stanchions and Sockets
for Aluminium Alloy Wharf Ladder

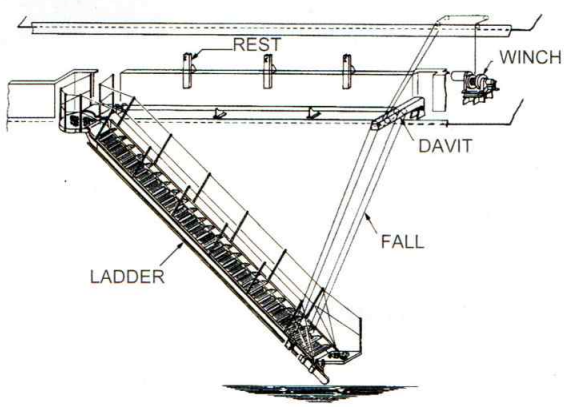
Escora de Pasamano y Enchufe para Escala de Aluminio
アルミニウム合金製ワーフラダー用スタンション及びソケット
铝合金岸梯子的扶手支柱、套节

Aluminium alloy made round bar for hanging hand rope at both sides of wharf ladder. Standard length between center of the eye for handrail rope and other end is 990mm for JIS type aluminium alloy wharf ladder, but in other case please specify the length according to the specification of the wharf ladder in use.

How to order: 23 - 20 - 77
Handrail stanchion and socket, aluminium alloy, for aluminium alloy wharf ladder, LENGTH

Aluminium Alloy Accommodation Ladders

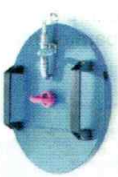
Escala Real de Aleación de Aluminio
アルミニウム合金製船側はしご　铝合金制舷梯

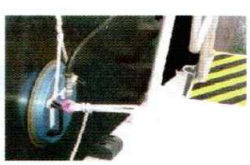


How to order: 23 - 20 - 81
Accommodation ladder, aluminium alloy, NOMINAL SIZE (LENGTH) x WIDTH, (Further details are available upon request)

Securing Suction Pads
for Accomodation Ladder "Blue Box"

Almohadillas de succión de agarre para la escala de práctico "Blue Box"
アコモデーションラダー固定用パッド　引航员软梯固定吸盘





Used to secure the bottom of the accommodation ladder to the ship's side and insures the accommodation ladder rests firmly against the ships side. (Requested by the amendments 2000 to the SOLAS regulation, Chapter V, Regulation 23 'Pilot Transfer Arrangement') The arrangement shall be provided to enable the pilot to embark and disembark safely on either side of the ship by an accommodation ladder in conjunction with the pilot ladder, or other equally safe and convenient means, whenever the distance from the surface of the water to the point of access to the ship is more than 9 meters.

Can be operated from free supplied deck air at 6 to 7 kgf/cm^2, and the unit is made from non ferrous material therefore is resistant to corrosion. Class ABS certified.

Specifications:

Pressure range: 25 to 102 p.s.i.

Consumption of compressed air: 26.4 Nl/min

Right angle holding force: About 3,200 N at 80& vacuum
Weight: 7 kg

23 20 91	Securing suction pad for accommodation ladder,'Blue Box'	Pc.

Name of Mfr.: PTR Holland Group

Securing Device

for Pilot Ladder

Almohadillas de succión deagarre para la escala de práctico
パイロットラダー固定装置　引航员软梯固定吸盘



Developed to make sure the pilot ladder is stabile for the pilot and can safely board and disembark from the ship. By using two vacuum generated spreaders can always secure the ladder firmly regardless the thickness of the paint on the ship, even if the surface is not smooth and has chipped paint. The required pressure range to this device is 1.4 – 4.0 bar, and has holding force at 715 kg.

The device complies with the new SOLAS regulations 1045 (27), and Class Lloyd's certified.

23 20 92	Securing suction pad for ladder, SPT-928	Set

Name of Mfr.: PTR Holland Group

Holding Magnets

for Pilot Ladder

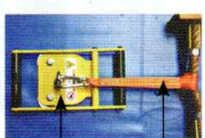
Imanes de sujeción para la escala de práctico
パイロットラダー固定用マグネット　引航员软梯固定磁铁

Specially developed to make life safer for sea harbor pilots by providing removable anchor points for the ladder on the ship's side. Designed to withstand aggressive marine environments, and powder-coating in safety yellow for high visibility. Resin encapsulation of magnetic elements makes the product seaworthy.

They are lightweight at around 3 kg, providing more than 800 kg of clamping force even through many layers of paint and salt scale and grime on a ship's hull. A derlin roller makes the hull magnet simple to attach and release. Class ABS certified.

The holding magnet is sold in piece, and tightening belt and storing wooden box are separate order.





Magnet　Tightening Belt



Storing Box

CODE	Descriptions	Unit
23 20 93	Holding magnet for pilot ladder	Pc.
94	Tightening belt for holding magnet	Lgh
95	Storing wooden box only for two holding magnets	Pc.

Name of Mfr.: PTR Holland Group

13. Scaffolds/Stages/Boatswain's Chairs

Prefabricated Steel Pipe Scaffolds

Andamio de Tubos de acero Prefabricado
組立パイプ足場（ローリングタワー）　组合式钢管架



A safe, movable, prefabricated scaffold made of galvanized high tensile steel pipe frames; easy to assemble and disassemble.

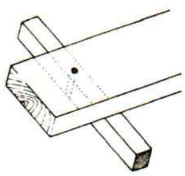
Each step set comprises 4 wheels attached with jacks for moving and adjusting the height of the feet for use on a rough surface. Each section is fitted with 2 steel step plates and safety rails. The floor is made of checkered steel plate. Dimensions are 1,500 x 1,800 mm.

Unit Per Set

CODE	Number of Nominal Steps	Height mm	Numbers of Main Frames
23 21 01	2	3,200 ~ 3,660	4
02	3	4,700 ~ 5,160	6
03	4	6,200 ~ 6,660	8
04	5	7,700 ~ 8,160	10
05	6	9,200 ~ 9,660	12

Stages

Tabla de Andamio　足場板　带横衬踏板



A floor or a platform of planks fitted with transverse bearers, slung by ropes and put over ship's side or in holds, for men to work on when cleaning and painting. Standard dimension is W300 x T40 x L4,000 mm.

23 21 11	Stage, 300(W) × 40(T) × 4,000(L) mm with transverse bearer	Pc.

Boatswain's Chairs

Guindola de Arboladura　ボースンチェア　油漆用椅



Narrow wooden seat, suspended by rope and used by seamen when working aloft or over the side of the ship. Standard size is L 620 x W 160 x T 25 mm with ø20 mm rope.

23 21 21	Boatswain's chair	Set

14. Cargo Nets/Safety Nets

Polypropylene Rope Cargo Net Slings

Red de carga de Polipropileno
ロープもっこ　丙纶绳吊货网



Can be made to the desired specifications. Some common sizes are listed below.

Unit per Pc.

Description \ CODE	23 21 51	23 21 52
Net Size	2.5 × 2.5 Mtrs	3 × 3 Mtrs
Mesh Size	200 × 200 mm	
Rim Rope Size	24 mm dia.	
Mesh Rope Size	18 mm dia.	
Name of Synthetic Fibre Rope	Polypropylene (P.P.)	

Wire Rope Cargo Net Slings

Red de Carga de Cable
ワイヤもっこ　钢丝绳吊货网



Can be made to the desired specifications. Some common sizes are listed below.

Unit per Pc.

Description \ CODE	23 21 56	23 21 57
Net Size	2.5 × 2.5 Mtrs	3 × 3 Mtrs
Mesh Size	200 × 200 mm	
Wire Rope Construction Rim Rope Size Mesh Rope Size	6 × 24 Galv. 12 mm diam. 9 mm diam.	

Gangway Safety Nets

Polypropylene

Red Protección Escala
ギャングウェイネット　丙纶绳舷梯安全网



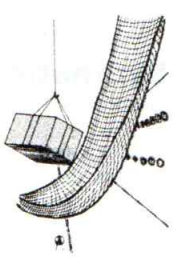
For security of life and property. All mesh ropes are securely knitted in position. Can be made to desired specifications. Some common sizes are listed below.

Unit per Sht.

Description \ CODE	23 21 61	23 21 62	23 21 63
Net Size	5 × 10 mtr	4 × 16 mtr	20 × 20 mtr (for Cape Size)
Mesh Size	150 mm		
Rim Rope Size	10 mm dia.		
Mesh Rope Size	8 mm dia.		
Material	Polypropylene (P.P.)		

Cargo Safety Nets

Red Protección de Carga　カーゴネット　吊货网



Usually made of synthetic rope. To hang between ship and dock or wharf to catch and prevent packages from dropping overboard into the water when loading or discharging freight. Made to order. When ordering, please specify the following points :

How to order: 23 - 21 - 65

Net, safety, cargo, Name of synthetic rope, Size of overall length and width, Size of mesh opening, Rope size of rim, Rope size of mesh.

Personnel Transfer Device

Equipo para traslado de personal　人員輸送装置　人员输送装置



Personnel transfer device is used to quickly and effectively transport personnel on and off of platforms. Passengers are encompassed with tightened stainless steel ropes that protects from any side impact that may occur. It is equipped with quick release safety lanyards to provide safety and give the passengers confidence while in transit. Made of sturdy and very durable aluminum skeleton to protect them from falling objects, also shock absorbing feet is equipped to protect from hard landing. Available for 4, 6 & 8 persons capacity and also loaded a stretcher in the event of emergency situation. ABS Certification report is available.

Model	Capacity	Size (inch)	Weight
X-904-4	4 persons	90" × 90" × 34"	600 lbs
X-904-6	6 persons	102" × 102" × 36"	700 lbs
X-904-8	8 persons	102" × 102" × 36"	900 lbs

Name of Mfr. : Billy Pugh Co. Inc.

How to order: 23 - 21 - 66

Personnel Transfer Device, Model number., capacity etc.

15. Cargo Bags/Sling Belts

Cargo Sling Bags

Sacos de Carga con Eslingas　袋モッコ　吊货袋



Made of polyester, light weight, handy foldable cargo sling bag. Very useful for storage.

Size : 1 x 1.2 x 1.2 mtrs
Capacity : 1 ton

23 21 81	Cargo sling bag, polyester 1 × 1.2 × 1.2 Mtr	Pc.

Cargo Aluminium Bags

Bolsas de aluminio para mercancías
アルミシート製保冷バッグ　铝箔保冷袋



Made of aluminium sheet for heat insulation, keeping fresh/frozen provisions cool during transportation. Foldable, easy to set up with Velcro fastener.

Size: 1,080 x 970 x 1,350 mm

23 21 83	Cargo bag, aluminium 1,080 × 970 × 1,350 mm	Pc.

One Way Flexible Containers

Contenedor de Poliester Desechable
使い捨てフレキシブルコンテナー　一次性吊货袋



A one way type flexible container makes the transport, delivery, and loading of blasting sand, copper bits, or other bulk materials fast and easy. It reduces the costs and extra effort for loading bulk materials because the slings are loaded and then stay on deck until the material is used. Several types are available, but the most common types are shown below.

Unit Per Pc.

CODE	23 21 86	23 21 87
Type	Draw string with bottom release	Without bottom release
Material Cubic Volume Capacity Weight Capacity	Polypropylene/Polyester 1,000 - 2,000 Ltr 500 - 1,000 kg	

Belt Slings

Eslingas de correas　ベルトスリング　帯式吊索

Belt & endless types are available, and they weigh about one third the weight of a wire sling. The seamed part is so soft that it is easier to handle than other sling types.

Polyester Slings

Eslingas de Poliéster　ポリエステルスリング　涤纶吊索

Easy to handle by lighter and more flexible character of polyester.


Belt Type Sling

Specification

Width of Sling (mm)		25 mm	35 mm	50 mm	75 mm
Breaking Strength kN (Ton)		48 (4.8)	75 (7.5)	96 (9.6)	150 (15.0)
Style of Sling	Angle	Working Strength Ton			
Straight	-	0.80	1.25	1.60	2.50
Choke	-	0.64	1.00	1.28	2.00
Basket	α = 0°	1.60	2.50	3.20	5.00
Basket	α≦45°	1.44	2.25	2.88	4.50
Basket	45°<a≦90°	1.12	1.75	2.24	3.50

How to order: 23 - 21 - 31

Sling, Polyester, belt type, width 25 mm x length 1 mtr

Unit Per Pc.

CODE	Length mtr	CODE	Length mtr
Width: 25 mm		Width: 50 mm	
23 21 31	1	**23 21 43**	1
32	2	**44**	2
33	3	**45**	3
34	4	**46**	4
35	5	**47**	5
36	6	**48**	6
Width: 35 mm		Width: 75 mm	
23 21 37	1	**23 21 71**	1
38	2	**72**	2
39	3	**73**	3
40	4	**74**	4
41	5	**75**	5
42	6	**76**	6

Other than listed size;

How to order: 23 - 21 - 95

Sling, Polyester, belt type, width x length

Endless Type Sling



How to order: 23 - 21 - 96

Sling, Polyester, endless type, width x length

16. Canvas/Canvas Maintenance Items

White Cotton Canvas

Lona de Algodón Blanco　綿帆布　棉帆布



For the partial renewal, repairing or patch work of canvas products such as awnings, hatch tents, etc. The standard width is 915 mm (36") and one bundle is supplied in a length of 50 mtr or cut to size.

Unit Per Mtr.

CODE	No.	Thickness mm	Grams Per m²	Test Strength Wrap × Fill (kg/3 cm)
23 22 01	2	1.43	941	180 × 140
02	3	1.25	867	160 × 140
03	4	1.23	794	160 × 120
04	6	1.07	647	120 × 120
05	8	0.93	510	80 × 80
23 22 06	9	0.78	500	80 × 120
07	10	0.74	428	80 × 90
08	11	0.67	348	80 × 40

Remark: Colour is usually white.

Waterproof Cotton Canvas

Lona de Algodón Impermeable　防水綿帆布　防水棉帆布

Constructed and spun in the same way as the above cotton repair canvas but the material is water proofed in order to give it resistance to seawater, sunlight and assure a long lasting service. Standard width is 915 mm (36"), length 50 mtrs or cut to order.

Unit Per Mtr.

CODE	No.	Thickness mm	Grams Per m²	Test Strength Wrap × Fill (kg/3 cm)	Color
23 22 11	4	1.23	940	178 × 148	W. OD
12	6	1.07	845	126 × 125	"
13	9	0.78	620	84 × 123	"
14	10	0.74	555	81 × 78	"
15	11	0.67	480	81 × 45	"

Denotes: W - White, O.D. - Olive Drab

Synthetic Fibre Tarpaulin Canvas

Lona de Fibra Sintética　合繊ターポリン　合成纤维舱盖帆布（丙纶）



Light in weight but a strong and rigid material for covers, awnings, tents, etc. Resistant to seawater, sunlight and other effects. Constructed with a special synthetic resin compound. It is necessary to seal the needle holes with a waterproof agent or modified polythene resin. Standard length of bolt is 50 mtr and random.

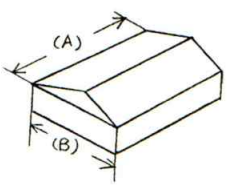
Unit Per Mtr.

CODE	Thick mm	Width mm	Grm/m²	Colour
		Polyester		
23 22 21	0.82	1,040	700	G
23 22 22	0.73	920	640	Gr. O. OD
23 22 23	0.65	930	575	Gr. O. OD. G. W
24	"	1,030	"	
23 22 25	0.60	930	525	Gr. O. OD. G. W
26	"	1,030	"	
23 22 27	0.54	930	470	Gr. O. OD. G. W.
28	"	1,030	"	Gr. O. OD. G
23 22 29	0.58	1,830	535	Gr. W
23 22 30	0.47	930	465	Gr. W
		Vinylon		
23 22 41	0.88	1,040	760	G
42	0.75	920	645	Gr. G. O
43	0.65	920	550	"
44	0.73	1,020	580	"
23 22 45	0.58	920	450	Gr. G. O
46	0.68	1,020	500	"
47	0.50	920	440	"
		Nylon		
23 22 51	0.70	1,370	810	G.O
23 22 52	0.52	1,370	620	Gr. G. B. O. OD. W
53	"	1,850	"	OD. O
23 22 54	0.42	1,370	490	Gr. G. B. O. OD. W
55	"	1,850	"	OD. O
23 22 56	0.35	1,370	480	Gr. G. B. O. OD. W
57	"	1,850	"	OD. O

Denotes: Gr - Green, O - Orange, W - White, G - Grey, OD - Olive Drab, B - Blue

Hatch Covers

Cintas de Escotilla
ハッチカバー　装貨口蓋



Made to your specifications with advance notice. Material is synthetic fibre tarpaulin. When ordering, please specify the hatch coaming size, (A) and (B). The finished size of the hatch cover will be (A) + 1.7 mtr and (B) + 2.2 mtr.

Canvas thickness is usually No. 4. Available in green or grey.

How to order: 23 - 22 - 58

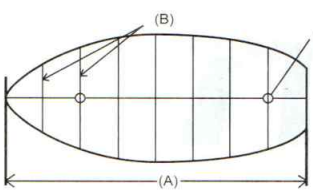
Hatch cover, synthetic fibre tarpaulin, colour, coaming size
(A) _____, *(B)* _____ .

Lifeboat Covers

Fundas para Botes Salvavidas　ライフボートカバー　救生船盖

Made to your specifications with advance notice. The material is synthetic fibre tarpaulin.

When ordering, please specify the (A) overall length, (B) beam length at several intervals, and (C) position of boat fall wire holes. Canvas thickness is usually No. 4 and available in green, grey, orange, and white colours.



(A) - Overall Length
(B) - Beam length at several intervals
(C) - Position of Boat Fall Wire Hole

How to order: 23 - 22 - 59

Lifeboat cover, synthetic fibre tarpaulin, colour, colour, size
(A) _____, *(B)* _____, *(C)* _____ .

Note: Before making the above items, sailmaker specialists will come aboard ship upon request to take proper measurements. This is to avoid errors with the finished size.

Sail Makers Leather Palms

Reempujo　セールパーム　縫帆布手套



Designed for repair work of canvas and similar clothes in connection with sail needles. Hide mounted. Furnished for righthand use unless otherwise specified.

Unit Per Pc.

CODE	Description
23 22 61	Right hand use
62	Left hand use

Sail Makers Needles

Agujas para Coser Velas　セール針　縫（帆）針

For canvas repair work. Packed in 12 pcs per paper container.



Unit Per Pc.

CODE	No.	O'all Length	CODE	No.	O'all Length
23 22 66	10	95 mm	**23 22 69**	15	65 mm
67	12	80 "	**70**	16	60 "
68	14	75 "			

Beewax

Cera　ビーワックス　蜂蜡



Commercial grade beewax weighing about 250 or 500 gram. For waxing twine or thread used in sewing or stitching canvas, leather, etc.

Unit Per Pc.

CODE	**23 22 76**	**23 22 77**
Weight gram.	250	500

Grommet Dies

(Setting Dies)

Máquina para Hacer Ollaos　グロメットダイス　铜扣铆盘



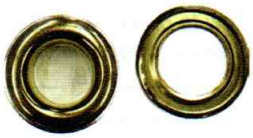
Drop forged steel made for inserting sheet brass washer and teeth grommets. When ordering, specify the number and size as listed below due to various existing standards in different countries.

Unit Per Pc.

CODE	No.	Diam. mm	CODE	No.	Diam. mm
23 22 81	25	10	**23 22 83**	30	16
82	28	13	**84**	32	19

Grommets

Ollaos グロメット 帆布袋铜扣



Made of brass and rounded into a rim to serve as a reinforcement for rope holes in canvas or tarpaulin. When ordering, please specify the number related to the hole diameter as listed in the ordering table below. Supplied one gross per box.

Unit Per Gross

CODE	No.	Diam. mm	CODE	No.	Diam. mm
23 22 86	25	10	**23 22 88**	30	16
87	28	13	**89**	32	19

Serving Boards

Maceta de Aforrar
サービングボード 卷缠锤（硬木）



Made of ash with a hardwood handle. Used for serving a rope tightly and neatly.

Unit Per Pc.

CODE	**23 23 01**	**23 23 02**
Size	80 × 80 mm	100 × 100 mm

Serving Mallets

Maceta de Aforrar
サービングマレット 木棰



Wooden mallet with a semicircular groove along the top of the head. Used for serving rope when considerable tension is desired. Made of ash with a hardwood handle.

Unit Per Pc.

CODE	Size mm	CODE	Size mm
23 23 06	50 × 180	**23 23 08**	80 × 200
07	65 × 190		

Round Mallets

Mazo Redondo 丸マレット 圆木锤



Made of a hardwood head and handle. Metal bands on both faces will be attached upon request.

Unit Per Pc.

CODE	Size mm	CODE	Size mm
23 23 11	80 × 120	**23 23 13**	100 × 150
12	90 × 165		

Wood Hand Fids

Pasador Costuras de Madera
マニラスパイキ 木笔



A tapered wooden pin used to separate the strands when splicing rope.

Unit Per Pc.

CODE	Length mm	CODE	Length mm
23 23 21	150	**23 23 26**	400
22	200	**27**	500
23	250	**28**	600
24	300	**29**	700
25	350		

Steel Marline Spikes

Pasador Costuras de Acero
マーリンスパイク （插钢丝绳）铁笔

Tapered and sharp pointed iron pin used for opening up a rope when splicing. Has a perforation at the larger end to hold a lanyard.



Unit Per Pc.

CODE	Length mm	CODE	Length mm
23 23 31	150	**23 23 36**	400
32	200	**37**	450
33	250	**38**	500
34	300	**39**	600
35	350		

17. Hatch Wedges/Hatch Cover Tapes

Hatch Wedges, Hard Wood

Cuñas Escotilla ハッチウェッジ 舱口楔块

Made of hard wood. Used to bottom down canvas hatch covers.



Unit Per Pc.

CODE	Nominal Size	Size mm			Weight kg
		L	W	H	
23 23 51	200	200	50	50	0.30
52	250	250	60	60	0.43
53	300	300	70	70	0.58

Hatch Cover Tapes

Cintas de Escotilla ハッチカバーテープ 装货口盖封带

Sealant tapes for hatch covers on board vessels. Many brands are available either in STRIPS or in ROLLS, their designs and performance vary between brands. Several brands are shown below as a reference. For the correct application, please inquire to either the manufacturer or the distributor.



Roll Type



Strip Type

Roll Type

Unit Per Box

CODE	Brand	Size	Roll/ Box	Weight kg
23 24 41	Nemo	W 75 mm × 1.5 mm × 20 mtr	4	10
42		W 100 mm × 1.5 mm × 20 mtr	3	10
43		W 150 mm × 1.5 mm × 20 mtr	2	10
23 24 45	Optimo	W 101 mm × 1.6 mm × 20 mtr	2	11.4
46		W 152 mm × 1.6 mm × 20 mtr	2	16.2
23 24 48	Dry-Cargo Standard Duty	W 100 mm × 1.6 mm × 20 mtr	3	12
49		W 150 mm × 1.6 mm × 20 mtr	2	12
23 24 51	Dry-Cargo Heavy Duty	W 75 mm × 2.7 mm × 20 mtr	4	18
52		W 100 mm × 2.7 mm × 20 mtr	3	18
53		W 150 mm × 2.7 mm × 20 mtr	2	18
23 24 35	Dry-Cargo X-Lam	W 100 mm × 1 mm × 20 mtr	3	10
36		W 150 mm × 1 mm × 20 mtr	2	10
23 24 56	Maritape	W 100 mm × 15.25 mtr	4	8.7
57		W 150 mm × 15.25 mtr	4	13.0
23 24 54	Canseal-R Marine Tape	W 100 mm × 1.5 mm × 22 mtr	3	6.8
55		W 150 mm × 1.5 mm × 22 mtr	2	6.8
37		W 300 mm × 1.5 mm × 22 mtr	1	6.8
23 24 44	DrySeal	W 100 mm × 2.0 mm × 23 mtr	3	7
47		W 150 mm × 2.0 mm × 23 mtr	2	7
50		W 300 mm × 1.8 mm × 23 mtr	1	7

Name of Mfr.: Nemo – Isoltema s.p.a.
Dry-Cargo - Cullen Metcalfe & Co.
Maritape - Henry Company,
Optimo - BC Taechang Ind. Corp
Canseal-R Marine Tape – Innovative Manufacturing Inc.
DrySeal - Sporema

Strip Type

Unit Per Box

CODE	Brand	Size	Roll/ Box	Weight kg
23 24 61	Ram-Nek	W 75 mm × 5 mm × 122 cm	60's	41
62		W 110 mm × 5 mm × 122 cm	30's	16
63		W 150 mm × 5 mm × 122 cm	30's	36.5
23 24 72	Gulf-Seal	W 110 mm × 5 mm × 122 cm	30's	19
73		W 150 mm × 5 mm × 122 cm	30's	36

Name of Mfr.: Ram-Nek / Gulf-Seal – Henry Company

18. Rat Guards

Rat Guards

Rateras ラットガード 老鼠挡



Fitted closely on hawsers and lines to prevent rats from boarding the ship. Conforms with all quarantine regulations.

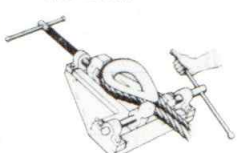
Unit Per Pc.

CODE	Guard Diam. mm	Applicable Rope Diam. mm
23 23 61	600	56
62	600	65
63	600	73
64	600	All smaller ropes than above

19. Riggers' Vises/Wire Rope Grips

Riggers' Vises

Prensa para Empalmar Cables 三角バイス 三角形老虎钳



This portable riggers' forming vise is in wide-spread use wherever cable and wire ropes are used or handled. Ideal for forming cable or wire rope around thimbles or fixtures, making slings for either splicing or "U" shaped bolt clamps, or clip installations. Rigid construction, two sizes available.

Unit Per Pc.

CODE	Size	Wire Rope Capacity	Weight
23 23 81	No. 1 (Small)	16 - 28 mm dia.	19.2 kg
82	No. 2 (Large)	16 - 38 mm dia.	26.6 "

Wire Rope Grippers

Mordazas de Arrastre ワイヤーロープグリッパー 钢丝绳夹

Compact and easy to handle. It is tight, yet won't damage the wire. Easily installed and released by a cam operation, will not jam. Made of heat treated forged steel.





Unit Per Pc.

CODE	Model No.	Applicable Rope Φmm	Strength Capacity Ton	Weight kg
23 23 85	6	4 - 6	0.5	0.5
86	10	8 - 10	0.75	0.9
87	14	12 - 14	1.5	2.0
88	20	16 - 20	3.0	4.8
89	26	22 - 26	5.0	7.6
23 23 90	32	28 - 32	7.0	8.0

20. Fenders

Rope Netted Fenders

Ball Shape

Defensas de Cuerda ボールフェンダー 球形绳网防碰垫

Made with an interior filling of ground cork packed into strong gunny bags and netted on the outside, usually with polypropylene rope.



23 24 01	Rope Netted Ball Fender, 300 mm diam.	Pc.
02	Rope Netted Ball Fender, 360 mm diam.	"
03	Rope Netted Ball Fender, 450 mm diam.	"

Pneumatic Rubber Fenders

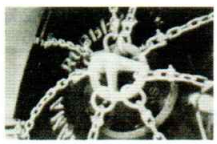
Defensas de Goma (Neumática)
空気式防舷材 充气式橡胶护舷缓冲材料

The characteristics of floating type pneumatic fenders are as follows.

1. Advantages
   a. Adaptable to change in the tidal level.
   b. Low and uniform surface pressure.
   c. Simple and low cost installation.
   d. Low maintenance cost.
2. Types
   a. Net Type

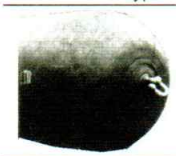
The net-type fender is covered by a chain net, wire net or fibre net for small size fenders.

Usually these nets have used tyres together with rubber sleeves for additional protection, except for the fibre net which has only rubber sleeves. Chain nets last longer against corrosion while wire nets are light and more easily repaired.

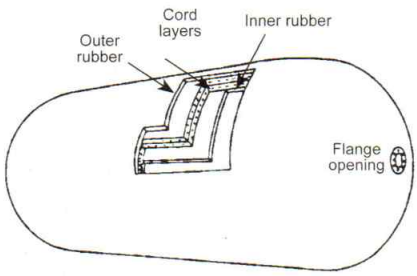
Chain Net Type (Heavy Duty Use)	Wire Net Type (Medium Duty Use)
	
Fibre Net Type (Light Duty Use)	
	

b. Sling Type

This type has eyelets built into the fender body for easy installation. Handling of the sling type is easy due to its light weight. Its maintenance is also easy.

Type		Appropriate Fender Size mm
	Sling Type	500ø × 1,000L to 2,500ø × 5,500L

3. Typical Cut Section of Fender Wall



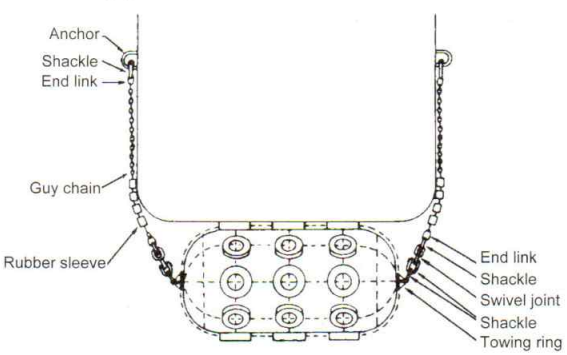
4. Performance Table (Initial Pressure 0.5 kgf/cm²)

Nominal Size Diam × Length mm	Guaranteed Energy Absorption (E) and Reaction Force (R) (at 60% deflection)		Net Type Fender Body Weight kg	Chain Net kg	Wire Net kg	Synthetic Fibre Net kg	Sling Type Fender Body Weight kg
	E	R					
500 × 1,000	0.6 tf.m	6.5 tf	24	-	30	20	29
600 × 1,000	0.8	7.5	28	-	30	22	34
700 × 1,500	1.7	13.8	47	150	40	37	53
1,000 × 1,400	3.2	18.3	72	190	80	51	80
1,000 × 2,000	4.6	26.0	92	230	140	57	100
1,200 × 2,000	6.3	30.0	110	300	190	68	130
1,350 × 2,500	10.2	43.1	210	330	200	-	245
1,500 × 3,000	15.4	58.5	275	490	350	-	320
1,700 × 3,000	19.3	64.5	370	580	440	-	430
2,000 × 3,500	31.0	88.4	500	980	640	-	560
2,200 × 4,500	50.0	129.0	750	1,450	1,060	-	880
2,500 × 4,000	66.7	139.0	820	1,260	910	-	930
2,500 × 5,500	95.0	204.0	1,360	1,630	1,160	-	1,460
3,300 × 4,500	118.0	190.0	1,570	1,630	1,270	-	-
3,300 × 6,500	183.0	304.0	2,020	2,680	1,910	-	-
3,300 × 10,600	309.0	531.0	2,570	4,670	3,300	-	-
4,500 × 9,000	478.0	580.0	4,260	4,810	3,520	-	-
4,500 × 12,000	652.0	806.0	5,460	7,240	5,190	-	-

5. *Installation Methods*

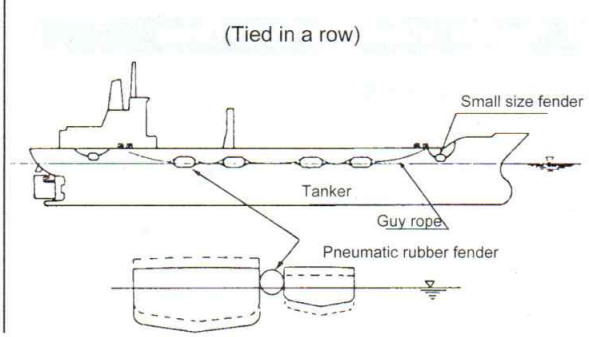
a. Jetty Quay and Dolphin Use

At both ends of the fender's chain or wire net, first fit the shackles, then the swivel joints and then further shackles should be installed. A guy chain or guy rope is secured to the outer shackle. The swivel joint prevents twisting of the guy.

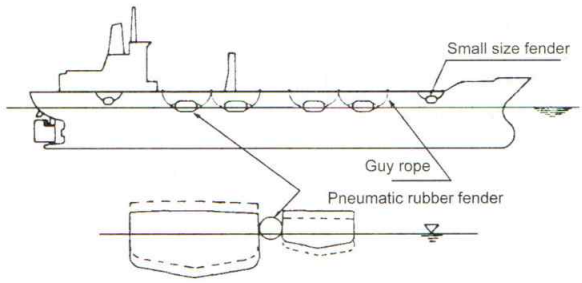


b. Ship to Ship

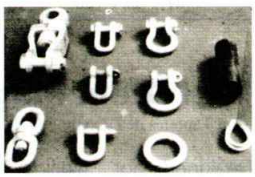
The following are examples of the installation method. Four pieces of large size fenders are usually floated as primary fenders to absorb impact energy at berthing. Two pieces of small-size fenders are hung high on the hull at both bow and quarter of the smaller ship to prevent contact during rolling due to swell. (Tied in a row)



(Fenders guyed individually)



6. Installation Equipment



The typical installation equipment and necessary parts for installations are shown below.

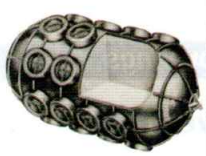
There are the various sizes of shackles, swivels, ring rubber sleeves, thimbles, etc. according to the applicable fender capacity.

How to order: 23 - 24 - 11

Fender, rubber, pneumatic,
*Nominal size*_____,
*Type of fitting*_____,
*Initial internal pressure*_____,

Foam Filled Rubber Fenders

Defensas de Goma
(Rellena de Espuma)
フォームラバー防舷材
泡沫填充式护舷缓冲材料





1. The characteristics of the fenders are

   a. Puncture-proof Construction

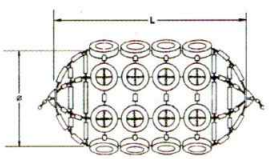
   There fenders are filled with a special micro-bubble foam that creates a 100 percent independent closed-cell structure which will not absorb water. The fact that they are puncture proof and offer superior elasticity, assures users of the excellent durability of these fenders even under extremely severe conditions.

   b. Long Life Performance

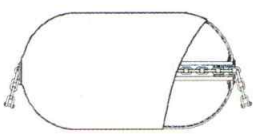
   With these fenders, there is no need to adjust the air pressure to allow for changes in atmospheric temperature. This feature makes them ideal for applications in which minimum maintenance is a priority. In addition, fitting to the quay is simple; once the fenders are secured with a wire rope or chain, they comprise a permanent and extremely durable protection system for all ships.

2. *Types*

a. Net Type



b. Hook Type



How to order: 23 - 24 - 16

Fender, rubber, foam filled,
Nominal size _____,
Type of fitting _____.

Performance Table

Size Diam × Length mm	Normal Performance 60% Deflection		Maximum Performance 80% Deflection		Weight Approx. kg		
	Reflection Force Ton	Energy Absorption ton-m	Reflection Force Ton	Energy Absorption ton-m	Chain Net Type	Wire Net Type	Hook Type
1,000 × 1,500	19.5	4.13	61.6	11.2	340	170	160
1,000 × 2,000	28.3	6.00	89.8	16.4	400	220	200
1,200 × 1,800	28.1	7.14	88.7	19.4	450	240	210
1,200 × 2,000	32.3	8.21	102	22.4	480	250	270
1,200 × 2,500	42.9	10.9	136	29.8	560	320	330
1,300 × 2,500	45.6	12.6	144	34.2	700	470	350
1,500 × 2,500	50.5	16.0	160	43.7	780	480	490
1,500 × 3,000	63.7	20.3	202	55.2	940	610	580
1,700 × 3,000	69.9	25.2	221	68.5	960	610	690
2,000 × 3,000	78.0	33.0	246	89.8	1,250	840	780
2,000 × 3,500	95.6	40.5	303	110	1,490	1,030	1,010
2,000 × 4,000	113	48.0	359	131	1,620	1,210	1,200
2,200 × 4,500	141	65.7	447	179	2,190	1,770	-
2,500 × 4,000	133	70.4	420	191	2,290	1,800	-
2,500 × 5,000	177	93.8	561	256	2,840	2,370	-
2,500 × 5,500	199	105	631	288	3,040	2,550	-
3,000 × 5,000	202	128	639	349	3,940	3,250	-
3,000 × 6,000	255	162	808	442	4,770	4,000	-
3,300 × 6,500	303	212	959	577	6,760	5,170	-
3,500 × 7,000	347	257	1,100	702	7,500	6,080	-
3,500 × 8,000	409	303	1,297	828	8,770	7,170	-
4,000 × 8,000	453	384	1,436	1,047	10,130	8,220	-
4,500 × 9,000	574	547	1,818	1,419	13,810	11,330	-

Used Tyres

Neumáticos Usados 中古タイヤ 旧轮胎

Worn rubber tyre, suitable to use as a fender for tug boats, fishing boats, etc.



23 24 21	Used tyre, ruber, SIZE	Pc.

Used Bicycle Interior Tubes

Cámeras de bicicleta Usados 中古自転車チューブ 自行车旧内胎

Worn interior tube for bicycles, and normally used for binding over the leaked hole on the pipes or fittings as an emergency measure.

23 24 22	Used bicycle interior tube	Pc.

21. Scupper Plugs

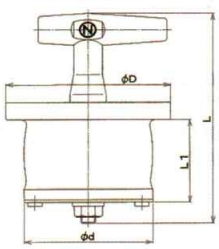
Scupper Plugs

Llaves de Hundir Adrede 排水口栓 排水口拴

For sealing the scupper holes for spilled oil or polluted liquids. Easy to use, insert plug in the drain hole and tighten the handle until a slight resistance is felt, the rubber plug will be expanded and held firmly in place. Rubber parts are made of oil resistant rubber (CR). Seven types are available according to the pipe size. Specify the applicable drain pipe diameter when ordering, referring to the plug application list.



50N-65 to 150



Application List

Model No. 50N-	Pipe Type	Pipe Size 50	65	80	100B	100	125	150
50A (2B)	Sch80	●						
	Sch40	●						
	SGP	●						
65A (2-1/2B)	Sch160		●					
	Sch80		●					
	Sch40			●				
	SGP			●				
80A (3B)	Sch160			●				
	Sch80			●				
	Sch40			●				
	SGP			●				
100A (4B)	Sch160				●			
	Sch80					●		
	Sch40					●		
	SGP					●		
125A (5B)	Sch160					●		
	Sch80						●	
	Sch40						●	
	SGP						●	
150A (6B)	Sch160						●	
	Sch80							●
	Sch40							●
	SGP							●

Unit Per Pc.

CODE	Model	Dimensions mm d	D	L	L1	Wt. kg
23 24 81	50N-50	45	65	145	55	0.3
82	50N-65	52	75	145	55	0.4
83	50N-80	65	85	160	65	0.5
84	50N-100B	85	110	160	65	0.6
85	50N-100	90	115	160	65	0.6
86	50N-125	110	135	160	65	0.8
87	50N-150	135	160	160	65	1.0

Mini Drain Plugs

Mini Tapones de Drenaje 排水プラグ 迷你排水塞

Designed for closing appliance for deck scupper holes. Rubber expansion mechanism, easy operation, non screw.



23 24 89	Mini Drain Plug, dia 32mm	Pc.

22. Deck Coverings

Deck Coverings

Tapas de Cubierta デッキカバー 甲板圆盖

Used to seal deck openings of tankers, barges, and cargo vessels. Simple and reliable cover which does not require the drilling of holes and the insertion of studs to install.



Made of bronze or stainless steel to eliminate sparking. Fits to any standard 318 mm deck opening and will fit to a deck thickness of up to 76 mm.
Unlike other deck covers, the quick action cover is perfectly flat. There are no protruding parts to trip over. Removed with a special speed wrench which provides security against theft and gives rapid action for opening and closing. Frequently used as tank ventilators in place of ventilator gratings.

CODE	Description	Unit
23 24 91	Deck cover, bronze, for 318 mm deck opening	Pc.

Deck Safety Protection Cover

Tapa de protección de seguridad de cubierta

安全用デッキカバー 甲板安全盖

A family of safety protection cover designed to prevents crew from falls and other injuries associated with open manholes on-board vessels and platforms. Specifically designed to allow ventilation and utilities to remain accessible while still covering the hole and protecting the crew. Max payload is 205 kg (450 lbs).



SE65 SE65L SE85 SE90L

Unit Per Pc.

CODE	23 24 92	23 24 31	23 24 32	23 24 33
Model	SE65	SE65L	SE85	SE90L
Nom. Hole size	400×600 mm	400×600 mm	600×800 mm	600×800 mm
Bolt Centers	approx. 480 ×670 mm approx. 500×700 mm (NS)	-	approx. 874×680 mm (ISO/DIN) approx. 870×670 mm approx. 860×660 mm	approx. 874×680 mm (ISO/DIN) approx. 870×670 mm approx. 860×660 mm approx. 900×700 mm
Standards	NS 6261, ISO 5894, DIN 83402 standards	NS 6261 (6262, 6263), ISO 5894, DIN 83402 standards.	ISO, 5894 DIN standards	ISO, 5894 DIN standards
Weight	9.6 kg	4 kg	18 kg	12 kg

Name of Mfr.: Rustibus®

23. Oil Pollution Countermeasures

Overflow-Prevention Tanks

Tanques para Prevención de Derrame de Comnustible
燃料油排出防止タンク　防燃油溢流柜

This portable and fordable, fuel oil, overflow-prevention tank is made of transparent urethane film, processed by an all-double stitch method of high frequency welding. It is oil resistant, coldproof (–45°C), heatproof (70°C), long wearing, and airtight. Easily attached over an air release vent, this portable overflow catch performs most effectively in keeping the deck free from oil. A and B type available. When ordering, please specify the type and capacity of the tank.



For Goose Neck Type
Air Vent A Type



For Bonnet Type
Air Vent B Type

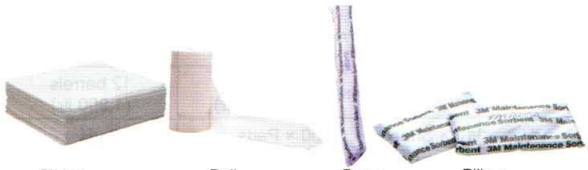
Unit Per Pc.

CODE	Connector Size mm. Length	Connector Size mm. Dia.	Tank Capacity Ltr	Type
23 25 01	1,500	200	40	A (For Goose Neck Type Air Vent)
02	1,500	200	100	
03	1,500	300	300	
04	1,500	300	500	
23 25 05	1,500	350	40	B (For Bonnet Type Air Vent)
06	1,500	350	100	
07	1,500	350	300	
08	1,500	350	500	

Oil Absorbents

Absorbente de Petróleo　油吸着材　吸油纸

Made from specially treated polypropylene microfibers or polypropylene mixed with polyester, and ideal for emergency spill and daily clean-up of oils with no-sweeping or shoveling required. Less time is required to use and dispose of these materials. They are available in sheets, rolls booms and assorted sets in drum containers.



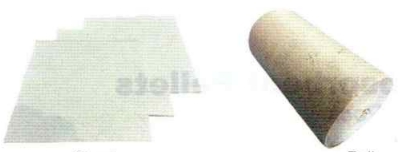
Sheet Roll Boom Pillow

CODE	Type	Size	Weight	Unit
23 25 14 11	Sheet	430 × 480 mm	44 grm/sht 45 grm/sht	50 sht/box 100 sht/box
23 25 12		430 × 480 mm Static resist.	45 grm/sht	100 sht/box
23 25 13	Roll	W965 × L43.9 mtr	9.1 kg/roll	1 roll/bag
23 25 15	Boom	ø76 × L1,200 mm	360 grm/lgh	12 lgh/box
23 25 17	Pillow	177 × 380 mm	170 grm/pc	16 pcs/box

Oil Absorbents Eco-Friendly

Absorbentes de Aceite Ecológicos　エコタイプ油吸着材　环保吸油剂

Eco-friendly oil absorbents made from unused natural cotton fibers in the production cycle of cotton yarn. It is coated with water-repellent substance and selectively adsorbs oil in emergency spill or daily clean-up. Compared to synthetic fibre absorbents, it has low calorific value of incineration and causes less damage to the furnace, yet it is high strength, excellent cost performance and stable quality. Approved by MLIT and Eco Mark program by JPA.



Sheet Roll

CODE	Type	Size	Weight	Unit
23 25 37	Sheet	500 × 500 mm	10 kg/box	App.100 sht/box
38		650 × 650 mm	15 kg/box	App.100 sht/box
23 25 39	Roll	W 650 × L 25 mtr	5.85 kg/roll	1 roll/bag

Emergency Oil Spill Response Containers

Unidad (Equipo) de Emergencia para Fugas de Aceite
オイルスピル対応キット　溢油兼容性套件

To comply with international maritime regulations all vessels are required to carry on board sufficient absorbent materials to mop up oil spills of 7 or 12 barrels (1,100 litres or 1,900 litres) dependent on length of vessel.



23 25 16



23 25 31/32

Unit Per Set

CODE	23 25 16	23 25 31	23 25 32
For Oil Spill	30 ltr absorption	7 barrels (1,100 ltr)	12 barrels (1,900 ltr)
Composed of;	10 × Sheets 3 × Booms 2 × Pillows 1 × Disposal bags 1 × Clamping bands 1× × Dangerous substance label	400 × Pads (40 × 50 cm) 20 × 3 mtr Booms 25 × Waste bag rolls 2 × Gloves 2 × Boots 2 × Overall 1 × Big bag 1 × 25 ltr cleaning & degreasing agent 1 × Jet spray unit 10 ltr	400 × Pads (40 × 50 cm) 50 × Pads (80 × 100 cm) 32 × 3 mtr Booms 25 × Waste bag rolls 2 × Gloves 2 × Boots 2 × Overall 2 × Big bag 1 × 25 ltr cleaning & degreasing agent 1 × Jet spray unit 10 ltr
Dimension	32 × 50 cm	140 × 77 × 120 cm	145 × 100 × 135 cm

Warning!

Always exercise extreme care when cleaning up flammable liquid spills. Activities such as walking, rubbing, and pumping can generate static electricity in products with high electrical resistance such as rubber hoses, plastic containers, tanks, etc. The Static Resistant Oil Sorbent will help reduce static charge build-up but will not provide you with a static free environment. Also exercise extreme care when handling, storing, or disposing of any absorbent material containing flammable liquids.

Oil Absorbent Pellets

Igneous Rock

Absorbente de Petróleo en Grano

油吸着材（粒状）　油吸附剂（粒状）



Made from glassy, igneous rock which is crushed into pellet sized fragments and heat treated. The pellets are extremely light weight and contain white sand like grains which have continuous pores which create strong oil absorbency through capillary action.

Types No. 1 and 2 absorb only oil whereas types 3 and 4 absorb oil and water. Pellets are not toxic or harmful to sealife.

Unit Per Bag

CODE	23 25 21	23 25 22	23 25 23	23 25 24
Type	No. 1	No. 2	No. 3	No. 4
Pellet Size (mm)	Less than 1.2	20.0 - 5.0	Less than 1.2	Less than 5.0
Standard Unit Volume Weight	0.055 kg/Ltr	0.10 kg/Ltr	0.055 kg/Ltr	0.17 kg/Ltr
Package	100 Ltr/Bag	10 kg/Bag	100 Ltr/Bag	100 Ltr/Bag

(to be continued)

Application	1. Treatment for spilled oil from a tanker accident, etc. 2. Treatment for floating oil from bilge, dirty ballast tank, tank cleaning, etc. 3. Treatment for oil from Petroleum Refinery, Petrochemical Plant, etc.	1. Treatment of oil pollution on the floor of the various plants and road surfaces. 2. Treatment of oil pollution on the road surface from tank lorry, train, cargo truck, etc. 3. Fire Extinguishing against Alkyl Alum Metallic Potassium, Metallic Sodium, etc.

Natural Fiber Oil Sorbents

Absorbente de Petróleo de Fibra Natural

天然繊維油吸着剤　天然纤维油吸附剂

An all natural oil sorbent made from natural wood fiber of recycled paper products. Comes in pellet and loose particulate form and can be used effectively on water as well as land as a substance which is light, easy to clean, and allows for a high oil recovery rate.

On water the sorbent instantly neutralizes the harmful effects of oil spills and forms islands for clean recovery with minimal residue and no sheen. Will absorb only the oil, not the water.

Oil can be recovered from the sorbent by squeezing it, or the materials can be burned and used as fuel in approved facilities.

CODE	Type	Weight Size	Unit
23 25 26	Loose Particle Solvent (Univeral Use)	20 lb	Bag
23 25 27	"	60 lb	Drum
23 25 28	Sorbent Boom	10' × 4" Dia.	Pc.
23 25 29	Sorbent Sock	4' × 3"	Pc.

Chemical Absorbents

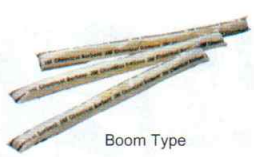
Absorbentes Químicos

化学薬品吸収材　化学吸收剂

Ideal solution for hazardous spill control. They provide very high absorption capacities and are suitable for absorbing a very wide range of liquids – even aggressive acids and alkalis.



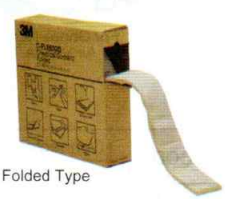
Sheet Type



Boom Type



Pillow Type



Folded Type

CODE	Type	Size	Weight	Unit
23 25 46	Sheet	280 × 330 mm	26 grm/sht	50 sht/box
47	Boom	ø76 × L1,200 mm	360 grm/lgh	12 lgh/box
48	Pillow	177 × 380 mm	170 grm/pc	16 pcs/box
49	Folded	127 mm × 15.2 mtr	1,600 grm/rol	1 rol/box

Multi Purpose Absorbent

Absorbente Multiuso　多目的用吸着剤（粒状）
多功能吸收剂



The super multi-purpose absorbent instantly absorbs all kinds of liquids, of any viscosity, off any hard surface, leaving that surface clean and dry. This includes spills of oils, chemical products, solvents, paints, engine fuel, hydraulic oils, brake fluid, glycol, acids, bases, polymers, glue, herbicide, food (semi liquids), drinks and all bodily fluids (except for hydrofluoric acid). It has virtually unlimited uses as a dry absorbent that is safe in all applications.

Available for approx. 3 kg bag for 30 liters.

23 25 33	Multi Purpose Absorbent, 3 kg for 30 liters	Bag

Inflatable Oil Fences

Defensas Antiderrames
膨張式オイルフェンス
膨胀式油堵



Made to conform to the Marine Pollution Prevention Law. The fence is made of rubber lined, strong synthetic fibre cloth and it is resistant to wear from oil, seawater and all types of weather. The fencing is provided in 20 mtr lengths which can be connected together and extended with the use of fasteners and shackles.



Unit Per Lgh.

CODE	Surface of Water		Weight kg	Length mtr
	Above mm	Below mm		
23 25 51	200	300	50	20
52	300	400	60	20

Sawdust

Serrin　おがくず　木屑



Used on deck or in the engine room as an oil absorbent. The sawdust is spread on deck where oil has accumulated or is likely to accumulate through leakage or overspill. Packed in a durable paper bag.

Unit Per Bag

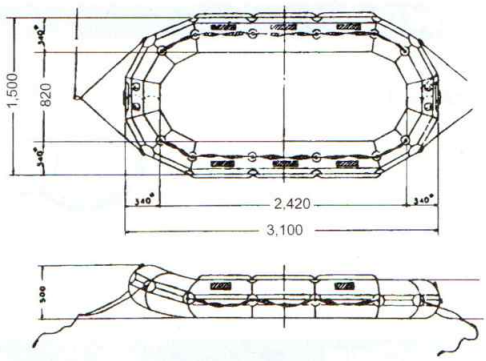
CODE	kg/bag	CODE	kg/bag
23 29 47	8	**23 29 46**	10

24. Tank Check Boats

Inflatable Deep Tank Check Boats

Balsa Inflable para Inspección de Tanques
膨張式点検ボート　膨胀式检查船

Designed for inspection of deep tanks of tanker ships. Made from electro conductive, oil proof, acid proof, neoprene coated nylon cloth.



Specification

Capacity	5 Persons
Tube Buoyancy	600 kg or more
Total Buoyancy	Approx. 1,300 kg
Boat Weight	30 kg
Inflated by	Air blow
Accessories	Standard accessories attached

23 25 66	Inflatable deep tank check boat, capacity 5 persons	Set

25. Tank Mirrors

Tank Mirrors

Espejos de Inspección　タンクミラー　油船用反射镜



Made from stainless steel and highly polished finishing. A useful tool during loading and discharging operations.

23 25 81	Tank mirror, stainess steel, 100 × 125 mm	Pc.

26. Oil Funnels/Oil Sample Cans

Galvanized Oil Funnels

Esbudos para Aceite　油漏斗　镀锌油漏斗



Made from a heavy galvanized tin plate with a brass strainer.

Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
23 26 01	100	**23 26 05**	225
02	125	**06**	250
03	150	**07**	280
04	200	**08**	350

Oil Sample Cans

Latas para Muestra de Petróleo
オイルサンプル缶　油样品桶



Made of galvanized iron, 2 sizes available.

23 26 26	Oil sample can, 1 Ltr.	Pc.
27	Oil sample can, 4 Ltr.	"

27. Hand Cuffs

Hand Cuffs

Esposas　手錠　手铐



Made from stainless steel. Furnished with two sets of keys.

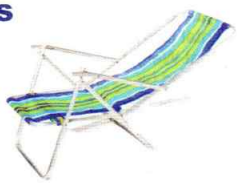
23 26 21	Hand cuffs, stainless steel	Pr.

28. Deck Chairs

Folding Deck Chairs

Pipe Frame

Sillas de Cubierta/Bastidor de Acero
ボンボンベッド　管架甲板折椅



The frame is made of stainless steel pipe with woven plastic tubing forming the seat. Can be folded into a sitting position or reclined back.

23 26 31	Deck chair, folding pipe frame	Pc.

Folding Deck Chairs

Wooden Frame

Sillas de Cubierta/Bastidor de Madera
デッキチェアー　木质架甲板折椅



A folding deck chair made with a wooden frame and a light canvas. It has an armrest that can be adjusted at three different settings. The inside width is 600 mm and the overall length is 1,250 mm.

23 26 32	Deck chair, folding wood frame	Pc.

Pipe Frame Folding Chairs

with Arm Rest

Sillas Plegables de Bastidor de Acero con Apoya-brazos
折畳椅子　管架式折椅（带扶手）



Seat and back are made of alum. pipe and coloured vinyl mesh strip. Folds compactly for storage.

23 26 33	Chair, folding, alum. pipe frame with arm rest	Pc.

29. Dunnage Bags/Plywood

Inflatable Dunnage Bags

Bolsas Inflables para Protección de Cargas
膨張式袋緩衝材　膨胀式缓冲袋



Reusable dunnage bag made from strong plastic film combined with several layers of hard-wearing, water-resistant paper. It can withstand pressure loads up to 15 - 20 tons and temperatures from 20°C to 65°C.

This dunnage bag gives the best protection imaginable from transport damage, absorbing harmful shocks time after time without loosing its shape. Suitable for protecting drums, boxes, palletized goods, tins, bottles, large machinery or machinery parts, large pipes and special cargoes, etc.
Simply insert the dunnage bag in any space between items loaded in cargo and inflate it. This dunnage bag will prevent the cargo from moving during transport and will protect items from any shock occurring from contact with other packages.

Unit Per Box

CODE	Size cm	Nos. per Box	CODE	Size cm	Nos. per Box
23 26 51	60 × 110	15	23 26 54	100 × 140	15
52	85 × 120	12	55	100 × 185	10
53	85 × 220	8	56	100 × 220	10

Name of Mfr.: Bates Cargo - Pak ApS

Eco Inflatable Dunnage Bags

Eco-friendly type such as biomass material bag is also available for your choice

Unit Per Pc.

CODE	Size mm	CODE	Size mm
23 26 57	850 × 1,200	23 26 59	1,000 × 2,200
58	850 × 1,850		

Inflators for Dunnage Bag

Suitable for use with all kinds of compressed air systems. Can inflate the largest dunnage bag in 30 seconds with this quick inflator.



Standard



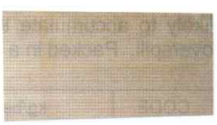
Quick

23 26 61	Inflator for dunnage bag, Standard	Pc.
62	Inflator for dunnage bag, Quick	"

Plywood

Contrachapado　ベニヤ板　三夹板

Two types of plywood are available, a common type and a waterproof type for marine use.



Unit Per Pc.

910 mm × 1,820 mm (3' × 6')		1,210 mm × 2,420 mm (4' × 8')	
CODE	Thickness mm	CODE	Thickness mm
Common Type			
23 27 01	2.7	23 27 11	2.7
02	3	12	3
03	4	13	4
04	5.5	14	5.5
05	9	15	9
23 27 06	12	23 27 16	12
07	15	17	15
08	18	18	18
09	21	19	21
10	24	20	24

(to be continued)

Unit Per Pc.

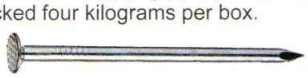
910 mm × 1,820 mm (3' × 6')		1,210 mm × 2,420 mm (4' × 8')	
CODE	Thickness mm	CODE	Thickness mm
Water-proof Type			
23 27 21	2.7	**23 27 31**	2.7
22	3	**32**	3
23	4	**33**	4
24	5.5	**34**	5.5
25	9	**35**	9
23 27 26	12	**23 27 36**	12
27	15	**37**	15
28	18	**38**	18
29	21	**39**	21
30	24	**40**	24

30. Nails

Common Wire Nails

Clavos 釘 铁钉

Flat type with a diamond driving point. Supplied by kilogram but usually packed four kilograms per box.



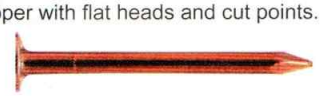
Unit Per Kgs.

CODE	Length mm	CODE	Length mm
Common Wire Nails			
23 27 51	10	**23 27 60**	50
52	13	**61**	65
53	16	**67**	70
54	19	**62**	75
55	22	**63**	90
23 27 56	25	**23 27 64**	100
57	32	**65**	125
58	38	**66**	150
59	45		
Brass Nails			
23 27 71	19	**23 27 75**	38
72	22	**76**	50
73	25	**77**	65
74	32	**78**	75
Copper Nails			
23 27 81	19	**23 27 83**	25
82	22	**84**	32

Copper Tacks

Puntillas コッパータック 紫铜平头钉

Made of Copper with flat heads and cut points.



Unit Per Kgs.

CODE	Length mm	CODE	Length mm
23 27 91	12	**23 27 93**	20
92	16	**94**	25

31. Acryl Sheets

Transparent Acrylic Sheets

Placa de Acrílico Transparente 透明アクリル板 透明丙烯板

Made of break-resistant, plexiglass, clear acrylic plastic. Standard size is 1 mtr x 2 mtr. When ordering, please specify the required thickness.



Unit Per Sht.

CODE	Thickness	CODE	Thickness
23 28 31	2 mm	**23 28 34**	5 mm
32	3 "	**35**	6 "
33	4 "		

32. Waste/Rags

Wiping Waste

Estopa 糸ウエス 清洁用废纱



Available in a white or coloured type wiping waste. Consists of selected new cotton threads properly blended to obtain maximum absorption. Sold by kilograms but usually packed in bags of 50 kg.

23 29 01	Waste, cotton white, sterilized	Kgs
02	Waste, cotton color, sterilized	"

Wiping Rags

Trapos 布ウエス 清洁用破布



Available in white, light-colour or coloured type rags. All material has been throughly washed and sterilized. One bundle contains five 4-kg packets. Sold by kg.

23 29 06	Rags, white, 60% cotton, sterilized	Kgs
05	Rags, white, 90% cotton, sterilized	"
07	Rags, white 100% cotton, sterilized	"
08	Rags, light colour sterilized	"
09	Rags, colour, sterilized	"

Paper Wiping Rags

Papel Limpiamanos 紙ウエス 清洁用纸



A disposable paper rag designed for use in place of cotton rags.

Unit Per C/S

CODE	Size mm	Contents
23 29 11	450 × 290	4,000 shts/case
12	380 × 380	100 shts × 15 box/case

Roll Paper Wiping Rags

Papel Limpiamanos Bobinas 紙ウエスロール型 清洁用卷筒纸

A sanitary paper wiping rag supplied in rolls for a variety of uses. There are many types available but the most common types have been selected and described below with respective specifications. The roller stands and dispensers are sold separately.





A-Tork
Designed for a wide variety of heavy duty wiping applications. A-Tork is a simpler, more efficient and more hygienic material than rags or cotton waste.

E-Tork
Specially developed to replace rags and cloths. E-Tork is for more detailed work such as the polishing of enamel paint or the cleaning of precision engineering parts. E-Tork is chemically pure and features an absorption rate as much as 4 times greater than cotton materials.

M-Tork & Mini Tork
Intended principally as a towel wipe. This single ply material can be utilized for many other lightweight purposes such as cleaning kitchen counters, bathroom fixtures or first aid rooms. Has the same quality paper as the A-Tork type.

Unit Per Box

CODE	Type	Paper Size	Ply	Rolls/Box
23 29 21	A-Tork	290 mm × 240 mtr	2	4 rolls
22	E-Tork	320 mm × 230 mtr	2	2 "
23	M-Tork	250 mm × 275 mtr	1	6 "
24	Mini-Tork	220 mm × 120 mtr	1	12 "

Name of Mfr.: SCA Hygiene Paper AB

Roll Paper Dispensers
Porta-rollo Papel Limpiamanos
ロールペーパーディスペンサー　巻筒清洁纸支架（地板式支架）

Designed for use with the rolled paper rags mentioned above. Paper rags and rolls are sold separately.



Unit Per Pc.

CODE	Type	Size mm	Applicatiion
23 29 31	Floor stand	500 × 500 × 880	A-tork, E-Tork &
32	Wall stand	290 × 455 × 380	M-Tork
23 29 34	M-box	248 × 273 × 324	M-Tork
23 29 35	Mini-box	178 × 184 × 279	Mini-Tork

Sludge Bags
Bolsa para el Lodo　スラッジ処理用袋　污泥袋



A thick Polypropylene bag for sludge disposal. Strengthened with inner Polyethylene bag to protect against leakage, and attached with string for binding the opening.

Size: width 600 mm x length 1,000 mm.

23 29 40	Sludge bag, polypropylene with inner, size 600 × 1,000 mm	Pc.

Used Gunny Bags
Sacos Usados de Yute
中古麻袋　旧麻布袋



A coarse jute bag for use as a wiping rag, as dunnage, or as a trash disposal or container for sawdust, sand, or pellets. Size approx. 580 - 710 x 1,000 - 1,010 mm weighing approx. 0.8 - 1 kg. Sold by individual pieces.

23 29 41	Gunny bag, used	Pc.

33. Used Drums/Used Cement Bags

Used Drums
Bibones de Segunda Mano　中古ドラム　旧油桶



A 200 ltr used drum which is cleaned for general purpose use. Available in cap type and open lid type.

23 29 42	Drum, used, 200 Ltr, cap type	Pc.
23 29 43	Drum, used, 200 Ltr, open lid type	Pc.

Used Cement Bags
Bolsas de Cemento, Usadas　中古セメント袋　旧水泥袋

Worn empty paper bag.

23 29 44	Used cement bag, empty	Pc.

34. Sand/Cement/Blasting Sand

Sand
Arena　砂　黄沙

Used for scrubbing wood decks, extinguishing fires, and in mixing cement. Packed in a strong plastic bag containing approx. 25 kg.

23 29 50	Sand, fine 25 kg	Bag

Portland Cement
Cemento Portland　セメント　普通水泥



Used chiefly as a coating for tanks, bilges, etc. Supplied 25 kg or 40 kg per package in a durable paper bag.

CODE	Description	Contents kg	Unit
23 29 56	Portland cement	25	Bag
51		40	
23 29 57	Quick-dry cement	25	Bag
52		40	
23 29 53	White cement	20	Bag
54		40	
23 29 55	Drying agent	2	Can

Garnet Blasting Grit
Abrasivo de soplado de granate
ブラスト用ガーネット　石榴石喷砂磨料



Garnet Abrasive is derived from mined Almandine and Andradite mineral deposits, and most commonly used as a high-performance blast media, for the cleaning of metal and

fibreglass structures. As an inert, non-toxic, natural mineral, it is also used on sites where water contamination is a concern. Various grain sizes are available. Packed in quantity of 25 kg in strong paper bags or metric ton.

CODE	Mesh	Particle dia	Finish Surface Roughness	Unit
23 29 82	12-20	1,400-800 µm	80-100 µm	25 kg/bag
23 29 83				Ton
23 29 84	20-40	800-300 µm	50- 80 µm	25 kg/bag
23 29 85				Ton
23 29 88	30-60	600-250 µm	30- 50 µm	25 kg/bag
23 29 89				Ton

Blasting Copper Grit

Gramalla de Cobre
サンドブラスト用 S.P. グリッド
喷砂用铜砂



Made from slag, a byproduct from a copper smelting refinery. Copper grit is less expensive than steel grit and works as effectively because the grits have pointed edges and contain over 30 % iron. Can be collected and reused. The size of the grit is 0.5 - 4.5 mm in mesh and it is packaged in quantities of 30 kg in durable paper bags. Sold by metric ton.

Grid Size		Medium Grade		8 mesh		10 mesh		Fine Grade	
CODE		**23 29 60**	**23 29 61**	**23 29 62**	**23 29 63**	**23 29 64**	**23 29 65**	**23 29 71**	**23 29 72**
Unit		30 kg	Ton	30 kg	Ton	30 kg	Ton	30 kg	Ton
4 Mesh	5.00 mm	-		-		-		-	
8	2.50	5.9 %		0.1 %		-		-	
16	1.18	25.9 %		40.1 %		27.2 %		-	
20	0.85	51.8 %		54.2 %		55.4 %		-	
30	0.60	12.2 %		4.6 %		13.8 %		21.9 %	
50	0.30	4.1 %		1.0 %		3.6 %		70.7 %	
60	0.25	0.1 %		0.1 %		0.1 %		3.0 %	
100	0.15	0.1 %		0.1 %		0.1 %		3.7 %	
140	0.10	-		-		-		0.5 %	
PAN		-		-		-		0.2 %	

Blasting Sand

Gramalla de Arena サンドブラスト用硅砂 喷沙

Abrasive grains of sand for sandblasting which are economical for cleaning metal surfaces. Various grain sizes of silica are available. Packed in quantities of 30 kg in strong paper bags. Sold by metric ton.

Unit Per Ton

CODE		**23 29 66**	**23 29 67**	**23 29 68**	**23 29 69**	**23 29 70**
Nominal Grain Size		No. 2	No. 3A	N. 3B	No. 4	No. 5
6 Mesh	3.25 mm	0.4 %	-	-	-	-
8	2.36	65.5	0.6%	-	-	-
10	1.70	33.0	58.8	-	-	-
14	1.18	0.1	40.1	52.4%	0.2%	-
20	0.85	-	0.4	45.2	21.9	0.2%
28	0.60	-	0.1	2.4	59.8	2.6
35	0.425	-	-	-	15.5	44.3
48	0.30	-	-	-	2.1	28.6
65	0.212	-	-	-	0.3	14.2
100	0.15	-	-	-	0.2	7.8
150	0.106	-	-	-	-	2.0
200	0.075	-	-	-	-	0.2
270	0.053	-	-	-	-	0.1

Dry Walnut Shell
for Turbo Charger Cleaner

Cáscara de Nuez
過給機カーボン除去用くるみ殻 干核桃壳



Made of walnut shell and crushed into grit. Suitable to use for cleaning up the dirt sticks from nozzles and blades of turbocharger. There are several types of grain size and packed in 20 kg paper bag. Please specify grit size when ordering.

Unit Per Bag

CODE	Grit No.	Size µ
23 29 73	#20	840 - 1,190
74	#16	1,000 - 1,410
75	#14	1,190 - 1,680
76	#12	1,410 - 2,000
77	#10	1,680 - 2,380
23 29 78	# 8	2,000 - 2,830

35. Separation Nets/Covering Sheets

Cargo Separation Nets

Red de Separación de Carga
カーゴセパレーションネット 隔货网

Made of synthetic fibre mesh for cargo separation. Several kinds of net sizes and colours are available. The most common size is 5 x 6 mtrs. Please specify the quantity and colour required when ordering.

23 29 81	Cargo separation net 5 × 6 mtrs coloured	Pc.

Burlap

Arpillera バーラップ 粗麻布



A course jute cloth used on board a ship chiefly as a protective cover for items on deck or exposed cargo. The size of a bundle is approx. W 115 cm x L 100 mtrs. Weighs 300 grams per square meter.

Unit Per Mtr.

CODE	Width cm	Gauge	Weight Per Sq/Mtrs. grm
23 29 87	115	No. 6	300

Biodegradable Stretch Films Eco-friendly

Film estirable biodegradable Ecológico
生分解性ストレッチフィルム
生物降解拉伸膜 生态友好型



Designed for eco-friendly alternative to traditional plastic stretch films for wrapping the goods. Made from biodegradable material that decomposes naturally over time, capable of breaking down into non-toxic elements and contributing to reduce environmental impact.

Available in 500 mm width x 160 mtr length.

23 29 91	Stretch film biodegradable, W: 500 mm x 160 mtr, 2.2 kg/roll	Rls.

Squared Polyethylene Sheets

Placa de Polietileno Cuadrada ブルーシート 平面聚酯合成板

Ready made square polyethylene sheet suitable for use protecting equipment on deck, covering rope coils which are exposed to sunlight or seawater, and covering interior floors,

etc. during painting or while in dock. All sheetings have holes enforced with grommets for tying the sheets down or connecting sheets together. Blue coloured sheet will be supplied unless specified otherwise.



Unit Per Sht.

CODE	Size mtr	Wgt. sht kg	CODE	Size mtr	Wgt. sht kg
23 30 31	1.8 × 1.8	0.4	**23 30 43**	4.5 × 4.5	2.5
32	1.8 × 2.7	0.6	**44**	4.5 × 5.4	3.0
33	1.8 × 3.6	0.8	**23 30 45**	5.4 × 5.4	3.6
34	1.8 × 4.5	1.0	**46**	5.4 × 7.2	4.8
35	1.8 × 5.4	1.2	**47**	5.4 × 9.0	6.0
23 30 36	2.7 × 2.7	0.9			
37	2.7 × 3.6	1.2	**23 30 48**	7.2 × 7.2	6.4
38	2.7 × 4.5	1.5	**49**	7.2 × 9.0	8.0
39	2.7 × 5.4	1.8			
23 30 40	3.6 × 3.6	1.6	**23 30 50**	9.0 × 9.0	10.0
41	3.6 × 4.5	2.0	**23 30 51**	10.0 × 10.0	12.4
42	3.6 × 5.4	2.4			

36. Hatch Cover Parts

MacGregor Hatch Cover Parts

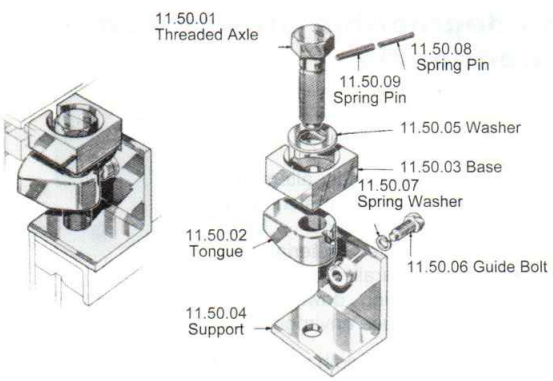
Piezas de Cubierta de Escotilla MacGregor
マックグレーガーハッチカバー部品　合成纤维舱盖帆布（丙纶）

As a wide variety of spare parts are available, code numbers have only been provided for the most commonly used parts for convenience. Before ordering, please clearly specify the following points to avoid unnecessary confusion and misdelivery.

1. Part Name
2. Part Number
3. Name of Original Manufacturer
4. Shipyard Hull Number
5. Besides above, Necessary information if any

11.50 Flush Deck Cleat Assembly

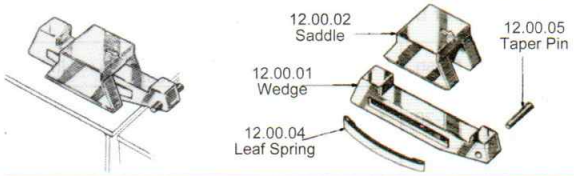
Conjunto de Cornamusa de Ubierta Enrasada
フラッシュデッキクリートアセンブリー　平头甲板夹板组件



CODE	Item No.	Item	Unit
23 32 26	11.50	Flush Deck Cleat Assembly	Set
27	11.50.01	Threaded Axle	Pc.
28	02	Tongue	"
29	03	Base	"
30	04	Support	"
31	05	Washer	"
32	06	Guide Bolt	"
33	07	Spring Washer	"
34	08	Spring Pin	"
35	09	Spring Pin	"

12.00 Cross Joint Wedge Assembly

Conjunto de Cuña de Junta Transversal
クロスジョイント・ウェッジ・アッセンブリー　十字接头楔形组件



CODE	Item No.	Item	Unit
23 32 41	12.00	Cross Joint Wedge Assembly	Set
42	12.00.01	Wedge	Pc.
43	02	Saddle	"
44	04	Leaf Spring	"
45	05	Taper Pin	"

Quick Acting Cleat Assembly

Conjunto de Grapas de Acción Rápida
クイックアクティングクリートアッセンブリー　快装板组件

13.00 315 mm Rod Length
13.01 405 mm Rod Length
Both 22 mm Dia.

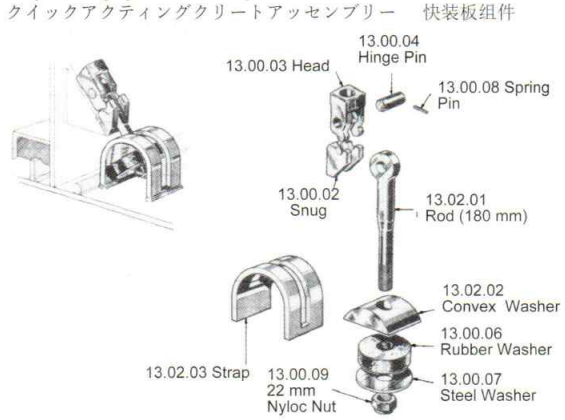


CODE	Item No.	Item	Unit
23 32 50	13.00	Quick Acting Cleat Assembly 315 mm	Set
23 32 51	13.01	Quick Acting Cleat assembly 405 mm	Set
23 32 52	13.00.01	Rod 315 mm	Pc.
53	02	Snug	"
54	03	Head	"
55	04	Hinge Pin	"
56	05	Crutch	"
57	06	Rubber Washer	"
58	07	Steel Washer	"
59	08	Spring Pin	"
60	09	Nyloc Nut 22 mm	"
23 32 61	13.01.01	Rod 405 mm	Set

13.02 Quick Acting Cleat Assembly

180 mm Rod Length 22mm Dia.

Conjunto de grapas de acción rápida
クイックアクティングクリートアッセンブリー　快装板组件

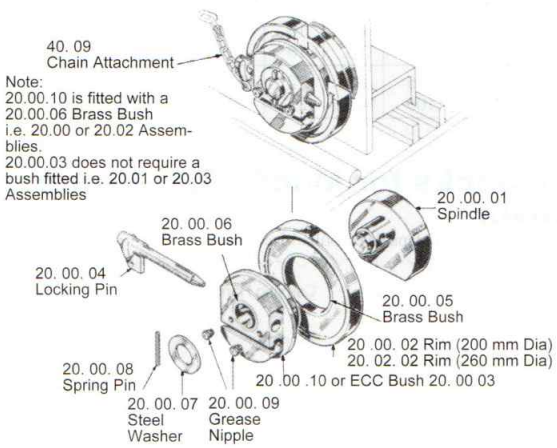


CODE	Item No.	Item	Unit
23 32 66	13.02	Quick Acting Cleat Assembly 180 mmL × 22 mmΦ	Set
23 32 53	13.00.02	Snug	Pc.
54	03	Head	"
55	04	Hinge Pin	"
57	06	Rubber Washer	"
58	07	Steel Washer	"
59	08	Spring Pin	"
60	09	Nyloc Nut 22 mm	"
67	02.01	Rod 180 mm	"
68	02	Convex Washer	"
69	03	Strap	"

Eccentric Wheel Assembly

Conjunto de Rueda Excéntrica　偏心ホイールアセンブリ　偏心轮组件

20.00/20.01 200 mm ⌀
20.02/20.03 260 mm ⌀



CODE	Item No.	Item	Unit
23 32 71	20.00	Eccentric Wheel Small Model Assembly 200 mm	Set
23 32 72	20.01	Eccentric Wheel for Wheel Load 2 tons max. Assembly 200 mm	Set
23 32 73	20.02	Eccentric Wheel for Wheel Load 5 tons max. Assembly 260 mm with Brass Bush	Set
23 32 74	20.03	Eccentric Wheel for Wheel Load 5 tons max. Assembly 260 mm without Brass Bush	Set
23 32 75	20.00.01	Spindle	Pc.
76	02	Rim 200 mm dia.	"
77	03	Eccentric Bush	"
78	04	Locking Pin	"
79	05	Brass Bush	"
80	06	Brass Bush	"
81	07	Steel Washer	"
82	08	Spring Pin	"
83	09	Grease Nipple	"
84	10	Eccentric Bush	"
85	02.02	Rim 260 mm dia.	"
23 32 86	40.09	Chain Attachment	Pc.

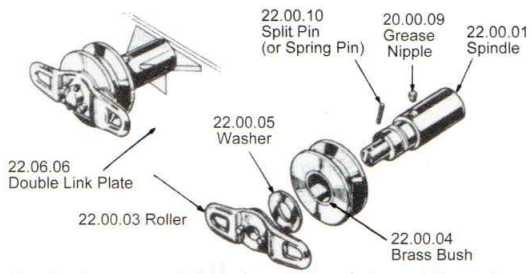
22.04 Balancing Roller Assembly

2-1/2-4 Tons

Conjunto de Rodillos de Equilibrado
バランシングローラーアセンブリ　平衡辊组件

For normal Single Pull and Magronest Covers 2-1/2-4 tons weight with Double Link Plate.

22.04 & 22.06 Assembly



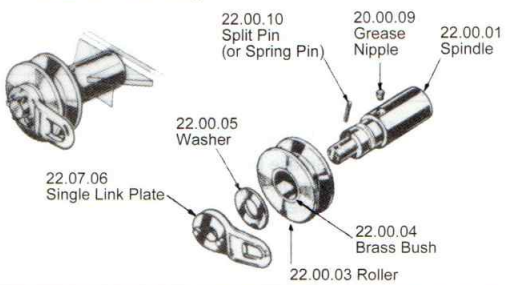
CODE	Item No.	Item	Unit
23 32 91	22.04	Balancing Roller Assembly 2-1/2-4 tons with double link plate	Set
23 32 83	20.00.09	Grease Nipple	Pc.
92	22.00.01	Spindle	"
93	03	Roller	"
94	04	Brass Bush	"
95	05	Washer	"
96	10	Spring Pin	"
97	06.06	Double Link Plate	"

22.05 Balancing Roller Assembly

2-1/2-4 Tons

For normal Single Pull and Magronest Covers 2-1/2-4 tons weight with Single Link Plate.

22.05 & 22.07 Assembly



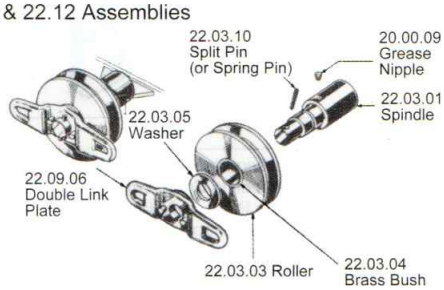
CODE	Item No.	Item	Unit
23 33 01	22.05	Balancing Roller Assembly 2-1/2-4 tons with single link plate	Set
23 32 83	20.00.09	Grease Nipple	Pc.
92	22.00.01	Spindle	"
93	03	Roller	"
94	04	Brass Bush	"
95	05	Washer	"
96	10	Spring Pin	"
23 33 02	07.06	Double Link Plate	"

22.09 Balancing Roller Assembly

Above 4 Tons

For normal Single Pull and Magronest Covers above 4 tons weight with Double Link Plate.

22.09 & 22.12 Assemblies



CODE	Item No.	Item	Unit
23 33 06	22.09	Balancing Roller Assembly 4 tons with double link plate	Set
23 32 83	20.00.09	Grease Nipple	Pc.
23 33 07	22.03.01	Spindle	"
08	03	Roller	"
09	04	Brass Bush	"
10	05	Washer	"
11	10	Spring Pin	"
12	09.06	Double Link Plate	"

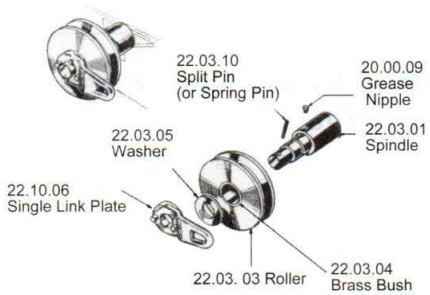
22.10 Balancing Roller Assembly

Above 4 Tons

Conjunto de Rodillos de Equilibrado
バランシングローラーアセンブリ　平衡辊组件

For normal Single Pull and Magronest Covers above 4 tons weight with Single Link Plate.

22.10 & 22.11 Assemblies

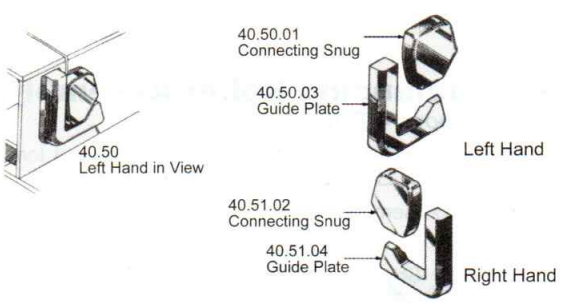


CODE	Item No.	Item	Unit
23 33 16	22.10	Balancing Roller Assembly 4 tons with single link plate	Set
23 32 83	20.00.09	Grease Nipple	Pc.
23 33 07	22.03.01	Spindle	"
08	03	Roller	"
09	04	Brass Bush	"
10	05	Washer	"
11	10	Spring Pin	"
17	22.10.06	Single Link Plate	"

40.50 & 40.51 Junction Pieces

Left & Right Hand

Piezas de unión　ジャンクションピース　连接件

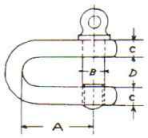


CODE	Item No.	Item	Unit
23 33 21	40.50	Junction Piece, Left Hand	Set
22	40.50.01	Connecting Snug, Left Hand	Pc.
23	03	Guide Plate, Left Hand	Pc.
24	40.51	Junction Piece, Right Hand	Set
25	51.02	Connecting Snug, Right Hand	Pc.
26	51.04	Guide Plate, Right Hand	Pc.

Shackles for MacGregor Hatch Cover

Grilletes para Tapa de Escotilla MacGregor
マクレガー製ハッチカバー用シャックル
用于 MacGregor 舱口盖的卸扣





Unit Per Pc.

CODE	Part No.	Slize mm				Use for Towing Chain
		A	B	C	D	
23 33 31	4005	80	16	18	20	14 øm m
32	06	53	16	18	20	14 "
33	07	116	22	26	25	18 "
34	08	74	22	26	25	18 "
35	KL-2	65	19	16	25	13 "
36	3	60	19	16	25	13 "
37	4	55	19	16	25	13 "
38	60	60	16	18	20	13 "
39	70	70	16	18	20	13 "
23 33 40	K-95	95	22	26	25	16-19 "
41	105	105	22	26	25	16-19 "

Oil Jacks for MacGregor Hatch Cover

Gatos de aceite para tapa de escotilla MacGregor
マクレガーハッチカバー用オイルジャック　舱口盖的油升降机



Unit Per Pc.

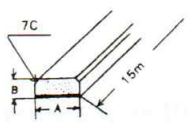
CODE	Part No.	Slize mm				Capacity ton
		A	B Φ	C Φ	Stroke	
23 33 51	MCH-5B	138	63.5	32	60	5
52	7B	150	88.3	42	60	7
53	7C	240	88.3	42	150	7
54	7F	180	-	-	100	7
55	10B	159	100.8	48	60	10

Remark: Mounting Beds for above Jacks are available as optional attachments. Before ordering, please ask for more details.

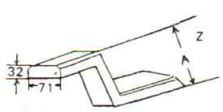
Packing for MacGregor Hatch Cover

Embalaje paraTtapa de Escotilla MacGregor
マクレガーハッチカバー梱包　MacGregor 舱口盖包装

Sponge Packing



Corner Packing



CODE	Part No.	Description	Unit
23 33 62	-	Sponge packing, A-71 × B-32	Mtr
63		Sponge packing, A-92 × B-50	"
23 33 67	Z112	Corner packing, 32×71×A-112	Pc.
68	Z132	Corner packing, 32×71×A-132	"

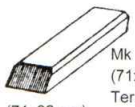
Various Types of Rubber Pads

Varios Tipos de Almohadillas de Goma
各種ラバーパッド　各种橡胶垫

Mk 8 5-1/2"x 2-3/4"x1-1/2"



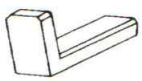
(71x32mm)



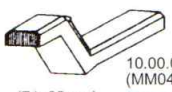
(71x32mm)

Mk 9
(71x32mm)
Terminal Piece

MM05 (Mk 1)
Two-way Joint



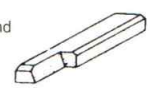
(71x32mm)
L/Hand



(71x32mm)

10.00.09
(MM04A)
Three-way Pad

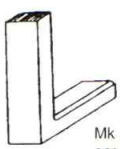
MM07A (Mk 2)
Left or Right Hand



10.00.10
End Piece



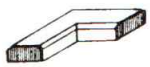
(71x32mm)



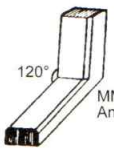
(71x32mm)

Mk 7
90° "L" Shaped

MM02A (Mk 4)
90° Flat Angle Joint



(71x32mm)



MM09
Angle Joint

(94x50mm)

MM06 (Mk 3)
Terminal Piece



(71x32mm)



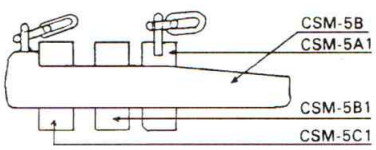
MM10
Flat End Joint

(94x50mm)

Aboves are illustrated only for reference and not coded.

Hatch Wedges

Cuñas de escotilla　ハッチ ウェッジ　舱口楔



CODE	Item No.	Item	Unit
23 33 81	CS -5D	Wedge Assembly	Set
82	CSM-5B	Wedge	Pc.
83	CSM-5A1	Saddle	"
84	CSM-5B1	"	"
85	CSM-5C1	"	"
86	CSH-5	Wedge Holder	"

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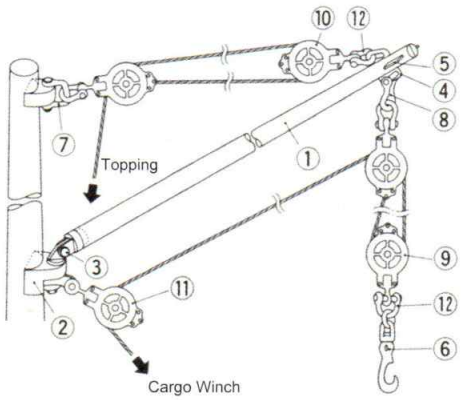
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Comparison Table for Hatch Cover Parts

CODE	Description	Parts No.		Unit
		MacGregor	Ascargo	
23 32 26	Hatch Flush Deck Cleat Assembly	#11.50	#25	Set
27	Hatch Threaded Axle	#11.50.01	#25.1	Pc.
28	Hatch Tongue	#11.50.02	#25.2	Pc
29	Hatch Base	#11.50.03	#25.3	Pc.
30	Hatch Support	#11.50.04	#25.4	Pc
31	Hatch Washer	#11.50.05	#25.5	Pc.
32	Hatch Guide Bolt	#11.50.06	#25.6	Pc.
33	Hatch Spring Washer	#11.50.07	#25.7	Pc.
34	Hatch Spring Pin	#11.50.08	#25.8	Pc.
35	Hatch Spring Pin	#11.50.09	#25.9	Pc.
23 32 41	Hatch Cross Joint Wedge Assembly	#12.00	#7	Set
42	Hatch Wedge	#12.00.01	#7.3	Pc.
43	Hatch Saddle	#12.00.02	#7.1	Pc.
44	Hatch Leaf Spring	#12.00.04	#7.2	Pc.
45	Hatch Taper Pin	#12.00.05	#7.4	Pc.
23 32 50	Hatch Quick Acting Cleat Assembly 315 mm	#13.00	#17	Set
51	Hatch Quick Acting Cleat Assembly 405 mm	#13.01	#18	Set
52	Hatch Rod 315mm	#13.00.01	#17.1	Pc.
53	Hatch Snug	#13.00.02	#17.2 / #18.2	Pc.
54	Hatch Head	#13.00.03	#17.3 / #18.3	Pc.
55	Hatch Hinge Pin	#13.00.04	#17.4 / #18.4	Pc.
56	Hatch Crutch	#13.00.05	#17.5 / #18.5	Pc.
57	Hatch Rubber Washer	#13.00.06	#17.6 / #18.6	Pc.
58	Hatch Steel Washer	#13.00.07	#17.7 / #18.7	Pc.
59	Hatch Spring Pin	#13.00.08	#17.8 / #18.8	Pc.
60	Hatch Nylock Nut 22 mm	#13.00.09	#17.9 / #18.9	Pc.
61	Hatch Rod 405 mm	#13.01.01	#18.1	Set
23 32 66	Hatch Quick Acting Cleat Assembly 180 mm	#13.02	#20	Set
53	Hatch Snug	#13.00.02	#20.2	Pc.
54	Hatch Head	#13.00.03	#20.3	Pc.
55	Hatch Hinge Pin	#13.00.04	#20.4	Pc.
57	Hatch Rubber Washer	#13.00.06	#20.6	Pc.
58	Hatch Steel Washer	#13.00.07	#20.7	Pc.
59	Hatch Spring Pin	#13.00.08	#20.8	Pc.
60	Hatch Nylock Nut 22 mm	#13.00.09	#20.9	Pc.
67	Hatch Rod 180 mm	#13.02.01	#20.1	Pc.
68	Hatch Convex Washer	#13.02.02	#20.10	Pc.
69	Hatch Strap	#13.02.03	#20.5	Pc.
23 32 71	Hatch Eccentric Wheel Model Ass'y 200 mm	#20.00	#26	Set
72	Hatch Eccentric Wheel	#20.01	-	Set
73	Hatch Eccentric Wheel w/Bush	#20.02	#27	Set
74	Hatch Eccentric Wheel w/o Bush	#20.03	-	Set
75	Hatch Spindle	#20.00.01	#26.1	Pc.
76	Hatch Rim 200 mm dia	#20.00.02	#26.2	Pc.
77	Hatch Eccentric Bush	#20.00.03	#26.3	Pc.
78	Hatch Locking Pin	#20.00.04	#26.4	Pc.
79	Hatch Brass Bush	#20.00.05	#26.5	Pc.
80	Hatch Brass Bush	#20.00.06	#26.6	Pc.
81	Hatch Steel Washer	#20.00.07	#26.7	Pc.
82	Hatch Spring Pin	#20.00.08	#26.8	Pc.
83	Hatch Grease Nipple	#20.00.09	#26.9	Pc.
84	Hatch Eccentric Bush	#20.00.10	#26.3	Pc.
85	Hatch Rim 260 mm dia	#20.02.02	#27.2	Pc.
86	Hatch Chain Attachment	#40.09	#26.10	Pc.
23 32 91	Hatch Roller Ass'y 2 -1/2 - 4 ton w/Double Link Plate	#22.04	#31	Set
83	Hatch Grease Nipple	#20.00.09	#31.8	Pc.
92	Hatch Spindle	#22.00.01	#31.1	Pc.
93	Hatch Roller	#22.00.03	#31.2	Pc.
94	Hatch Brass Bush	#22.00.04	#31.6	Pc.
95	Hatch Washer	#22.00.05	#31.5	Pc.
96	Hatch Spring Pin	#22.00.10	#31.7	Pc.
97	Hatch Double Link Plate	#22.06.06	#31.3	Pc.

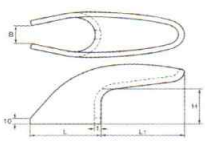
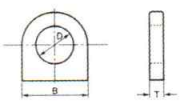
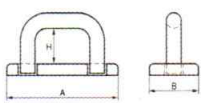
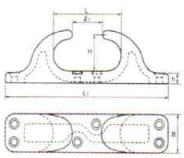
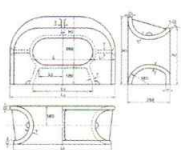
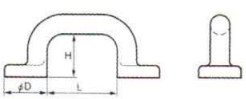
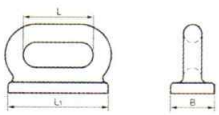
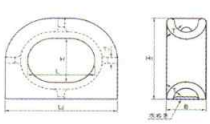
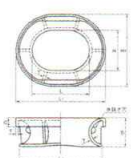
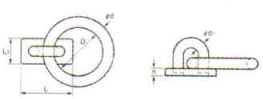
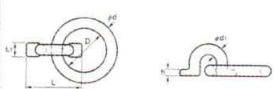
CODE	Description	Parts No.		Unit
		MacGregor	Ascargo	
23 33 01	Hatch Roller Ass'y w/Single Plate	#22.05	-	Set
23 32 83	Hatch Grease Nipple	#20.00.09	#31.8	Pc.
92	Hatch Spindle	#22.00.01	#31.1	Pc.
93	Hatch Roller.	#22.00.03	#31.2	Pc.
94	Hatch Brass Bush	#22.00.04	#31.6	Pc.
95	Hatch Washer	#22.00.05	#31.5	Pc.
96	Hatch Spring Pin	#22.00.10	#31.7	Pc.
23 33 02	Hatch Single Link Plate	#22.07.06	#31.4	Pc.
23 33 06	Hatch Balance Roller Ass'y 4ton w/Double Link Plate	#22.09	#32	Set
23 32 83	Hatch Grease Nipple	#20.00.09	#32.8	Pc.
23 33 07	Hatch Spindle	#22.03.01	#32.1	Pc.
08	Hatch Roller	#22.03.03	#32.6	Pc.
09	Hatch Brass Bush	#22.03.04	#32.2	Pc.
10	Hatch Washer	#22.03.05	#32.5	Pc.
11	Hatch Spring Pin	#22.03.10	#32.7	Pc.
12	Hatch Double Link Plate	#22.09.06	#32.3	Pc.
23 33 16	Hatch Balance Roller Ass'y w/Single Plate	#22.10	-	Set
23 32 83	Hatch Grease Nipple	#20.00.09	#32.8	Pc.
23 33 07	Hatch Spindle	#22.03.01	#32.1	Pc.
08	Hatch Roller	#22.03.03	#32.6	Pc.
09	Hatch Brass Bush	#22.03.04	#32.2	Pc.
10	Hatch Washer	#22.03.05	#32.5	Pc.
11	Hatch Spring Pin	#22.03.10	#32.7	Pc.
17	Hatch Single Link Plate	#22.10.06	#32.4	Pc.
23 33 21	Hatch Junction Piece Left Hand	#40.50	#35	Set
22	Hatch Connecting Snug Left Hand	#40.50.01	#35.1.I	Pc.
23	Hatch Guide Plate Left Hand	#40.50.03	#35.2.I	Pc.
24	Hatch Junction Piece Right Hand	#40.51	-	Set
25	Hatch Connecting Snug Right Hand	#40.51.02	#35.1.D	Pc.
26	Hatch Guide Plate Right Hand	#40.51.04	#35.2.D	Pc.
23 33 31	Shackle for Hatch	#4005	#4005	Pc.
32	Shackle for Hatch	#4006	#4006	Pc.
33	Shackle for Hatch	#4007	#4007	Pc.
34	Shackle for Hatch	#4008	#4008	Pc.
35	Shackle for Hatch	KL-2	KL-2	Pc.
36	Shackle for Hatch	KL-3	KL-3	Pc.
37	Shackle for Hatch	KL-4	KL-4	Pc.
38	Shackle for Hatch	KL-60	KL-60	Pc.
39	Shackle for Hatch	KL-70	KL-70	Pc.
40	Shackle for Hatch	KL-95	KL-95	Pc.
41	Shackle for Hatch	KL-105	KL-105	Pc.
23 33 51	Oil Jack for Hatch	#MCH-5B	#MCH-5B	Pc.
52	Oil Jack for Hatch	#MCH-7B	#MCH-7B	Pc.
53	Oil Jack for Hatch	#MCH-7C	#MCH-7C	Pc.
54	Oil Jack for Hatch	#MCH-7F	#MCH-7F	Pc.
55	Oil Jack for Hatch	#MCH-10B	#MCH-10B	Pc.
23 33 62	Sponge Packing A-71 X B-32	-	-	Mtr
63	Sponge Packing A-92 X B-50	-	-	Mtr
67	Corner Packing 32 X 71 XA 112	Z-112	Z-112	Pc.
68	Corner Packing 32 X 71 XA132	Z-132	Z-132	Pc.
23 33 XX	Terminal Piece 5-1/2" X 2-3/4" X 1-1/2"	Mk8	#43.1	Pc.
23 33 XX	Terminal Piece 71 X 32 mm	Mk9	#43.2	Pc.
23 33 XX	Two-way Joint 71 X 32 mm	MM05 (Mk 1)	#43.3	Pc.
23 33 XX	Three-way Pad 71 X 32 mm	#10.00.09 MM04A	#43.4	Pc.
23 33 XX	Left or Right Hand	MM07A (Mk 2)	#43.5	Pc.
23 33 XX	End Piece 71 X 32 X 250 mm	10.00.10	#43.7	Pc.
23 33 XX	90deg 'L' Shaped 71 X 32 mm	Mk7	#43.6	Pc.
23 33 XX	90deg Flat Angle Joint 71 X 32 mm	MM02A (Mk 4)	#43.9	Pc.
23 33 XX	Angle Joint 94 X 50mm	MM09	#43.8	Pc.
23 33 XX	Terminal Piece 71 X 32 X 267 mm	MM06 (Mk 3)	#43.10	Pc.
23 33 XX	Flat End Joint 94 X 50mm	MM10	#43.11	Pc.

Mast Hardware

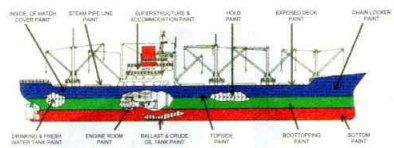


No.	Decriptions
1	Boom
2	Gooseneck Bracket
3	Derrick Boom Heel Fitting
4	Derrick boom Head Fitting
5	Stay Wire Fitting
6	Cargo Hook
7	Topping Bracket
8	Shackle
9	Cargo Block for Cargo Hold
10	Cargo Block for Topping Lift
11	Cargo Block for Cargo Hold Guide
12	Shackle

Marine Fittings

Fairleaders 	Open Rollers 	Guy Cleats 	Bollards 
Closed Rollers 	Deck End Rollers 	Eye Plates - C 	Eye Plates - D 
Open Chocks 	Panama Chocks 	Eye Plates - E 	Eye Plates - F 
Closed Chocks 	Mooring Pipes 	Ring Plates - B 	Ring Plates - D 

25
Marine Paint

Guidance of Marine Paint  P. 25-1	Marine Paint Comparison Table P. 25-2 ~ 7
Miscellaneous Paint P. 25-8	Varnish, Oil, Etc. P. 25-8 ~ 9
Latest Fouling Control Coatings P. 25-9	Coatings  P. 25-10 ~ 12

Marine Paint

Pintura Marina　船用ペイント　船用油漆

A wide range of products from different manufacturers are available. Some points to pay attention to in the painting process are described as follows.

1) Method of surface preparation

If the pretreatment of steel is insufficient, it is not possible to expect satisfactory results in the paint application. The main surface preparation methods are listed below as a reference.

Blast Cleaning

Sand blast	Shot blast	Vacuum blast
Mill scales, rust and harmful substances can be completely removed.		
Surface with complicated configurations can also be treated.	Efficient treatment can be performed.	Scattering of dust is limited.

Power Tool Cleaning

Disc sander	Power brush	Tube cleaner
Rust removing and cleaning can be efficient performed with relatively little effort.		

Hand Tool Cleaning

Scraper	Hammer
Handling is very simple and easy.	

Chemical Cleaning

Picking
Mill scales and rust can be completely removed. Picking is suitable for treatment of complicated configurations.

2) Primary surface preparation

1. Mill scales, rust and other foreign matters are to be removed to the grade of near white by blast cleaning.
2. After the blast cleaning, all blast abrasives and dust on the steel surfaces must be completely removed.
3. The surfaces will return to rust within a short time. Therefore it is necessary to apply a shop primer immediately.

3) Shop primer

Rust will return to the surfaces within a short time so it is necessary to apply a shop primer immediately.

4) Secondary surface preparation

Secondary surface preparation should be performed before painting because the surface of steel plates that have been coated with shop primer will be damaged by fusion cutting, welding, distortion and exposure to corrosive atmospheres.

5) Storage stability

When paints are stored outdoors, they will deteriorate in a shorter period. It is therefore recommended to store paints indoors in a cool place.

6) Painting with an airless sprayer

When paint is being applied by an airless sprayer, it is necessary to select suitable painting equipment. The following table provides a guide in the selection of airless sprayers.

Guide Table for the selection of Airless Paint Sprayers

Pressure Ratio	23:1	30:1	45:1
Max. Pressure of Nozzle	160 kgf/cm^2	210 kgf/cm^2	300 kgf/cm^2
Max. Pressure of Air Supply	7 kgf/cm^2	7 kgf/cm^2	6.6 kgf/cm^2
Max. Discharge Quality	1.9 ltr/min	11.4 ltr/min	12.6 ltr/min
Application	General finish coating, anti-corrosive paint, etc.	Chlorinated rubber paint, epoxy resin paint, etc.	Epoxy resin paint, tar epoxy resin paint, high viscosity type paint, etc.

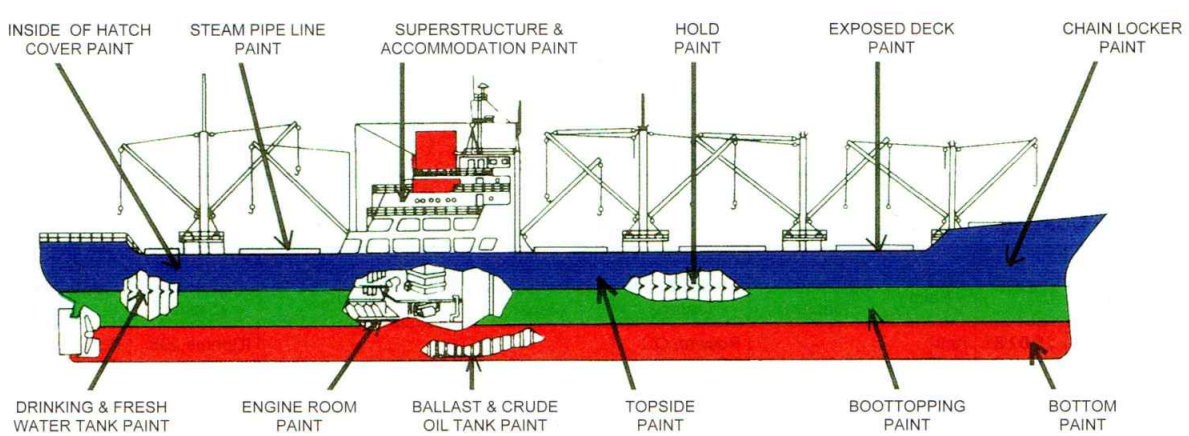
7) Atmospheres in which it is not suitable to paint

1. When the atmospheric pressure is less than 5°C.
2. When there is high humidity.
3. When there is a possibility of bubbling because the surface is scorched by the sun.
4. When there is a possibility that moisture, sand, dust, or other foreign matter will adhere to the paint while it is still wet.

8) Ventilation

It is required that the space being painted is properly ventilated to avoid the possible risk of ignition of paint or gasoline fumes and explosion.

Marine Paint Coating Chart



Marine Paint Comparison Table

The following tables show a comparison of paints from major paint manufacturers of the world. Listed here are typical standard examples. Some may differ depending on the trading condition, expected life, etc. Please consult with the paint manufacturer before making your final decision. Please specify the following points when ordering.

For example

1. Representative code : 25 02 81
2. Where to be applied : Boottop coating
3. Type of system : Alkyd
4. Kind of paint : Anti-corrosive
5. Manufacturer's name : _____
6. Brand name : _____
7. Colour : _____
8. Quantity : _____ltr

Bottom/Vertical Coating

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
TBT Free CDP Antifouling	**25 16 41**	Anti-corrosive	Intershield 300	Bannoh 1500	NOA 10 M	Jotamastic 87 Aluminium	IDCP 362	Weg Tar Free 712
	42	Tie-Coat	Intergard 263	Bannoh 1500RZ	-	QD AC HB	IDepoguard 363	Weg Tie Coat
	43	Anti-fouling	Interspeed 6400/6200	Seatender 10	Bioflex 800	C-Ruban AF HP	IDleap 340	Weg Tin Free 805
TBT Free SPC Antifouling	**25 16 45**	Anti-corrosive	Intershield 300	Bannoh 1500	NOA 10 M	Jotamastic 87 Aluminium	IDCP 362	Weg Tar Free 712
	46	Tie-Coat	Intergard 263	Bannoh 1500RZ	-	QD AC HB	IDepoguard 363	Weg Tie Coat
	47	Anti-fouling	Interswift 6800 HS/6600 Intercept 7000	Sea Grandprix 770HS	Ecoloflex SPC 200Z	Seaqueen/Seaforce	IDquick 755	Weg Ecomarine
TBT Free Self Polishing Copolymer A/F (for Coastal Vessels)	**25 16 71**	Anti-corrosive	Intershield 300	Bannoh 1500	NOA 10 M	Jotamastic 87 Aluminium	IDCP 362	Weg Tar Free 712
	72	Tie-Coat	Intergard 263	Bannoh 1500RZ	-	QD AC HB	IDepoguard 363	Weg Tie Coat
	73	Anti-fouling	Intersmooth 360 SPC 7670 SPC	Sea Grandprix 2000A	Ecoloflex SPC 600	Takata Quantum for Coastal Vessel/ Takata LLL No. 100	IDpoly 460 SPC	Weg Ecoloflex SPC 200
TBT Free Self Polishing Copolymer A/F (for Deep Sea Vessels)	**25 16 75**	Anti-corrosive	Intershield 300	Bannoh 1500	NOA 10 M	Jotamastic 87 Aluminium	IDCP 362	Weg Tar Free 712
	76	Tie-Coat	Intergard 263	Bannoh 1500RZ	-	QD AC HB	IDepoguard 363	Weg Tie Coat
	77	Anti-fouling	Intersmooth 7460HS SPC 7200Si SPC 7475Si SPC Intercept 8500LPP	Sea Grandprix 880M HS 950L 1000L	Ecoloflex SPC 150 HyB	Takata Quantum/Takata Quantum LLL	IDpoly 560 SPC	Weg Ecoloflex SPC 100
Silicon Foul Release Coating Intersleek 1000 System (for > 8 knot)	**25 18 01**	Anti-corrosive	Intershield 300	Bannoh 1500	Uniprotector	NU Forte (M)	IDshield 400	Weg Tar Free Plus
	02	Tie-Coat	Intersleek 737	CMP Bioclean R	Ecolosilk Tiecoat	Everclean No. 5000 Undercoat	IDfast 837	-
	03	Foul Release	Intersleek 1000	CMP Bioaclean HB	Ecolosilk	Everclean No. 5000 Topcoat	IDfast 857	-
Fluoropolymer Foul Release Coating Intersleek 1100SR System (for > 6 knot)	**25 18 05**	Anti-corrosive	Intershield 300	Bannoh 1500	-	-	IDshield 400	Weg Tar Free Plus
	06	Tie-Coat	Intersleek 737	CMP	-	-	IDfast 837	-
	07	Foul Release	Intersleek 1100SR	Bioclean R PLUS CMP Bioclean PLUS	-	-	-	-

Boottop Coating

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Alkyd	**25 02 81**	Anti-corrosive	-	Roswan QD HB	-	-	IDprime 298	Weg Oceano Primer
	82	Finish Coating	-	Evamarine	-	-	IDalkyd 765	Weg Oceano

(to be continued)

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Acrylic	**25 05 01**	Anti-corrosive	Intershield 300	Bannoh 1500	NOA 10 M	Jotamastic 87	IDCP 362	Weg Tar Free
	02	Tie-Coating	Intergard 263-	-	-	-	IDepoguard 363	Weg Tie Coat
	03	Finish Coating	Intersheen 579	Acri 700 Finish	Nippon A-Marine Finish	Pioner Topcoat	IDsurf 679	Weg N 1197
Epoxy	**25 10 12**	Anti-corrosive	Intershield 300	Bannoh 1500	NOA 10 M	Jotamastic 87	IDCP 362	Weg Tar Free
	14	Finish Coating	Intergard 740	Epicon Finish HB	Nippon E-Marine Finish M	Epomarine BTD	IDepoguard 840	Weg N 1198
Urethane	**25 07 01**	Anti-corrosive	Intershield 300	Bannoh 1500	NOA 10 M	Jotamastic 87	IDCP 362	Weg Tar Free
	02	Finish Coating	Interthane 990	Uny Marine	Nippon U-Marine Finish	Retan 6000	IDthane 1090	Wegthane 833

Topside Coating

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Alkyd	**25 02 85**	Anti-corrosive	-	Roswan QD HB	-	-	IDprime 298	Weg Oceano Primer
	86	Finish Coating	-	Evamarine	-	-	IDalkyd 765	Weg Oceano
Acrylic	**25 05 05**	Anti-corrosive	Intershield 300	Bannoh 1500	NOA 10 M	Jotamastic 87	IDCP 362	Weg Tar Free
	06	Tie-Coating	Intergard 263	-	-	-	IDepoguard 363	Weg Tie Coat
	07	Finish Coating	Intersheen579	Acri 700 Finish	Nippon A-Marine Finish	Pioner Topcoat	IDsurf 679	Weg N 1197
Epoxy	**25 08 22**	Anti-corrosive	Intershield 300	Bannoh 1500	NOA 10 M	Jotamastic 87	IDCP 362	Weg Tar Free
	24	Finish Coating	Intergard 740	Epicon Finish HB	Nippon E-Marine Finish M	Epomarine BTD	IDepoguard 840	Weg N 1198
Urethane	**25 07 05**	Anti-corrosive	Intershield 300	Bannoh 1500	NOA 10 M	Jotamastic 87	IDCP 362	Weg Tar Free
	06	Finish Coating	Interthane 990	Uny Marine	Nippon U-Marine Finish	Retan 6000	IDthane 1090	Wegthane 833

Weather Deck Coating

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Alkyd	**25 02 91**	Anti-corrosive	Interstores Alkyd Primer	Roswan QD HB	Nippon O-Marine Primer	-	IDprime298	Weg Oceano Primer
	92	Finish Coating	Interlac 665	Evamarine	Nippon O-Marine Finish	-	IDalkyd765	Weg Oceano
Acrylic	**25 05 11**	Anti-corrosive	Interstores Alkyd Primer	Bannoh 1500	Uniprime 20	Pioner Primer	IDCP362	Weg Tar Free
	12	Tie-Coat	-	-	-	-	IDepoguard 363	Weg Tie Coat
	13	Finish Coating	Intersheen579	Acri 700 Finish	Nippon A-Marine Finish	Pioner Topcoat	IDsurf679	Weg N 1197
Epoxy	**25 10 35**	Anti-corrosive	Interbond 201	Umeguard SX	Neoguard 100	Epomarine EX500	IDepoprime 301	Wegdur HS
	34	Finish Coating	Intergard 740	Epicon Finish HB	Nippon E-Marine Finish M	Epomarine BTD	IDepoguard 840	Weg N 1198
Urethane	**25 07 11**	Anti-corrosive	Intershield 300	Umeguard SX	Neoguard 100	Epomarine EX500	IDepoprime 301	Wegdur HS
	12	Finish Coating	Interthane 990	Uny Marine	Nippon U-Marine Finish	Retan 6000	IDthane1090	Wegthane 833

Cargo Hold Coating

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Alkyd	**25 02 95**	Anti-corrosive	-	-	-	-	IDprime298	Weg Oceano Primer
	96	Finish Coating	-	-	-	-	IDalkyd765	Weg Oceano
Epoxy	**25 10 44**	Anti-corrosive	Interbond 201	Umeguard SX	Neoguard 100	Epomarine EX500	IDepoprime 301	Wegdur HS
	43	Finish Coating	Interbond 201	Umeguard SX	Neoguard 100	Epomarine EX500	IDepoprime 301	Wegdur HS
	25 10 44	Anti-corrosive	Interbond 201	Umeguard SX	Nippon E-Marine 400	-	IDepoprime 601	Wegdur HS
	43	Finish Coating	Interbond 201	Umeguard SX	Nippon E-Marine 400	-	IDepoprime 601	Wegdur HS
	25 10 44	Anti-corrosive	Intershield 300	Bannoh 1500	Uniprotector	Epomarine EX600	IDshield 400	Weg Tar Free Plus
	43	Finish Coating	Intershield 300	Bannoh 1500	Uniprotector	Epomarine EX600	IDshield 400	Weg Tar Free Plus
	25 10 44	Anti-corrosive	Intershield 803/803Plus	Umeguard Super-H	Neoguard 100 GF/NOA GF	Jotamastic 87	IDshield 903	-
	43	Finish Coating	Intershield 803/803Plus	Umeguard Super-H		Jotamastic 87	IDshield 903	-

Outside of Structure Coating

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Alkyd	**25 03 01**	Anti-corrosive	Interstores Alkyd Primer	Roswan QD HB	Nippon O-Marine Primer/Uniprime 10	-	IDprime298	Weg Oceano Primer
	02	Finish Coating	Interlac 665	Evamarine	Nippon O-Marine Finish	-	IDalkyd765	Weg Oceano
Acrylic	**25 05 15**	Anti-corrosive	Interstores Alkyd Primer	Bannoh 1500	Uniprime 20	Pioner Primer	IDCP362	Weg Tar Free
	16	Tie-Coat	-	-	-	-	IDepoguard 363	Weg Tie Coat
	17	Finish Coating	Intersheen579	Acri 700 Finish	Nippon A-Marine Finish	Pioner topcoat	IDsurf679	Weg N 1197
Epoxy	**25 10 55**	Anti-corrosive	Interbond 201	Umeguard SX	Neoguard 100	Epomarine EX500	IDepoprime 301	Wegdur HS
	54	Finish Coating	Intergard 740	Epicon Finish HB	Nippon E-Marine Finish M	Epomarine BTD	IDepoguard 840	Weg N 1198
Urethane	**25 07 15**	Anti-corrosive	Intershield 300	Umeguard SX	NOA 10 M	Epomarine EX500	IDepoprime 301	Wegdur HS
	16	Finish Coating	Interthane 990	Uny Marine	Nippon U-Marine Finish	Retan 6000	IDthane 1090	Wegthane 833
Poly-siloxane	**25 09 01**	Anti-corrosive	Intershield 300	Bannoh 1500	-	-	IDshield 400	Weg Tar Free Plus
	02	Finish Coating	Interfine 878	Keisol	-	-	IDvinguard 1079	-

Accommodation Space Coating

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Alkyd	**25 03 05**	Anti-corrosive	Interstores Alkyd Primer	Roswan QDHB	Nippon O-Marine Primer	SD Marine Build Primer	IDprime298	Weg Oceano Primer
	06	Finish Coating	Interlac 665	Evamarine	Nippon O-Marine Finish	SD Marine BTD	IDalkyd765	Weg Oceano

(to be continued)

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Acrylic	**25 05 21**	Anti-corrosive	Interstores Alkyd Primer	Acri 700 Primer	Uniprime 20	Pioner Primer	IDprime298	Weg Oceano Primer
	22	Finish Coating	Intersheen579	Acri 700 Finish	Nippon A-Marine Finish	Pioner Topcoat	IDsurf679	Weg N 1197
Epoxy	**25 10 61**	Anti-corrosive	Interbond 201	Umeguard SX	Neoguard 100	Epomarine EX500	IDepoprime 301	Wegdur HS
	62	Finish Coating	Intergard 740	Epicon Finish HB	Nippon E-Marine Finish M	Epomarine BTD	IDepoguard 840	Weg N 1198

Engine Room Coating

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Alkyd	**25 03 11**	Anti-corrosive	Interstores Alkyd Primer	Roswan QD HB	Uniprime 20	SD Marine Build Primer	IDprime298	Weg Oceano Primer
	12	Finish Coating	Interlac 665	Evamarine	Nippon O-Marine Finish	SD Marine BTD	IDalkyd765	Weg Oceano
Acrylic	**25 05 25**	Anti-corrosive	Interstores Alkyd Primer	Acri 700 Primer	Uniprime 20	Pioner Primer	IDprime298	Weg Oceano Primer
	26	Finish Coating	Intersheen579	Acri 700 Finish	Nippon A-Marine Finish	Pioner Topcoat	IDsurf679	Weg N 1197
Epoxy	**25 10 75**	Anti-corrosive	Interbond 201	Umeguard SX	Neoguard 100	Epomarine EX500	IDepoprime 301	Wegdur HS
	74	Finish Coating	Intergard 740	Epicon Finish HB	Nippon E-Marine Finish M	Epomarine BTD	IDepoguard 840	Weg N 1198

Water Ballast Tank Coating

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Epoxy	**25 10 97**	Anti-corrosive	Interbond 808	CMP NOVA 2000	-	-	IDepoguard 503	Wet Surface 89 PW
	96	Finish Coating	Interbond 808	CMP NOVA 2000	-	-	IDepoguard 503	Wet Surface 89 PW
	25 10 97	Anti-corrosive	Interbond 808	CMP NOVA 2000	NOA 60 HS*	-	IDepoprime 908	Wet Surface 88 HT
	96	Finish Coating	Interbond 808	CMP NOVA 2000	-	-	IDepoprime 908	Wet Surface 88 HT
	25 10 97	Anti-corrosive	Intershield 300	Bannoh 1500	Uniprotector	NU Forte DX	IDshield 400	Weg Tar Free Plus
	96	Finish Coating	Intershield 300	Bannoh 1500	Uniprotector	NU Forte DX	IDshield 400	Weg Tar Free Plus

Remark* NOA 60 HS* - with SI (self-indicating) function

Fresh Water Tank Coating

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Epoxy	**25 10 85**	Anti-corrosive	Interline 850	-	NOA FWT	-	IDtank950	Weg Fenoxi
	84	Finish Coating	Interline 850	Epicon T-500	-	-	IDtank950	Weg Fenoxi
	25 10 85	Anti-corrosive	Interline 925	-	NOA FWT	Epomarine FW100 Primer	IDtank1025	Lackpoxi AE
	84	Finish Coating	Interline 925	Cleankeep 5000	NOA FWT	Epomarine FW100 Topcoat	IDtank1025	LackpoxiAE

Heat Resistant Paint

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Alkyd Aluminium	**25 12 03** (16 ltr) **04** (4 ltr)	Up to 315°C	Intertherm 891	Silva Spar (Up to 150°C)	TETZSOL P-200 ECO/ TETZSOL 200 ECO (up to 200°C)	Thermo 400 Undercoat/Thermo 400 Silver Thermo 400 Undercoat/Thermo 400 Silver	IDalum991	WEG N 1259
Silicon Aluminium	**25 12 05** (15 ltr) **06** (4 ltr)	Up to 540°C	Intertherm 50	Silicon HR Primer (Up to 700°C) Siicon HR Silver (Up to 700°C)	TETZSOL P-500 ECO TETZSOL 500 ECO	Thermo 600 Undercoat/Thermo 600 Silver Thermo 600 Undercoat/Thermo 600 Silver	IDalum150	Termolack 57

Galvanized Iron Primer

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Epoxy	**25 12 11** (16.4 ltr) **12** (3.3 ltr)	Primer	Interprime 539 Intergard 361	Galvanite No.200 Primer	Nippon E-Marine Primer Galva	Epomarine GX (18 kg)	IDprime639	Galweg

Water Paint

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Vinyl Emulsion	**25 12 15** (White 12.6 ltr) **16** (White 2.8 ltr) **17** (Tint 12.6 ltr) **18** (Tint 2.8 ltr)	Finish	-	Swan HBL	Odemarine EPF	ASUKA II	-	-

Engine Enamel Paint

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Alkyd	**25 12 21** (White 20 ltr) **22** (White 17.2 ltr) **23** (White 3.4 ltr) **24** (Colour 20 ltr) **25** (Colour 17.2 ltr) **26** (Colour 3.4 ltr)	Finish	Interlac 665	Evamarine	Nippon O-Marine Finish	SD Marine BTD	IDalkyd 765	Weg Oceano
Acrylic	**25 12 27**	Finish	Intersheen 579	Acri 700 Finish	Nippon A-Marine Finish	Pioner Topcoat	IDsurf 679	Weg N 1197

Non-Slip

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Sand	**25 12 47**	Finish	International GMA131	Non Skid Sand	Non-Slip Sand	Non Skid Sand	Rust Inhibitive Oil	Wegpoxi antiderrapante 718

Bituminous

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Bituminous	**25 12 53** (Black 17.6 ltr) **54** (Black 4.4 ltr)	Finish	Intertuf 202	Bitumen Solution B	Bismatic Solution	-	IDprime 200	Weg Betuminoso

Fluorescent Paint

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Luminous Paint (Orange)	**25 12 71** (4 kg) **72** (1 kg)	Finish	Interlac 648 HXA027	Evasign Orange	-	-	IDalkyd748	-
Luminous Paint (Yellow)	**25 12 73** (4 kg) **74** (1 kg)	Finish	Interlac 648 HXA026	Evasign Yellow	-	-	IDalkyd748 IDalkyd749	-
Luminous Paint (Red)	**25 12 75** (4 kg) **76** (1 kg)	Finish	Interlac 648 HXA019	Evasign Red	-	-	IDalkyd748	-

Varnish

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Alkyd	**25 14 07**	Varnish	Interlac 678 HVA022	-	-	Super Varnish	IDalkyd778	Weglack Oceano

Thinner

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Alkyd	**25 14 45**	Thinner	GTA004	Marine Thinner	Nippon Marine Thinner 100	Thinner No. 2	Thinner104	-
Acrylic (Vinyl)	**25 14 46**	Thinner	GTA007	CR/Acri Thinner A Vinyl Thinner	Nippon Marine Thinner 200	Thinner No. 7	Thinner101	-
Epoxy	**25 14 47**	Thinner	GTA220	Epoxy Thinner A	Nippon Marine Thinner 600	Thinner No. 17	Thinner103	Diluente Epoxi
Urethane	**25 14 48**	Thinner	GTA713 GTA056	Urethane Thinner A	Nippon Marine Thinner 700	Thinner No.10	Thinner105	Diluente PU

Putty

Type of System	CODE	Kind of Paint	International Paint (Japan)	Chugoku Marine Paints (Japan)	Nippon Paint Marine Coatings (Japan)	Kansai Paint Marine (Japan)	Shanghai Leader Marine (China)	Nau LM Neffa-WEG (Brazil)
Epoxy	**25 14 82**	Putty	Intergard 821	Bondet Putty	Neoguard Bulcon	Nu Forte Barrier	IDepoguard 921	-

Miscellaneous Paint

Pinturas Misceláneas　各種ペイント　油性树脂铝粉耐热漆

Unit Per Can

CODE	Description	Colour	Contents Ltr	Contents Kg
Heat Resistant Paint				
25 12 01	Oleoresinous Aluminium	Metallic Silver	16.8	16.0
02			4.2	4.0
25 12 03	Alkyd Aluminium	"	16.0	16.0
04			4.0	4.0
25 12 05	Silicon Resin Aluminium	Silver	15.0	16.0
06			3.7	4.0
Galvanized Iron Primer				
25 12 11	Epoxy Ester Primer	Light Cream	16.4	20.0
12			3.3	4.0
Water Paint				
25 12 15	Polyvinyl Acetate Emulsion	White	12.6	16.0
16			2.8	4.0
17		Tint	12.6	16.0
18			2.8	4.0
Engine Enamel				
25 12 21	Alkyd Resin Paint	White	20.0	23.2
22			17.2	20.0
23			3.4	4.0
24		Colour as Specified	20.0	23.2
25			17.2	20.0
26			3.4	4.0
Non-Slip, Non-Skid Paint				
25 12 31	Alkyd Resin Non-Slip Deck Paint	Reddish Brown	20.0	24.6
32			16.3	20.0
33		Green	20.0	24.6
34			16.3	20.0
35		Grey	20.0	24.6
36			16.3	20.0
25 12 41	Alkyd Resin Non-Skid Deck Paint	Reddish Brown	20.0	28.0
42			17.9	25.0
43		Green	20.0	28.0
44			17.9	25.0
45		Grey	20.0	28.0
46			17.9	25.0
Bituminous Paint				
25 12 51	Bituminous Solution	Black	17.4	16.0
52			4.3	4.0
25 12 53	Bituminous Paint	Black	17.6	16.0
54			4.4	4.0
Canvas Preserver				
25 12 61	Water-Resistance and Anti-Corrosive Water Soluble Paint	White	-	25.0
62			-	5.0
63		Reddish Brown	-	25.0
64			-	5.0
Paste Paint				
25 12 66	White Lead Paste	-	-	12.5
67			-	5.0

(to be continued)

Reflecting Paint				
25 12 71	Luminous Paint (Fluorescent Paint)	Orange	-	4.0
72			-	1.0
73		Yellow	-	4.0
74			-	1.0
75		Red	-	4.0
76			-	1.0
77		Colour as Specified	-	4.0
78			-	1.0
Spray Marking Paint				
25 12 81	Nitrocellulose Synthetic Resin Lacquer Enamel	White	400cc	-
82			300cc	-
83		Colour as specified	400cc	-
84			300cc	-
Stain				
25 12 91	Oil Stain	Wood Colour	-	4.0
92			-	1.0
93		Colour as specified	-	4.0
94			-	1.0

Varnish, Oil, Etc.

Bariniz, Aceite, etc　ニス、油脂類　清漆、油脂等

Unit Per Can

CODE	Description	Colour	Contents Ltr	Contents Kg
Varnish				
25 14 01	Copal Vanish for Interior Use	-	16.0	14.4
02			4.0	3.6
25 14 03	Spar Varnish for Exterior Use	-	16.0	14.4
04			4.0	3.6
25 14 05	Shellac Varnish	-		3.5
06				1.5
Lacquer				
25 14 11	Clear Lacquer	-	16.0	
12			4.0	
25 14 13	Enamel Lacquer	-	16.0	
14			4.0	
Drier				
25 14 21	Paint Liquid Drier	-	16.0	
22			4.0	
Remover				
25 14 31	Paint Remover	-	16.0	
32			4.0	
25 14 33	Varnish Remover	-	16.0	
34			4.0	
Thinner				
25 14 41	Paint Thinner	-	16.0	
42			4.0	
25 14 43	Lacquer Thinner	-	16.0	
44			4.0	

(to be continued)

Unit Per Can

CODE	Description	Colour	Contents Ltr	Contents Kg
	Linseed Oil			
25 14 51	Boiled Linseed Oil	-	16.0	
52			4.0	
25 14 53	Raw Linseed Oil	-	16.0	
54			4.0	
	Turpentine			
25 14 61	Turpentine in Tin	-	4.0	
62	"		18.0	
63	Turpentine in Drum	-	200	
	Fish Oil			
25 14 66	Fine Fish Oil in Tin	-	18.0	
67	Fine Fish Oil in Drum		200	
	Putty			
25 14 71	Marine Putty for use on Marine Paint	-		30.0
72				5.0
73				1.0
25 14 76	Common Putty for Use on Wood or Metal Sash, etc.	-		5.0
77				1.0
25 14 81	Caulking Putty for Sealing Cable Duct, Wood, etc. in Tube	-		1.0

Latest Fouling Control Coatings

Últimos recubrimientos antiincrustantes
最新防污塗料　最新污垢控制涂料

Intersleek 1100SR



Specifically designed to tackle the problem of slime on vessel performance, this innovation in the Intersleek range delivers outstanding micro and macro fouling control with better static resistance.

The new patented fluoropolymer in Intersleek®1100SR has been developed by enhancing the slime resistant polymer groups used in earlier generations of Intersleek®.
The tailored surface chemistry of this new technology specifically influences and resists the adhesion and settlement of organisms that make up slime colonisation.

Intersleek® is biocide-free, which results in no leaching of biocides into the sea. This offers cost advantages at the next drydocking on waste treatment and disposal, plus enhanced environmental profile. Intersleek also has higher volume solids and lower required film thickness than SPC systems. Only a single full coat is required every five years through a vessels lifetime, therefore paint consumption is significantly reduced – further enhancing your environmental profile.

Intercept 8500LPP

A high performance, low friction, linear polishing polymer (LPP) antifouling incorporating unique patented Lubyon® and silyl methacrylate technology.

This combination of polymer technologies, based upon years of experience and development, provides the basis for this performance improvement over existing products and, as a result, Intercept 8500 LPP gives the highest performance of all our biocidal antifoulings. The Lubyon polymer brings its unique Linear Polishing Polymer properties which ensure that the faster polishing rate is controlled in a consistent manner throughout the in-service period of up to 90 months.

Unlike typical silyl and metal acrylate biocidal antifoulings, Intercept® products replicate the linear polishing behaviour of previous tributyltin based antifoulings. Typical silyl acrylate based products polish slowly initially, thereafter the rate of polishing steadily increases. Whereas typical metal acrylate systems polish fast initially before reaching a steady state.

Interfine 878

A patented high performance, high volume solids content acrylic polysiloxane cosmetic finish providing excellent long term durability. Interfine 878 significantly improves upon the gloss and colour retention exhibited by typical polyurethane finishes.

Intershield 163 Inerta 160



Intershield 163 Inerta 160 is a proven, high performance abrasion resistant coating especially designed for ice going vessels.

Key system features include:

- Smooth surface assists ice slip
- Resists ice adhesion to the coatings surface
- Low frictional resistance controls fuel costs and improves operating efficiency
- Abrasion resistant - controls mechanical damage and hull roughness, saving on future maintenance and repair costs
- Up to 2.5 times the impact and erosion resistance of standard epoxies
- Designed for operation in temperatures down to -50°C (-58°F)

Interbond 808

Designed primarily for WBTs for use on-board by riding squads or ship's crews, Interbond 808 is a light coloured, two pack epoxy particularly suited to repair at sea as it is both surface and damp tolerant.

Intershield 300



A light coloured, abrasion resistant, aluminium pure epoxy coating giving excellent long term anticorrosive protection for cargo holds, WBT and all outside shell and low temperature application capability.

Intershield 803Plus

An ultra high performance two pack abrasion resistant epoxy coating. Provides excellent protection against cargo abrasion and impact shooting damage caused by high speed belt conveyors, minimising mechanical damage and subsequent corrosion.

Non-Slip Coatings

for Floors, Ramps & Stairs

Revestimienos Anti-deslizantes para Suelos, Rampas y Escaleras
すべり防止塗料　地板、斜面及楼梯的防滑涂料



Designed for application in slippery areas to make them safer for operation of personnel and rolling equipment. A heavy-duty safety coating that has excellent adhesion to metal, concrete and wood surfaces.

25 16 11	Non-lip coating, 1 gal. (3.8 ltr)	Can
12	Non-lip coating, 5 gal. (18.9 ltr)	"

Monolar Mastics

Masilla monolar　保冷用マスティック　隔热树脂



A tough, flexible, fire resistant finish for protection of thermal insulation. It is also used as a vapor barrier coating for fittings. Its vapor barrier properties and unusual film strength permit its use as one coat protective coating. It is excellent for indoor or outdoor use where chemical resistance and durability are required.

Unit Per Can

CODE	**25 16 17**
Type No.	Monolar mastic 60-90
Application	For cold insulation for trowel
Colour	White
Weight/can	20 kg

Anti-slip Coating

Recubriniento Anti-Deslizamiento
床滑り止めコート剤　防滑剤

Loctite® PC6261HDP (Big Foot Heavy Duty Pedestrian Grade)

Product No.96211/96261/36211/39020



For areas with heavy pedestrian or light rolling traffic. Ideal for ramps, walkways, locker rooms, stairs, and assembly areas. Black, Grey, Green and Yellow color is available.

Unit Per Can

CODE	Colour	Product No.	Contents
25 17 01	Black	96211	0.95 gallon
02	Grey	96261	
03	Green	36211	
04	Yellow	39020	

Wearing Compounds

Compuestos Anti-Desgaste
耐磨耗剤標準微粒子グレード　化工涂料



Loctite® PC7226PW (Nordbak 7226 Pneu-Wear)

Filled with small ceramic beads and silicone carbide for maximum protection against fine particle abrasion to 250°F. Trowelable.

Unit Per Can

CODE	Contents	Colour	Unit
25 17 05	1.36 kg	Grey	Kit
06	1 kg	Grey	Kit
09	10 kg	Grey	Can

Loctite® PC7227/7228 (Brushable Ceramic)

Agente antidesgaste de alto rendimiento
高機能耐摩耗剤　標準コーティンググレード
高性能抗磨剂



Brushed on to form a smooth, corrosion-resistant coating. Protects against turbulence, abrasion, and cavitation. Can also be used as a topcoat over Loctite® Nordbak wearing compounds for surface rebuilding and lasting protection. Resists temperature up to +93°C (+200°F).

Unit Per Can

CODE	Product Name	Colour	Contents
25 17 11	7227	Grey	2 lb.
12			6 lb.
25 17 13	7228	White	2 lb. / 1 kg
14			6 kg

Loctite® PC7117 (Nordbak Brushable Ceramic)

Agente antidesgaste de alto rendimiento
高機能耐摩耗剤
高性能抗磨剂



Brushable two-part epoxy that provides a high gloss, low friction coating to protect equipment from wear abrasion and corrosion. Improved abrasion resistance and chemical resistance compared to Loctite® 7227.

Unit Per Can

CODE	Contents	Colour
25 17 19	1 kg	Dark grey
20	6 kg	

Flooring & Grouts

Loctite® PC7202 (Fixmaster)

Lechada Reparadpra del Suelo
床補修剤耐圧縮性グレード
面漆



Self-leveling, fast-curing, non-shrinking grout. Outstanding chemical and vibration resistance and compressive strength to withstand maximum loads. Approved by all major classification societies, such as the American Bureau of Shipping.

Unit Per Can

CODE	Colour	Contents	CODE	Colour	Contents
25 17 07	Green	3.8 ltr	**25 17 10**	Green	10 kg

Rust Converter & Prevention

Loctite® Extend SF7500 Rust Treatment

Capa de Protección　鋳転換剤　保護塗料



Converts existing rust (rust required) into a stable base. Cured product acts as a primer ready for painting with oil or solvent based paint. Protects surface from corrosion. Use on metal pipes, valves, fittings, outside surfaces of storage tanks, fences, guard rails, wrought iron furniture, conveyors, construction and agricultural equipment.

CODE	Contents	Colour	Unit
25 17 15	1 gallon	Milky White	Btl
25 17 16	5 gallon		Can
17	1 ltr		

StopStand Slip Protection Coating

Revestimiento de protección antideslizante StopStand
スリップ防止塗料
防滑涂料



StopStand increases the safety in slippery areas. Especially on the deck or at stairs in engine rooms a good foothold is essential for the safety. StopStand guarantees highest safety standards. The highly non-slippery coating can be easily applied on the spot.

Product Benefits:

Increases the safety in slippery areas.
3-compound-coating including all components.
Easiest application through a notched trowel.

Unit Per Set

CODE	Capacity	CODE	Capacity
25 17 26	5 kg	**25 17 27**	20 kg

Name of Mfr.: Diamant Metalplastic GmbH

Anticorrosive ZAP Paste

Pasta ZAP anticorrosiva　防食 ZAP ペースト　ZAP 防腐漆

An anticorrosive compound mixed weather-proof Butyl Rubber bonding material and a high purity zinc powder retained electrical conductivity. Suitable for steel surface protection of pipes, fittings, stairs, etc. It doesn't need to add any primer or solvent, and you can paint as soon as you finished surface preparation. It doesn't contain harmful toluene. Suitable temperature below 60 degree centigrade. The expecting durability is designed for 20 years after spreading.



Unit Per Pc.

CODE	Contents	For	Applicable Space	Package
25 17 61	0.6 kg	Caulking	Length 8 mtr	in cartridge
62	1.6 "	Brush	1 m²	in tin
63	8.4 "	Painting	5.3 m²	in tin

Name of Mfr.: Mitsui Sumitomo Metal Mining Brass & Copper Col, Ltd.

Anti-corrosion Zinc-Aluminium Paint DRALL

Pintura anticorrosiva zinc-aluminio
常乾型高濃度亜鉛末防食塗料
常温干燥高浓度锌粉防腐涂料



Made from zinc and aluminium flakes which realized superior anti-corrosion performance with only 30 μm film thickness for once coating. Besides the sacrificial anti-corrosion effects of zinc, aluminium also suppresses the oxidation of zinc through chemical reaction and forms stable film. Because it is single liquid type and has little metallic precipitate, it is easy to stir the liquid at the beginning of operation. Moreover, its low viscosity ensures easy coating.

Usage

* The touchup of products (bolt, nut) [Repair flaw after the treatment of anti-corrosion thin film DISGO and LAFRE].
* The repair of the rusted parts.
* The anti-corrosion treatment of the section and welding parts.
* The repair of the galvanized steel sheet section.
* The repair of leakage and rusted parts after hot dip galvanizing.

Painting area: 4 – 5 m²/kg (including 20% loss)

Unit Per Can

CODE	**25 17 64**	**25 17 65**	**25 17 66**
Kg/Can	1 kg	5 kg	20 kg

Name of Mfr. : Nihon Ruspert Co., Ltd.

Metal Pigment Coatings

Revestimieno A de pigmento metálico
金属顔料コート材
金属颜料涂料



Unit Per Can

CODE	Product	Content	Description
25 21 01 02	Brushable Zinc Coating	375 ml 750 ml	Excellent solution for touch up and corrosion protection of galvanized parts. Colour: approaching hot galvanizing. (Specific weight: 1.25 g/cm³)
25 21 03 04	Brushable Zinc Paint	375 ml 750 ml	Brushable liquid zinc paint assures durable and ideal corrosion protection for all metal surfaces. (Specific weight: 1.90 g/cm³)
25 21 05 06	Stainless Steel Paint	375 ml 750 ml	Stainless steel paint is a corrosion- and weathering-resistant surface coating based on metal pigments.
25 21 07 08	Aluminium Paint	375 ml 750 ml	Aluminium Paint is made on the basis of metal pigments and offers a high-quality and abrasion-resistant corrosion protection for all metal surfaces.
25 21 09 10 11	Corro-Protection	5 ltr 10 ltr 30 ltr	Forms a dry wax-like protective film which provides lasting protection of metal tools and precision parts for indoor storing and overseas shipment. TÜV approved.

Name of Mfr.: Weicon GmbH & Co. KG

Ferryl Coatings

Capa anticorrosiva Ferryl
フェリルコーティング
防锈保护涂料





One-component coatings with superior elasticity when dry, providing long-term anticorrosive protection without cracking. Also known as "plastics" because of the plastic-like coating that is created.

Unit Per Drm/Tin

CODE	Product No./Unit	Application
45 04 11	Ferryl 400R Anticorrosive White Coating 12 kg/drum	One-component product applied like paint. Flexible, non-cracking plastic-like coating. Used on non-rotating wires, standing rigging, rubber insulated electrical cables and (hydraulic) hoses.
45 04 12	Ferryl 401 Anticorrosive Transparent Coating 1 kg/tin	One-component product applied like paint. Flexible, non-cracking, plastic-like coating. For preservation of metals' original colour (steel, brass, bronze, copper). Also used as a wood varnish.
45 04 13	Ferryl 404 Dilution & Cleaning Liquid 10 ltr/drum	Solvent for cleaning and dilution of the Ferryl coatings. Used as a general thinner.
45 04 17	Ferryl 502 Anticorrosive Fluorescent Coating 1 kg/tin	One-component product applied like paint. Fluorescent orange-red colour. Flexible, non-cracking, plastic-like coating. Used for safety applications. (life-saving equipment, warnings, bridge, low beams / steps).
45 04 15	Ferryl 505 Anticorrosive Fluorescent Coating 1 kg/tin	One-component product applied like paint. Fluorescent yellow colour. Flexible, non-cracking, plastic-like coating. Used for high visibility marking applications (stairs, walkways, zone markings).

Name of Mfr.: Ferryl Sales Limited.

Rust Converting Latex Primer

Imprimación de Látex Anti-corrosivo
サビ転換型防錆塗料　溶锈型乳胶底漆



A water based chemical rust converter which converts the rust to magnetite, creating a non rusting metallic barrier layer on the steel.

Requires less preparation time and cost as it is not necessary to remove the rust completely before application.

25 99 06	Rust converting latex primer Corroseal 5 gal/can	Can

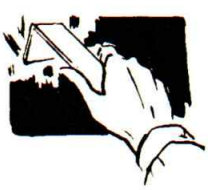
Name of Mfr. : Corroseal Inc.

General Painting Instruction

to Ship's Crew

Instrucciones generales de pintura　一般的塗装指導　一般绘画指导

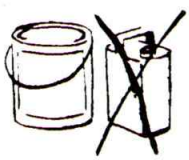
Surface preparation



It is vitally important to prepare all surfaces sufficiently before painting, paying particular attention to ferrous metals. Rust and millscale must be removed by efficient scraping or vigorous wire brushing. When recoating over old paint, the surface must be free from soil, grease oil, and salt water deposits.

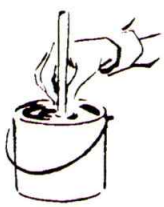
In the case there are salt water deposits on the surface, they are most easily removed by washing with water and common soda and then washing the surface clean again with fresh water and allowing the surface to dry completely.
Without these simple precautions the paint will not adhere well and will result in peeling and the need for subsequent recoatings.

Selecting the right paint specification or process



Care must be taken to ensure that the correct painting process is adopted. For example, it would be fatal to apply a slow drying oil base and heavily pigmented primer with the intention of finishing with a modern synthetic product, surface tension would quickly encourage film cracks and peeling. Therefore, always keep to the same system following carefully the manufacturer's recommendation.

Stir the paint well before use



Even today, with all the advantages of science and technology, a large number of paint failures are occasioned by not stirring the paint before use. Good pigment dispersion prevents heavy deposits sinking and lying on the bottom of the can or drum, but the medium and the pigment will, to some extent, settle out without severe sinkage: this encourages users to apply the paint without careful stirring. Technical failures experienced by not allowing adequate stirring are inconsistent gloss for enamels, poor coverage performance or early film failure.

Give the surface the right pre-treatment to re-painting



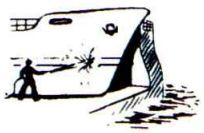
Prior to re-painting, all old loose paint should be scraped off. Rust dots, if any, should be removed with a steel brush. Rust-scraping must be done to the point where the paint has good adhesion to the iron. Make sure that no rust has penetrated down under the old paint. Also make sure that there are no cracks in the old paint. Should there be any, they must be scraped and brushed down to the iron. Undamaged areas of the old paint need not be removed, but the old film should be washed with a common soda solution, and then rinsed according to the directions in surface preparation.

Adapt the priming to the finish required



Always bear in mind that the glossier the surface, the more important it is to ensure the proper preparation of that surface; for the least unevenness will be magnified on a high gloss surface.

Ships bottom (underwater area)



After the careful removal of marine life from the heel by scraping and rinsing, be sure to remove all millscale and rust pitted areas. It may be necessary to chip and scrape all corroded parts to get a clean painting surface. Be sure to let the surface dry thoroughly before any coating is applied.
In spots where rust is exposed during the preparation, it is important to "coat in" these areas with an anti corrosive composition, followed by the application of one or more coats of anti fouling to a grade suitable for the ships service life.

The belt



Special attention must be paid to this vital area of the vessel, which is normally contaminated with oil and grease from continuous harbour polution. It is most important to clean this area off, using a suitable cleaning agent or detergent. The preparation as suggested in the foregoing paragraph should be followed through.

Topside and superstructure



When dealing with the maintenance of the Topside and Superstructure, it is most essential to remove salt water deposits and to comply very carefully to the instructions as laid down in the points illustrated in our General Painting Instructions for the Guidance of Ships' Crew.

Decks



After carefully preparing steel decks and following the principles laid down in the General Painting Instructions, it is important to apply a good rust preventive primer prior to the application of the Deck Paint.

Main engines and machinery



Where re-painting is to be considered, special attention must be paid to adequately cleaning the surface and making it free from oil and grease deposits before re-coating is attempted.

Marine Paint Comparison Table by Paint Material

Mfr's Name	Kansai Paint Marine (Japan)	Sigma Shinto Coatings (Japan)	Nippon Paint Marine Coatings (Japan)	International Paint (Japan)
Shop Primer Coating				
	Metalact H-15, Metalact H-5, SD Zinc 1000HA (S)	SigmaWeld 165, SigmaWeld 199	Nippon Ceramo, Nippon Ceramo T/U	Interplate Zero, Interplate 997, Interplate 937
Hull Outside (AF), Exposed Deck, Superstructure (Upper) Coating				
Oleoresinous Paint				
Deck, Hold, or Upper AC (Primer)	SD Marine BTD, SD Marine Build Primer	Sigmarine 21, Sigmarine 24, Sigmarine 28	Nippon O-Marine Primer, Uniprime 20, Nippon O-Marine Finish, Nippon O-Marine Finish 300S	Interstores Alkyd Primer, Interlac 678 (Alkyd Varnish)
Deck & Hold (Finish)	-	Sigmarine 48, Sigmarine 49	Nippon O-Marine Finish	Interlac 665
Superstructure Inside & Others (Upper) (Finish)	-	Sigmarine 48, Sigmarine 49, Sigma Vikote 56	Nippon O-Marine Finish	Interlac 665
Vinyl Paint				
	QD AC HB, Universal Primer, Vinylia BTM(P)	Sigma Vikote 15	-	Intertuf 203, Interprime 539
Chlorinated Rubber Paint				
	Rabamarine BTD, Rabamarine Primer HB, C-Ruban AC HB	Sigma Vikote 18	-	-
Acrylic Paint				
	Pioner Topcoat	Sigma Vikote 46, Sigma Vikote 56	Uniprime AC, Uniprime 20, Nippon A- Marine Finish, Neoguard 10	Interstores Alkyd Primer, Intersheen 579
Epoxy Paint				
	-	SigmaPrime 200, SigmaCover 280, SigmaCover 435, SigmaCover 456, SigmaShield 220, SigmaShield 420	-	-
Epoxy Paint Two-component				
	Epomarine GX, Epomarine BTD, Epomarine AC (M)	-	Nippon E-Marine 400, Nippon E-Marine 400 HS, NOA 10 F, NOA 10 M, NOA A/C II, NOA A/C II LT, Uniprime 100, Neoguard 100, Neoguard 100 GF	Intergard 821, Intergard 740, Intershield 803, Interbond 201, Intertuf 262, Intergard 263, Intergard 269, Intershield 300
Two-pack Pure Epoxy Primer				
	-	-	Uniprotector, Nippon E-Marine Primer, Nippon E- Marine Primer GF, Nippon E-Marine Finish M	Intershield 300, Intershield 803
Modified Epoxy Paint				
	Epomarine EX500, Primastic, Jotamastic 87, Jotamastic 87 Aluminium, Jotamastic Universal, NU Forte	SigmaCover 435, SigmaCover 456	-	Interbond 201 Intertuf 262
Special (Unique) Epoxy Paint				
	Devran 237, NU Forte Barrier	-	Iceban 1600, NOA 60 HS, NOA 60 HS-LT	Intershield 163, Inerta 160, Interbond 808, Intershield 803, Intershield 300, Intershield 803 Plus

(to be continued)

Mfr's Name	Kansai Paint Marine (Japan)	Sigma Shinto Coatings (Japan)	Nippon Paint Marine Coatings (Japan)	International Paint (Japan)
Tar Epoxy Paint				
	-	SigmaCover 300, SigmaCover 510	-	-
Polyurethane Paint				
	-	SigmaDur 550	Nippon U-Marine Finish	Interthane 990
Inorganic Zinc Paint				
	-	SigmaZink 158, SigmaGuard 750	Nippon Z-Marine 1000 QC S	Interzinc 22
Zinc Rich Primer				
	SD Zinc 100QD, SD Zinc 500, SD Zinc 1500A	-	Nippon Z-Marine 8000 MHB	Interzinc 22, Interzinc 52
Long Life Anti-Fouling Paint				
	Takata Quantum FB, Takata Quantum Ultra, Takata Quantum Classic, Takata Quantum Plus, Takata Quantum LLL, Takata Quantum LLL FB	Sigma Ecofleet 290, Sigma Ecofleet 530, Sigma Alphagen 240, Sigma Alphagen 650, Sigma Alpharim 210, SigmaGlide 790, SigmaGlide 890	Ecoloflex SPC 250 HyB, Ecoloflex SPC 150 HyB, Ecoloflex SPC 200 Z, Ecoloflex SPC 200 K, Ecolosilk, Ecolosilk Tie-Coat	Interswift 6800, Intersmooth 360SPC, Intersmooth 7460SPC, Intersmooth 7465SiSPC, Intersmooth 7475SiSPC, Interspeed 6200, Interspeed 6400
Anti-Abrasion (Abrasion Resistant) Paint				
	Flakeguard Primer, Flakeguard No.3000	SigmaShield 220, SigmaShield 420	Uniprotector, NOA 10 F	Intershield 300, Intershield 163, Inerta 160, Intershield 803, Intershield 803 Plus, Interzone 1000
Tank & Heavy Duty (Protective) Coating				
Epoxy Paint				
	Epomarine PC100 Primer, Epomarine PC100 Topcoat, Epomarine FW100 Primer, Epomarine FW100 Topcoat	SigmaGuard 425, SigmaGuard CSF 650, SigmaGuard CSF 575, SigmaGuard CSF 585, SigmaGuard 720, SigmaGuard 790, SigmaGuard 240, SigmaGuard 440, Sigma Phenguard 930, Sigma Phenguard 935 Sigma Phenguard 940, SigmaGuard 795	NOA 60 HS, NOA 60 HS-LT, NOA FWT, NOA 1000 FWT SF, NOA PC, Uniprime 100, Neoguard Bulcon, Nippon E-Marine A/C, Nippon E-Marine A/C II	Interbond 808, Intershield 300, Interline 904, Interline 704, Interline 925, Interline 850
Modified Epoxy Paint				
	Epomarine AC (M), Epomarine EX600, NU Forte DX	-	-	-
Tar Epoxy Paint				
	-	SigmaCover 300	-	-
Inorganic Zinc Paint				
	-	-	-	Interline 104
Glass Flake Mastic Paint				
	Flakeguard Primer, Flakeguard No.3000	SigmaShield 905, SigmaShield 460	Neoguard 100 GF, Nippon E-Marine Primer GF	Interzone 1000
Miscellaneous Coating				
Heat Resistant Paint				
	Aluminium Paint H.R., Termo 300 Primer, Termo 300 Silver, Termo 600 Primer, Termo 600 Silver	SigmaTherm 175, SigmaTherm 500	Tetzsol P-200 ECO, Tetzsol 200 Silver, Tetzsol 200 ECO, Tetzsol P-500 ECO, Tetzsol 500 ECO, Tetzsol M Primer	Intertherm 891, Intertherm 50
Aluminium Paint				
	Aluminium Paint H.R.	-	Nippon O-Marine Finish 300 S	Intertherm 891
Fluorescent Paint				
	-	-	-	Interlac 648
AF for Propeller				
	-	-	-	Intersleek 1100SR

27
Painting Eqipment

Graco Products  P. 27-1 ~ 7	Asahi Sunac Products  P. 27-7 ~ 8
Iwata Products  P. 27-9 ~ 10	Paint Spray Guns and Containers  P. 27-10 ~ 11
Paint Stirrers  P. 27-11	Cleaning Guns/Air Dusters  P. 27-11 ~ 12

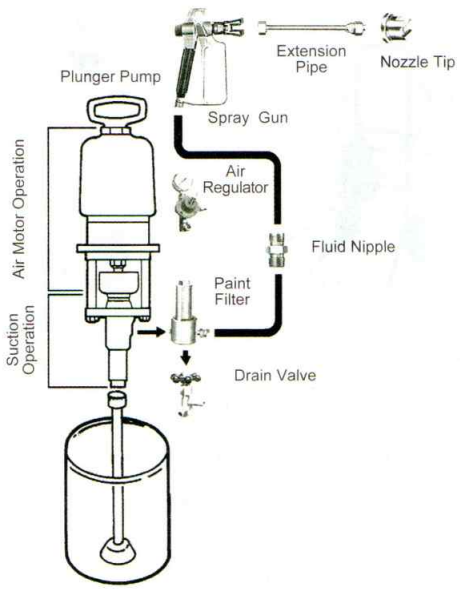
Airless Spray System

Sistema de Pintado a Pistola

エアーレス・スプレー・システム　真空噴塗設備

Airless spray systems operate using high pressure to apply paint by forcing it through a specially shaped nozzle into a confined spray which cleanly and fully covers the painting surface. The pressure is provided by a pump which draws the paint up through the hose to the airless spray gun.

Airless spray machines are 4 times faster and 35 - 55 % more efficient than air spray machines with less paint loss through overspray. Airless systems can also handle thicker based paints and applicators easier and with better results than air spray or conventional methods.



Safe Operation of Airless Equipment

Airless spray equipment generates very high fluid pressure. To reduce the risk of fluid injection injury, burns from fire or explosion, or splashing of fluid on the skin or in the eyes, the following precautions must be followed.

1. Always read and follow all safety warnings in the instruction manual.
2. Always follow all recommendations regarding the use of protective clothing, eyewear and equipment.
3. Never exceed the maximum working pressure of any component in your system.
4. High velocity fluid moving through sprayers and hoses generates static electricity. Ground all equipment and objects being sprayed.
5. Make certain that the fluids you are pumping are compatible with the wetted parts of all components in your system. Do not use 1, 1, 1 - trichloroethane, methylene chloride, or other halogenated hydrocarbons with the sprayers and accessories. Such use could result in a serious chemical reaction which could cause serious injury and property damage.
6. Spray solvent - based fluids only in well ventilated areas, to exhaust the solvent vapors.
7. To reduce the risk of serious bodily injury from high pressure fluid, keep your fingers and hands away from the gun nozzle. Do not alter the tip guard or remove the trigger guard. Always relieve pressure and engage the trigger safety lock when you stop spraying.

Airless Paint Sprayers

Air-powered Type

Pintado a Pistola/Tipo: Neumática

エアーレスペイント塗装機エアー駆動式　气动无气喷漆器

Many types of sprayers are available for various jobs. The most common products for marine use are described below with their respective specifications.

Sprayers with much tougher fittings including specially treated, chromed stainless steel rods and cylinders which withstand wear and operate over a longer span or time when pumping highly abrasive or corrosive materials.



27 01 06



27 01 07

Unit Per Set

CODE	27 01 06	27 01 07
Name	Monark Light Duty Cart	President SD Cart
Model	232-411	231-922
Pump Ratio	23:1	30:1
Max. Flow Ratio	2 ltr/min.	4 ltr/min.
Max. Air Work Pressure	0.7 MPa (7 kgf/cm²)	
Air Consumption	4-5 N ltr/cycle	11-14 N ltr/cycle
Dimensions mm	370 × 400 × 1,000	530 × 510 × 980
Weight	20 kg	39 kg
Air Hose Connection	NPT 3/8 Female	NPT 3/8 Female
Paint Hose Connection	NPSM 1/4 Male	NPT 1/4 Male

Name of Mfr.: Graco Inc.

Airless Sprayers Heavy-duty Cart

Pistola de pintado sin aire de tipo carro

カート式エアーレススプレイヤー

手推车式无空气喷涂机



KING®

The Graco King units are designed to withstand the harshest environmental conditions and easily handle the toughest protective coatings and corrosion control applications. The King simply rules in all conditions.

- Outperforms and outlast traditional airless sprayers.
- Low repair and spares costs.
- Simple Maintenance - with removable valve cover and easy

access to poppet valves.

- Reduced Icing Potential - up to 70% reduction with thermally isolated poppets.
- Less Pulsation - smoother changeover and no pressure drops.
- Improved Sealing and Strength - with enhanced edge loading and seven throat packings instead of five.
- Multi-Gun Capabilities - with more powerful and efficient changeovers, the ability to spray with up to six guns is now a reality.
- Intrinsically safe for use in EX environments. Conforms to Directives ATEX 94/9/EC, Ex II 2 G c 230°C, Ex II 2 G c T6.

How to order: CODE

Sprayer, airless, heavy-duty cart type, King, complete package that includes XTR airless gun, 15 m x 3/8" hose and 1.8 m x 1/4" whip hose.

Unit Per Set

CODE	Pump Ratio	Motor Type	Package	Model
27 08 11 **12** **13**	45 : 1 60 : 1 70 : 1	6,500 cc XL Air Motor	King Airless Spray Unit	K45FH1 K60FH1 K70FH1

Name of Mfr.: Graco Inc.

27 Painting Equipment

KING XL



Ideal for use in a high-output environment. Run up to six guns with virtually no pulsation or pattern fluctuation.

- The high output, high efficiency 10,000 cc XL Air Motor allows multiple guns with almost no perceivable pulsation.
- Reduced amount of total cycles results in less wear and tear on pump components, less downtime and maintenance expense.
- Elimination of non-restartable icing stalls for more uptime.

Unit Per Set

CODE	Pump Ratio	Motor Type	Package	Model
27 08 14 **15** **16**	47 : 1 71 : 1 82 : 1	10,000 cc XL Air Motor	King XL Airless Spray Unit	K47FH1 K71FH1 K82FH1

Name of Mfr.: Graco Inc.

Spray Packages

Conjunto de rociado

スプレーパッケージ　喷雾包

Triton™



High quality fine finish spray packages for wood and metal applications. Low pulsation output and smooth pump change over deliver a consistent spray pattern. Quick colour changed and fast material refills save time and money. Stainless steel or aluminium pump handles a wide variety of fluids.

Material of Pump Handles: Stainless Steel or Aluminium

Type of Mount Configuration



Pail Mount



Stand Mount



Cart Mount



Wall Mount

Selection of Spray Gun

1. Determine feed : Pressure, Gravity, or Siphon
2. If Pressure feed, identify application type :
   General Metal Spray Guns
   General Metal with Stainless Steel Tip
   Wood Applications
   High Wear Applications
   Waterborne Applications
   Adhesive Applications
   Spatter Applications
3. Select spray type : HVLP, Compliant, or Conventional

Spray Type			
Type	HVLP	Compliant	Conventional
Finish Quality	Good	Better	Best
Transfer Efficiency	High	High	Medium
Fluid flow	Low	Medium	High
Air Flow	High	Low	Low

Select Material Viscosity

Metal Viscosity	Viscosity (centipoises)
Light	5 - 15
Light – Medium	15 - 30
Medium	30 - 70
Medium – Heavy	70 - 100
Heavy	> 100

Average Flow Rate

Material Viscosity	oz/min.	ltr/min.	Material Viscosity	oz/min.	ltr/min.
Light	4 – 8	0.12 – 0.24	Medium	12 – 16	0.36 – 0.53
	4 – 10	0.12 – 0.30		12 – 18	0.36 – 0.53
	4 – 12	0.12 – 0.35		14 – 18	0.41 – 0.53
	6 – 12	0.18 – 0.35		14 – 25	0.41 – 0.74
	8 – 20	0.24 – 0.59		16 – 30	0.47 – 0.89
Light-Medium	3 – 5	0.09 – 0.15		16 – 35	0.47 – 0.95
	4 – 6	0.12 – 0.18	Medium-Heavy	16 – 20	0.47 – 0.59
	4 – 10	0.12 – 0.30		16 – 35	0.47 – 1.04
	6 – 12	0.18 – 0.35		16 – 40	0.47 – 1.18
	8 – 12	0.24 – 0.36		18 – 22	0.53 – 0.65
	8 – 14	0.24 – 0.41	Heavy	16 – 45	0.47 – 1.33
	8 – 20	0.24 – 0.59		20 – 24	0.59 – 0.71
	10 – 14	0.30 – 0.41			

Technical Specification of Spray Package

Max. Fluid Working Pressure	100 psi (0.7 MPa, 7 bar)	Pump Inlet	3/4 npt (f)
Max. Air Input Pressure	100 psi, (0.7 MPa, 7 bar)	Pump Outlet	3/8 npt (f)
Max. Fluid Flow (Pump at 212 cpm)	8.5 gpm (32 lpm)	Fluid Outlet Fitting	3/8 npt (m)
Pump Displacement	5 oz/cycle (160 cc cycle)	Weight	
Air Inlet Fitting	1/4 npt (f)	Pail Mount Package (Alum/SST)	22 lb (10 kg)/ 28 lb (12.7 kg)
Acetal Fluid Regulator Outlet Fitting	3/8 npt (m)	Stand Package	20 lb (9.1 kg)/ 27 lb (12.3 kg)
Stainless Steel Fluid Regulator Outlet Fitting	3/8 npsm (m)	Cart Package	30 lb (13.6 kg)/ 36 lb (16.4 kg)
		Wall Mount Package (Alum/SST)	19 lb (8.6 kg)/ 24 lb (10.9 kg)

Average Air Consumption

Type of Spray	HVLP	Compliant	Conventional
Gun	15.0 scfm	12.0 scfm	14.0 scfm
Pump	1.5 scfm	1.5 scfm	1.5 scfm
Total	16.5 scfm	13.5 scfm	15.5 scfm

How to order: CODE

Spray package, Triton TM, MATERIAL of PUMP HANDLE, TYPE of MOUNT, SELECTION of GUN (Type of Feed, Type of Spray, Material Viscosity, Average Flow Rate)

Unit Per Set

CODE	Mount Type	Gun			Model
		Feed	Spray	Viscosity	
Aluminium Pump Handle					
27 08 21 22	Pail	Pressure	General Metal	HVLP Conventional	233470 233468
23	Stand			Conventional	233475
24	Cart				233482
25	Wall				233489
Stainless Steel Pump Handle					
27 08 26	Stand	Pressure	General Metal	Conventional	233476
27	Cart				233483
28	Wall				233490

Name of Mfr.: Graco Inc.

Finishing Packages

Conjunto de acabado

フィニッシュパッケージ　修整包



Merkur™

Merkur pumps are designed to improve productivity, reduce costs, lower emissions and provide consistent, high quality finishes. Ideal for small to medium jobs and easy to move around the jobsite.

Unit Per Set

CODE	27 08 46	27 08 48	27 08 44	27 08 49
Model No.	G30C55	G36C11	G48C07	16U918
Pump Ratio	30:1	36:1	48:1	72:1
Spray Gun Type	XTR	G40	G40	XTR
Fluid Flow @60 cpm	1.2 gpm (4.5 lpm)	1.6 gpm (6 lpm)	1.2 gpm (4.5 lpm)	0.8 gpm (3.0 lpm)
Max. Fluid Outlet Pressure	3,000 psi (206 bar)	3,600 psi (248 bar)	4,000 psi (275 bar)	7,200 psi (500 bar)
Max. Air Inlet Pressure	100 psi (7 bar)	100 psi (7 bar)	85 psi (5.8 bar)	100 psi (7 bar)
Air Consumption @100 psi (7 bar, 0.7 MPa) @20 cpm	17 scfm (0.48 m³/ min)	26 scfm (0.74 m³/ min)	26 scfm (0.74 m³/ min)	20 scfm (0.57 m³/ min)
Fluid Inlet Size	3/4 npt(m)			1-1/4 npt(m)
Fluid Outlet Size	3/8 npt(m)			
Air Inlet (Motor)	1/4" npt(f)	1/2" npt(f)		

Name of Mfr.: Graco Inc.

Spray Guns



G40

Air-Assisted Gun designed for high pressure industrial applications.



XTR

Airless Spray Gun. Rugged design to handle the toughest protective coatings. Compact design allows for easy maneuverability.

Airless Paint Sprayers

Electric-powered

Pistola Pintado/Tipo: Eléctrica

エアーレスペイント塗装機電動式　电动式无气喷漆器

Portable electric paint sprayers with proven high performance and reliability. Choose Classic for small to medium paint and maintenance jobs, whilst in transit. The UltraMax and the Mark Procontracter range handles perfectly all protective coating primers and top coats, ideal for more demanding jobs.


Classic


Ultra Max II


Mark Procontractor

Unit Per Set

CODE	27 08 71	27 08 52	27 08 67	27 08 66	27 08 79	27 08 70	27 08 69
Type	Classic 390 PC		Ultra Max II 695		Mark Procontractor V		Mark Procontractor X
Power Source	110V	230V	110V	230V	110V	230V	230V
Model No.	17C347	17C348	17E634	17E632	17E662	17E660	17E671
Max. Flow Ratio	1.8 l/min (0.47 gpm)		3.0 l/min (0.75 gpm)		4.3 l/min (1.2 gpm)		8.3 l/min (2.2 gpm)
Max. Pressure	227 bar (3,300psi)						

Name of Mfr.: Graco Inc.

27

Painting Equipment

Gun and Hose Kits for Ultra Series

Electric Airless Paint Sprayer

Juego de Pistola y Manguera para Atomizador Eléctrico de Pintura

ガン・ホースキット

Ultra 系列用噴槍軟管組



Unit Per Set

CODE	Model No.	Contents
27 01 17	288-497 240794	* 1 pc FTX Gun * 1 pc Tip * 1 lgh Bluemax hose 1/4 × 15 mtr
27 01 18	288-431 240793	* 1 pc FTX Gun * 1 pc Tip * 1 lgh Bluemax hose 1/4 × 7.5 mtr

Name of Mfr.: Graco Inc.

Airless Paint Spray Hand Guns

Pistolas Manuales de Pintado

エアーレス・ハンド・スプレーガン　无气喷漆枪


Contractor Gun 288-420


Silver Gun 235-461

Unit Per Pc.

CODE	27 01 21	27 01 23
Name	Contractor Gun	Silver Gun
Model No.	288-420	235-461
Max. Working Pressure	24.8 MPa (248 bar)	34.5 MPa (345 bar)
Inlet Size	1/4 NPSM (M)	1/4 NPSM (M)
Orifice Diam.	3.2 mm	2.3 mm
Description	Durable Standard gun. Easy operation.	Light-weight. Recommendable for high ratio spray machines.

Name of Mfr.: Graco Inc.

Airless Spray Guns

XTR

Pistola rociadora neumática

エアーレススプレーガン　空气喷枪



A rugged design to handle the toughest protective coatings. Built for extreme conditions. A compact design allows for easy maneuverability. Trigger is designed for four fingers.

XTR-5:
Maximum fluid pressure of 345 bar, 34.5 MPa (5,000 psi)
XTR-7:
Maximum fluid pressure of 500 bar, 50 MPa (7,250 psi)

Tips: 519 XHD RAC

Orifice Size : 0.019"
Flow Width : 10" – 12" (254 mm – 305 mm)
Flow Rate : 0.38 gpm (1.47 lpm)

Unit Per Pc.

CODE	Handle Shape	Tip	Model
XTR-5			
27 09 01	Round	No tip	XTR500
02	Oval-Insulated	519 XHD RAC	XTR502
03	Round	519 XHD RAC	XTR504
XTR-7			
27 09 04	Round	No tip	XTR700
05	Oval-Insulated	519 XHD RAC	XTR702
06	Round	519 XHD RAC	XTR704

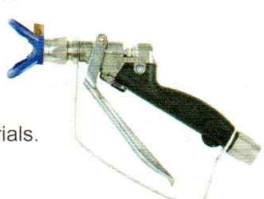
Name of Mfr.: Graco Inc.

Airless Spray Guns

Pistola rociadora neumática

エアーレススプレーガン

空气喷枪



Optimized flow for thicker materials.
30° bend at head of gun.

Unit Per Pc.

CODE	27 10 01
Model	Texspray Inline 245820
Max. Working Pressure	280 bar
Fluid Orifice Diameter	6.35 mm

Name of Mfr.: Graco Inc.

Extensions for Airless Spray Gun

Extensiones de pistola rociadora
エアーレススプレーガン用延長ノズル　无气喷枪加长喷嘴

Increase comfort, speed and productivity needed to spray hard to reach areas without using ladders or scaffolding.



Unit Per Pc.

CODE	Length	Model	CODE	Length	Model
Tip Extensions			**Cleanshot Poleguns**		
27 10 11	25 cm	287019	**27 10 15**	90 cm	287026
12	38 "	287020	**16**	180 "	287027
13	51 "	287021			
14	76 "	287022			

Name of Mfr.: Graco Inc.

Airless Paint Spray Roller

Jet Roller

Rodillo rociador de pintura sin aire
エアーレスペイントスプレーローラー
无气涂料喷涂辊



The JetRoller combines rolling and spraying into one action, saving time and labor on spray/back roll projects. This consists of a spray roller, a spray extension and a hand roller in one complete kit. Lightweight and portable, it fits existing airless sprayers and is the ideal time-saving addition to your painting arsenal. Ideal for rough or porous surfaces.

Unit Per Pc.

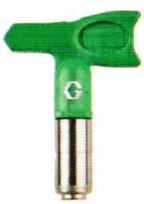
CODE	27 04 21	27 04 22	27 04 23	27 04 24	27 04 25
Model	24U172	24W128	24V490	24V491	25A841
Roll Style	USA	USA	Europe	Europe	UK
Roll Frame	9"	18"	18 cm	25 cm	9"
Tip	LTX721	WR1223	PAA515	PAA721	LTX721
In-Line Valve	○	○	○	○	○
45° Swivel	-	-	-	-	-
Clean Shot	○	○	○	○	○

Name of Mfr. : Graco Inc.

High-Pressure Airless Spray Tips

RAC10, XHD

Puntas de pistolas rociadoras sin aire de alta pressión
高圧エアーレススプレー用チップ　高压无气喷嘴



RAC X-FFA



RAC X-PAA



RAC X-HDA



XHD

Specification of Reversible Tips

Model	Max. Pressure	Orifice (Inch)	Fan Width							
			10 cm	15 cm	20 cm	25 cm	30 cm	35 cm	40 cm	60 cm
RAC10-FFA	350	0.008"	FFA-208	FFA-308						
		0.010"	FFA-210	FFA-310	FFA-410	FFA-510				
		0.012"	FFA-212	FFA-312	FFA-412	FFA-512	FFA-612			
		0.014"	FFA-214	FFA-314	FFA-414	FFA-514	FFA-614			
RAC10-PAA	350	0.015"	PAA-215	PAA-315	PAA-415	PAA-515	PAA-615			
		0.017"	PAA-217	PAA-317	PAA-417	PAA-517	PAA-617		PAA-817	
		0.019"	PAA-219	PAA-319	PAA-419	PAA-519	PAA-619		PAA-819	
		0.021"	PAA-221	PAA-321	PAA-421	PAA-521	PAA-621	PAA-721	PAA-821	PAA-1221
		0.023"		PAA-323	PAA-423	PAA-523	PAA-623	PAA-723		WA-1223
		0.025"		PAA-325	PAA-425	PAA-525	PAA-625			WA-1225
RAC10-HDA	350	0.027"		HDA-327	HDA-427	HDA-527	HDA-627		HDA-827	HDA-1227
		0.029"		HDA-329	HDA-429	HDA-529	HDA-629	HDA-729		HDA-1229
		0.031"		HDA-331	HDA-431	HDA-531	HDA-631		HDA-831	HDA-1231
		0.033"			HDA-433	HDA-533	HDA-633		HDA-833	HDA-1233
		0.035"		HDA-335	HDA-435	HDA-535	HDA-635	HDA-735	HDA-835	HDA-1235
XHD	500	0.13"				XHD-513	XHD-613			
		0.15"			XHD-415	XHD-515	XHD-615			
		0.017"			XHD-417	XHD-517	XHD-617			
		0.019"			XHD-419	XHD-519	XHD-619			
		0.021"			XHD-421	XHD-521	XHD-621			
		0.023"			XHD-423	XHD-523	XHD-623			
		0.025"			XHD-425	XHD-525	XHD-625			

Improve spraying productivity and reduce downtime with the HD RAC switch tip. Saves time – no screwdriver required. Change tip sizes in seconds – without removing the tip guard housing. Locking tab ensures tip stays securely in guard.

RAC X tips

Choose the RAC X tips for Airless applications up to 350 bar.
* FFA tip (green) for Fine Finish applications.
* PAA tip (blue) for all Professional Airless Applications.
* HDA tip (brown) for Heavy Duty Airless applications.

XHD

For heavy-duty applications up to 500 bar (50.0 MPa, 7,250 psi). Recommended for Xtreme® sprayers and XTR™ airless spray guns.

Unit Per Pc.

CODE	Model	CODE	Model	CODE	Model
RAC10-FFA Tips					
27 09 07	FFA208	**27 09 17**	FFA308	**27 09 38**	FFA510
08	FFA210	**18**	FFA310	**39**	FFA512
09	FFA212	**19**	FFA312	**40**	FFA514
10	FFA214	**20**	FFA314	**42**	FFA612
		28	FFA410	**43**	FFA614
		27 09 29	FFA412		
		30	FFA414		
RAC10-PAA Tips					
27 09 44	PAA215	**27 09 58**	PAA419	**27 09 78**	PAA619
45	PAA217	**59**	PAA421	**79**	PAA621
46	PAA219	**60**	PAA423	**80**	PAA623
47	PAA221	**68**	PAA425	**81**	PAA625
48	PAA315	**69**	PAA515	**82**	PAA721
27 09 49	PAA317	**27 09 70**	PAA517	**27 09 83**	PAA723
50	PAA319	**72**	PAA519	**84**	PAA817
53	PAA321	**73**	PAA521	**85**	PAA819
54	PAA323	**74**	PAA523	**86**	PAA821
55	PAA325	**75**	PAA525	**87**	PAA1221
27 09 56	PAA415	**27 09 76**	PAA615	**27 09 88**	WA1223
57	PAA417	**77**	PAA617	**89**	WA1225
RAC10-HDA Tips					
27 09 90	HDA327	**27 10 00**	HDA529	**27 11 10**	HDA735
91	HDA329	**27 11 01**	HDA531	**11**	HDA827
92	HDA331	**02**	HDA533	**12**	HDA831
93	HDA335	**03**	HDA535	**13**	HDA833
94	HDA427	**04**	HDA627	**14**	HDA835
27 09 95	HDA429	**27 11 05**	HDA629	**27 11 15**	HDA1227
96	HDA431	**06**	HDA631	**16**	HDA1229
97	HDA433	**07**	HDA633	**17**	HDA1232
98	HDA435	**08**	HDA635	**18**	HDA1233
99	HDA527	**09**	HDA729	**19**	HDA1235
XHD Tips					
27 09 11	XHD415	**27 09 21**	XHD513	**27 09 31**	XHD613
12	XHD417	**22**	XHD515	**32**	XHD615
13	XHD419	**23**	XHD517	**33**	XHD617
14	XHD421	**24**	XHD519	**34**	XHD619
15	XHD423	**25**	XHD521	**35**	XHD621
27 09 16	XHD425	**27 09 26**	XHD523	**27 09 36**	XHD623
		27	XHD525	**37**	XHD625

Name of Mfr.: Graco Inc.

XHD Guard

XHD guard for pressures up to 7,250 psi (500 bar, 50.0 MPa).

27 09 41	Rac guard, XHD001	Pc.

Name of Mfr.: Graco Inc.

Kits

To be compatible with the original heavy duty RAC SwitchTips (GHDxxx).

247634 Seat and Seal Kit	XHD010 Seat and Seal Kit
	
You can use the new XHD tips in the old (GHD) guards.	You can use the old GHD tips in the new (XHD) guards.

CODE	Description	Model	Unit
27 09 51	Kit, seat and seals, 5 pack (for GHZD)	247634	Set
52	Kit, seat and seals, 5 pack (for XHD)	XHD010	"

Name of Mfr.: Graco Inc.

Accessories

CODE	Description	Model	Unit
27 09 61	Pro easy-out gun filter, 60 mesh × 1	287032	Pc.
62	Pro easy-out gun filter, 100 mesh ×1	287033	"
63	Propack easy-out gun filter, 60 mesh and 100 mesh combination	287034	Set
27 09 64	Gun repair kit (includes gasket, needle and seat)	248837	Set
27 09 65	Retainer (Tip filter housing)	164120	Pc.
27 09 66	Tip Retainer 11/16 inch	220255	Pc.
67	Tip Retainer 7/8 inch	220251	"
27 09 71	Swivel 1/4"	204940	Pc.

Name of Mfr.: Graco Inc.

Airless High Pressure Hoses

Mangueras de alta presión
高圧エアーレスホース
无气高压软管



Complete line of strong, safe and affordable hoses. Complete line of hoses for all your high pressure spraying. Colour-coded by pressure to take the guesswork out of using the right hose. Easy-to-order, configurable part numbering system. Durable design reduces downtime.

Unit Per Lgh

CODE	Size ID	Length mtr	Model
W/P: 310 Bar (4,500 psi) - purple colour			
27 10 21	1/4"	7.6	H42525
22		15.2	H42550
23		30.5	H4251X
27 10 24	3/8"	7.6	H43825
25		15.2	H43850
26		30.5	H4381X
27 10 27	1/2"	7.6	H45025
28		15.2	H45050
29		30.5	H4501X
W/P: 386 Bar (5,600 psi) - grey colour			
27 10 31	1/4"	7.6	H52525
32		15.2	H52550
33		30.5	H5251X

(to be continued)

Unit Per Lgh

CODE	Size ID	Length mtr	Model
27 10 34	3/8"	7.6	H53825
35		15.2	H53850
36		30.5	H5381X
27 10 37	1/2"	7.6	H55025
38		15.2	H55050
39		30.5	H5501X
W/P: 500 Bar (7,250 psi) - black colour			
27 10 41	1/4"	7.6	H72525
42		15.2	H72550
43		30.5	H7251X
27 10 44	3/8"	7.6	H73825
45		15.2	H73850
46		30.5	H7381X
27 10 47	1/2"	7.6	H75025
48		15.2	H75050
49		30.5	H7501X

Name of Mfr.: Graco Inc.

Airless Paint Spray Tips

Boquillas para Pistola Pintado
ペイントスプレーチップ　无气喷漆枪喷嘴



Made of tungsten carbide. Available in a wide range of sizes. The most commonly used models are listed below.

Unit Per Pc.

CODE	Model No.	Nominal No. of tip Diam.	Flow Rate Ltr/Min.	Pattern Width	
				No.	mm
27 02 01	163413	13	0.68		
02	163415	15	0.91		
03	163417	17	1.17		
04	163419	19	1.48	4	200-250
05	163421	21	1.78		
06	163423	23	2.16		
07	163425	25	2.54		
27 02 16	163513	13	0.68		
17	163515	15	0.91		
18	163517	17	1.17		
19	163519	19	1.48	5	250-300
20	163521	21	1.78		
21	163523	23	2.16		
22	163525	25	2.54		
27 02 31	163613	13	0.68		
32	163615	15	0.91		
33	163617	17	1.17		
34	163619	19	1.48	6	310-350
35	163621	21	1.78		
36	163623	23	2.16		
37	163625	25	2.54		

Name of Mfr.: Graco Inc.

Airless Paint Sprayers

Air-powered Type

Pistola Pintado/Tipo Neumático
エアーレスペイント塗装機　エアー駆動式
无气喷涂机 空气驱动式



Unit Per Set

CODE	**27 03 01**	**27 03 02**
Name	Mini Bear	Big Bear
Model No.	SP 1021 (40338-9)	SP 1844 (40353)
Pump Ratio	23:1	30:1
Max. Flow Ratio ltr/min.	4	14
Normal Delivery ltr/min.	1.3	4
Max. Output Pressure	11.5 MPa (115 kgf/ cm²)	15 MPa (150 kgf/ cm²)
Size mm (W × L × H)	320 × 400 × 750	600 × 720 × 1,280
Weight kg	14	80

Name of Mfr.: Asahi Sunac Corporation

Unit Per Set

CODE	**27 03 03**	**27 03 04**
Name	Super Bear	
Model No.	SP 2544 (40381-3)	SP 2554 (40342)
Pump Ratio	65 : 1	45 : 1
Max. Flow Ratio ltr/min.	14	20
Normal Delivery ltr/min.	4	6
Max. Output Pressure	32.5 MPa (325 kgf/cm²)	22.5 MPa (225 kgf/cm²)
Size mm (W × L × H)	600 × 720 × 1,280	
Weight kg	105	110

Name of Mfr.: Asahi Sunac Corporation

Standard Accessories

Items	Mini Bear	Big Bear	Super Bear
Gun	MG7 (1294)	MG7 (1294)	MG3 (1268)
Nozzle	GN		
Material Hose	NSR 06100	NH 09200	NH 09200

Airless Paint Sprayers

Electric-powered Type

Pistola Pintado/Tipo Eléctrico
エアーレスペイント塗装機　電動式
无气喷涂机 电力驱动式



Unit Per Set

CODE	**27 03 12**	**27 03 15**
Name	AQ 600	
Power Source AC	110V	220V
Max. Flow Ratio	6 ltr/mn.	
Normal Output Pressure	20.0 Mpa (200 kgf/cm²)	
Max. Output Pressure	25.0 Mpa (250 kgf/cm²)	
Motor Output Rating	0.85 kW (11.3 PS)	
Phase Frequency	Single Phase, 50/60 Hz	
Size mm	W 350 × L 552 × H 539	
Weight kg	41	

Name of Mfr.: Asahi Sunac Corporation

Standard Accessories

Items	AQ600
Gun	MG7
Nozzle	GN
Material Hose	NSR 06200
Motor Oil	○

Airless Paint Spray Guns

Pistolas Pintado
エアーレススプレーガン　无气喷漆枪


MG7 II Ace Gun


MG3 Marine Gun


PMG Pole Gun

Unit Per Pc.

CODE	Item	Model	Remark
27 03 21	Ace gun	MG7 II	Light weight
22	Marine Gun	MG3	For Hi-pressure Paint
23	Ace Gun	MG7	Light weight
27 03 24	Pole Gun	PMGIVS-3	0.9 mtr lgh
25		PMGIVS-5	1.5 mtr lgh
26		PMGIVS-6	1.8 mtr lgh

Note : Size of paint hose and air hose are PF 1/4.
Name of Mfr. : Asahi Sunac Corporation

Airless Paint Spray Nozzles

Boquillas para Pistola Pintado
ペイントスプレーノズル　无气喷漆喷嘴


GN Flat Spray Nozzle


RN Reversible Nozzle

Unit Per Pc.

CODE	Model No.	Nom. Tip Size ltr/min	Discharge Rate ltr/min	Pattern Width No.	Pattern Width cm	Applicable Paint Type
Type GN (Flat Spray)						
27 03 36	14C05	14	0.9	05	10-15	Marine/ Corrosion resistant paints
37	14C07			07	15-20	
38	14C09			09	20-25	
27 03 39	16C07	16	1.02	07	15-20	Marine/ Corrosion resistant paints
40	16C09			09	20-25	
41	16C11			11	25-31	
27 03 42	18C09	18	1.16	09	20-25	Marine / Chlorinated rubber paints
43	18C11			11	25-31	
27 03 44	20C11	20	1.29	11	25-31	Tar epoxy paints
45	20C13			13	31-36	
27 03 46	25C11	25	1.54	11	25-31	
47	25C13			13	31-36	
27 03 48	30C11	30	1.93	11	25-31	Non-solvent tar epoxy paints
49	30C13			13	31-36	
50	30C15			15	36-41	
27 03 51	40C13	40	2.57	13	31-36	
52	40C15			15	36-41	
Type RN (Reversible)						
27 03 61	14C05	14	0.9	05	10-15	Marine / Corrosion resistant paints
62	14C07			07	15-20	
63	14C09			09	20-25	
27 03 64	16C07	16	1.02	07	15-20	
65	16C09			09	20-25	
66	16C11			11	25-31	
27 03 67	18C09	18	1.16	09	20-25	Marine / Chlorinated rubber paints
68	18C11			11	25-31	
27 03 69	20C11	20	1.29	11	25-31	Tar epoxy paints
70	20C13			13	31-36	
27 03 71	25C11	25	1.54	11	25-31	
72	25C13			13	31-36	
27 03 73	30C11	30	1.93	11	25-31	Non-solvent tar epoxy paints
74	30C13			13	31-36	
75	30C15			15	36-41	
27 03 76	40C13	40	2.57	13	31-36	
77	40C15			15	36-41	

Name of Mfr.: Asahi Sunac Corporation

(to be continued)

High-Pressure Paint Spray Hose

Nylon and Reinforced

Manguera de Nylón Reforazda para Bomba Rociadora de Pintura
高圧ペイントホース　高压尼龙水泥喷漆软管

Made of reinforced nylon with a normal operating pressure of 150 kgf/cm^2.



Unit Per Lgh.

CODE	Model	Diam. mm I.D.×O.D.	Joint Size	Flow Pressure	Length mtr
27 03 86	NSR06100	6 × 9	1/4"	20 MPa (200 kgf/cm^2)	10
87	NSR06200				20
27 03 88	NH09100	9 × 12	3/8"	25 MPa (250 kgf/cm^2)	10
89	NH09200				20
90	NH09300				30

Name of Mfr.: Asahi Sunac Corporation

Airless Paint Sprayers

Air-powered Type

Pistola Pintado/Tipo Neumático
エアーレスペイント塗装機　エアー駆動式
无气喷涂机 空气驱动式



Unit Per Set

CODE	27 04 02	27 04 04	27 04 05	27 04 06
Model	ALS-333C	ALS-433C	ALS-453C	ALS-653
Type	Cart Type			
Feature	Small Versatile Design	Medium Versatile Design	Medium Highest Pressure Type	Big for Medium and Heavy Viscosity Material Capable for Supporting Multiple Guns
Pump Ratio	25 : 1	30 : 1	53 : 1	45 : 1
Max. Flow Rate	2.5 ltr/min.	5.3 ltr/min.	3.0 ltr/min.	12.5 ltr/min.
Max. Fluid Pressure	17.5 MPa 178 kgf/cm²	20.6 MPa 210 kgf/cm²	36.3 MPa 370 kgf/cm²	27 MPa 275 kgf/cm²
Max. Air Work Pressure	0.7 MPa 7.13 kgf/cm²			0.6 MPa 6.11 kgf/cm²
Fluid Outlet	Male 1/4 PF			
Air Inlet	Male 1/4 PF			-
Dimensions L×W×H mm	500 × 500 × 800	430 × 420 × 920		800 × 730 × 1,200
Weight	31 kg	38 kg		86 kg

Name of Mfr.: Anest Iwata Co., Ltd.

Standard Accessories

ALS-333C	Airless Spray Gun ALG-7 Paint Hose NHS-610C Paint Filter TF-8B Drain Valve	1 Pc 10 mtrs 1 Pc Equipped
ALS-433C	Airless Spray Gun ALG-7 Paint Hose NHS-610D Paint Filter TF-8B Drain Valve	1 Pc 10 mtrs 1 Pc Equipped
ALS-453C	Airless Spray Gun ALG-7 Paint Hose NHH-610B Paint Filter TF-9B Drain Valve	1 Pc 10 mtrs 1 Pc Equipped
ALS-653	Airless Spray Gun ALG-7 Nozzle Tip Paint Hose NHS-610B Paint Filter Intermediate and Intake Drain Valve Oiler Air Filter	Optional Optional Optional Equipped Equipped Equipped Equipped

Airless Paint Spray Hand Guns and Pole Guns

Pistolas Manuales y Pistolas con Lanza
ハンドガン・ポールガン　无气喷漆枪用油漆

The fluid needle packing can be tightened or loosened from the outside allowing for easy maintenance of the release handle mechanism. Safety features include a safety lock on the trigger and a hand guard. Soft touch triggering and a light weight gun body reduce operator fatigue.



Hand Gun



Airless Pole Gun

A) Hand Guns

Unit Per Pc.

CODE	27 04 11	27 04 12
Model	ALG-7	ALG-72
Max. Work Pressure	25 MPa (255 kgf/cm²)	
For Use	General Purpose	Hi-quality painting split-free shut off
Air Inlet	PF 1/4	

Name of Mfr.: Anest Iwata Co., Ltd.

B) Pole Guns

Unit Per Pc.

CODE	27 04 16	27 04 17	27 04 18
Model	AP96-10	AP96-15	AP96-20
Length	1 Mtr	1.5 Mtr	2 Mtr
Air Inlet	PF 1/4		

Name of Mfr.: Anest Iwata Co., Ltd.

High-Pressure Paint Spray Hose

Manguera de Nylón Reforazda para Bomba Rociadora de Pintura
高圧ペイントホース
高压尼龙水泥喷漆软管

Stainless steel braided flexible hose.



Unit Per Lgh.

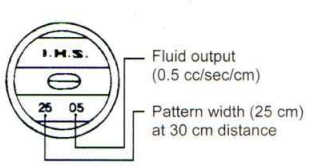
CODE	Model	Size		Max. Working Pressure	Inlet Coupling
		I.D. mm	Lgh. Mtr		
27 04 26	NHS-6D	6	10	20.6 MPa 210 kgf/cm²	PF 1/4"
27			20		
28			30		
27 04 31	NHS-610B	6	10	42.5 MPa 433 kgf/cm²	

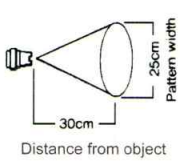
Name of Mfr.: Anest Iwata Co., Ltd.

Airless Paint Spray Nozzle Tips

Boquillas para Pistola Pintado
ペイントスプレーノズルチップ　无气喷漆喷嘴

Numbering System (Ex. NT2505)





Unit Per Pc.

CODE	Nozzle Tip No.	Pattern Width cm.	Fluid Output ltr/ min.	Orifice Diam. mm
27 04 41	NT-2006	18-23	0.72	0.39
42	2007	18-23	0.84	0.43
43	2009	18-23	1.08	0.47
27 04 48	NT-2505	23-28	0.75	0.40
49	2506	23-28	0.90	0.44
50	2507	23-28	1.05	0.47
51	2509	23-28	1.35	0.53
27 04 55	NT-3004	28-33	0.72	0.39
56	3005	28-33	0.90	0.44
57	3006	28-33	1.08	0.47
58	3007	28-33	1.26	0.51
59	3009	28-33	1.62	0.58
27 04 66	NT-3504	33-38	0.84	0.43
67	3505	33-38	1.05	0.47
68	3506	33-38	1.26	0.51
69	3507	33-38	1.47	0.55
70	3509	33-38	1.89	0.62
27 04 78	NT-4005	38-43	1.20	0.50
79	4006	38-43	1.44	0.55
80	4007	38-43	1.68	0.59
81	4009	38-43	2.16	0.67

Name of Mfr.: Anest Iwata Co., Ltd.

Spray Guns

Pistolas Rociadora de Pintura
スプレーガン　噴涂枪

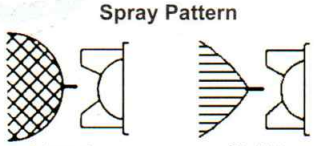


There are many types of spray guns available and the spray gun required for a certain job is usually selected based upon the following specifications.

1. Material size to be sprayed
2. Quantity to be sprayed
3. Quality of finish
4. Paint viscosity

A wide variety of models from different manufacturers are available but the most common models are listed below.

Spray Pattern



Intersect　　Straight

Unit Per Pc.

CODE	Fluid Nozzle Orifice I.D. mm	Fluid Out Put ltr/min.	Spray Pattern	Model for Reference
Small Size - Pressure Feed Type				
27 05 01	0.8	150	Intersect	W-100-082P
02	1.0	200	"	W-100-102P
Small Size - Suction Feed Type				
27 05 03	1.0	85	Straight	W-101-101S
04	1.3	150	"	W-101-131S
05	1.5	175	"	W-101-151S
06	1.3	150	Intersect	W-101-132S
07	1.5	170	"	W-101-152S
Medium Size - Pressure Feed Type				
27 05 12	1.2	500	Intersect	W-200-122P
Medium Size - Suction Feed Type				
27 05 13	1.5	240	Straight	W-200-151S
14	1.5	240	Intersect	W-200-152S
15	2.0	350	Straight	W-200-201S
16	2.0	350	Intersect	W-200-202S
17	2.5	440	Straight	W-200-251S
Large Size - Suction Feed Type				
27 05 21	1.8	290	Intersect	W-200-182S

(to be continued)

Air Spray Guns

AirPro

Pistolas Neumáticas
エアースプレーガン　空气喷枪



Advanced spraying technology for automotive, metal, wood, waterborne, high wear and adhesive applications. This air spray gun delivers exceptional spraying performance while addressing your environmental and operator concerns. Cutting edge air cap and nozzle design optimize spray performance. Wide range of gun models to meet the needs of your specific application. Light weight design, low trigger force and ergonomic handle provide maximum operator comfort. Fewer parts means less maintenance and downtime. Air flow and consumption are tested to meet environmental compliance.

Type of Feed



Pressure Feed



Gravity Board



Siphon Board

Spray Type

Type	HVLP	Compliant	Conventional
Finish Quality	Good	Better	Best
Transfer Efficiency	High	High	Medium
Fluid Flow	Low	Medium	High
Air Flow	High	Low	Low

Unit Per Pc.

CODE	Feed Type	Spray Type	Nozzle Inch (mm)	Model
27 13 01	Pressure	Coventional	0.055 (1.4)	288931
02			0.070 (1.8)	288932
03		Compliant	0.055 (1.4)	288945
04			0.070 (1.8)	288946
27 13 05	Gravity with Plastic Cup	Conventional	0.055 (1.4)	289011
06		Compliant	0.055 (1.4)	289017

Name of Mfr.: Graco Inc.

Accessories

Unit Per Box

27 13 31	Cup & collar, 6 oz (150 ml), 8's/box	234941
32	Cup & collar, 25 oz (650 ml), 8's/box	234771
33	Lid & liner, 32 oz (850 ml), 25's/box	234938

Unit Per Set

27 13 41	Air cap kit, general metal, conventional	289773
42	Air cap kit, general metal, conventional	289068
43	Air cap kit, general metal, conventional	289069
44	Air cap kit, general metal, compliant	289042
45	Air cap kit, general metal, compliant	289044

Name of Mfr.: Graco Inc.

Air Spray Guns

Finex™

Pistolas Neumáticas
エアースプレーガン　空気噴枪



Well-balanced and lightweight, the gun design offers a more affordable way to spray. Air caps optimized for high quality spray performance. Lightweight, ergonomic gun, and light trigger pull. Integrated air inlet adjustment (cheater) valve.

Unit Per Pc.

CODE	Gun Style	Nozzle Inch (mm)	Model
27 13 11	Pressure feed conventional	0.055 (1.4)	289254
27 13 12	Gravity feed standard conventional	0.055 (1.4)	289244

Name of Mfr.: Graco Inc.

Accessories

Unit Per Pc.

CODE	Needle, Nozzle Size Inch (mm)	For Gun Style	Model
Repair Kit (Needle, Nozzle, Air Cap)			
27 13 21	0.031 (0.8)	Pressure feed conventional	289305
22	0.039 (1.0)		289306
23	0.047 (1.2)		289307
24	0.055 (1.4)		289308
25	0.071 (1.8)		289309
27 13 26	0.039 (1.0)	Gravity feed conventional	289291
27	0.051 (1.3)		289292
28	0.055 (1.4)		289293
29	0.059 (1.5)		289294
30	0.071 (1.8)		289295

Unit Per Box

For use with Gravity Feed Guns (3M7s PPS Accessories)		
27 13 31	Cup & collar, 6 oz (150 ml), 8's/box	234941
32	Cup & collar, 25 oz (650 ml), 8's/box	234771
33	Lid & liner, 32 oz (850 ml), 25's/box	234938

Unit Per Pc.

27 13 36	Gravity cup, plastic, 125 cc	289323
37	Gravity cup, plastic, 600 cc	289322
27 13 38	Gravity cup, aluminium, 125 cc	289517
39	Gravity cup, aluminium, 250 cc	289321
40	Gravity cup, aluminium, 600 cc	289320

Name of Mfr.: Graco Inc.

Paint Containers

Suction Feed Type

Comtenedores de Pintura /Tipo: Alimentación por Succión
吸い上げ式ペイントコンテナー
吸油涂料容器



Suction feed type container, designed to spray small quantities. Specify the spray gun type currently in use in order to supply the correct container when ordering.

Unit Per Pc.

CODE	Capacity ml	Weight gm	Applicable Spray Gun	Model for Reference	Type
27 05 31	1,000	410	W-101	PCL-10B-2	Cap Lock
32	1,000	330		PC-1S	Normal
33	700	370		PCL-7B-2	Cap Lock
34	600	270		PC-2	Normal
35	400	180		PC3	Normal
27 05 36	1,000	415	W-200	PCL-10B-3	Cap Lock
37	1,000	335		PC-1	Normal
38	700	375		PCL-7B-3	Cap Lock

Paint Stirrers

Agitadores de Pintura　ペイント撹拌機　油漆搅拌器



Set on the paint container, this device is driven by compressed air and used to stir and drive the paint up into the compressor unit. Equipped with a reduction gearbox it can be used with paint of comparatively high viscosity.

Unit Per Set

CODE	Capacity up to	R. P. M.
27 05 81	40 ltr	500
82	200 ltr	500

Paint Stirrer Shafts

Ejes Agitadores de Pintura
ペイント撹拌用シャフト　涂料搅拌器轴



Paint Stirrer Shaft to be used with portable drilling machines. Size of Hex. Shaft to be attached to drilling machines is 6.35 mm.

27 05 83	Paint Stirrer Shaft, hex shaft 6.35 mm, approx. 600 mm length	Pc.

Engine Cleaner Guns

Pistola de Petrolear　エンジンクリーナーガン　机械清洁喷气枪

Used for fast and effective removal of grease and dirt from machinery, engine frames, etc. by kerosene and other special solvents. Furnished with 1.5 mtrs hose.



Engine Cleaner



Cleaning Gun

Unit Per Pc.

CODE	Description	Tip I.D. mm	Air Pressure kgf/cm²	Fluid Output ml/min
27 06 01	Engine cleaner	1.4	4	190
02	Cleaner & dryer	1.4	4	190
03	Cleaning gun	5.0	3.5	500

Note: Air inlet connection PF 1/4

Air Dusters

Pistola Sopladora de Aire　エアーダスター　吹风拂尘器



27 06 11
Common



27 06 12
Long Nose



27 06 13
Long Nose

Unit Per Pc.

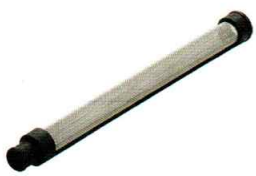
CODE	Nozzle mm		Weight grm	Uded for
	Diam.	Length		
27 06 11	2	24	230	Common purpose
27 06 12	2	100	260	Hard-to-reach or high spot cleaning
13	2	300	330	

Note: Air inlet connection PF 1/4

Screens, Stainless Steel

for Fluid Outlet Filter

Blindaje de acero inoxidable para filtro de salida de fluidos
ステンレスフィルター
不锈钢过滤器





Unit Per Pc.

CODE	Mesh	Micron	Model
27 10 52	60	250	287032
53	100	149	287033

Name of Mfr.: Graco Inc.

27 Painting Equipment

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31
Safety Protective Gear

Head Protection  P. 31-1 ~ 7	Eye Protection  P. 31-7 ~ 9
Body Protection  P. 31-9 ~ 18	Foot Protection  P. 31-19
Anti-Piracy Goods  P. 31-20 ~ 23	Hand/Arm Protection  P. 31-24

Slotted V-Gard Safety Helmets

with Staz-On Key Push Suspension

Casco de Seguridad para Protección Vertical con Banda de Suspensión

スライド式サスペンション付きガードヘルメット　V-GARD 型安全帽

Made of polyethylene shell with suspension system working together as a protection system. MSA V-Gard caps meet or exceed all applicable requirements for a Type I (top impact) helmet as outlined in ANSI Z89.1-2014, Class E, and as outlined in CSA Z94.1-2005, Class E with 1-Touch® and Fas-Trac suspensions. For European versions, Push Key suspension fulfills EN 397:1995. MSA V-Gard caps are not specifically designed to protect against lateral blows from the front, side, or rear.

Available in three sizes for cap : small (6-7 1/8), standard (6 1/2-8), and large (7–8 1/2), Hat : medium (6 1/2–8") only and in a wide choice of colours in order to satisfy your requirements.



Cap



Hat

Cap

Unit Per Pc.

CODE	Colour	CODE	Colour
31 01 01	White	**31 01 09**	Hi-Viz Lime Green
02	Blue	**10**	Gold
03	Yellow	**11**	Robin's Egg Blue
04	Orange	**12**	Brown
05	Red	**13**	Silver
31 01 06	Green	**31 01 14**	Tan
07	Grey	**15**	Black
08	Hi-Viz Orange		
33 11 63	Staz-On Suspension		10087218
33 11 64	Helmet Chin Strap		88128

Name of Mfr.: MSA The Safety Company

Hat

Size: M only.

Unit Per Pc.

CODE	Colour	CODE	Colour
31 01 16	White	**31 01 35**	Grey
17	Blue	**36**	Hi-Viz Orange
18	Yellow	**37**	Bright Lime Green
19	Orange	**38**	Gold
20	Red	**39**	Silver
34	Green	**40**	Black
33 11 63	Staz-On Suspension		10087218
33 11 64	Helmet Chin Strap		88128

Name of Mfr.: MSA The Safety Company

Slotted V-Gard GREEN Safety Caps and Helmets

with Fas-Trac III Suspension

Gorras y cascos de seguridad ranurados con protector en V ecológicos con suspensión Fas-Trac III

サスペンション付きエコ仕様ガードヘルメット

带悬挂装置的生态规格防护头盔

Shell made of green high-density polyethylene (GHDPE), a plant-derived plastic that has the benefit of cutting carbon emissions and reducing atmospheric CO_2, with Fas-Trac III suspension system working together as a protection system. Certified USDA Biobased (>95% biobased shell). MSA V-Gard GREEN caps and helmets meet or exceed all applicable requirements for a Type I (top impact) helmet as outlined in ANSI/ISEA Z89.1-2014, Class E and CSA Z94.1-2005.

MSA V-Gard GREEN caps and helmets are not specifically designed to protect against lateral blows from the front, side, or rear.

Available in size: standard (6 1/2-8).



Cap



Hat

Unit Per Pc.

Colour	Cap		Helmet	
	CODE	P/N	CODE	P/N
White	**31 01 41**	10160923	**31 01 46**	10150199
Blue	**42**	10160925	**47**	10150221
Yellow	**43**	10160924	**48**	10150220
Red	**44**	10160927	**49**	10150223
Green	**45**	10160926	**50**	10150222

Name of Mfr.: MSA The Safety Company

Replacement Suspensions

for Slotted MSA V-Gard Safety Helmet

Banda de Suspensión de Recambio para Casco de Seguridad

V ガードヘルメット用替えサスペンション

V-GARD 型安全帽内衬

Available 5 types of suspension as replacement for MSA V-Gard safety helmet.

- Fas-Trac : Adjustable head band by dial ratchet knob [US & EU]
- Staz-On : Adjustable head band by sliding [US]
- Push Key : Adjustable head band by sliding and releasing by pushing button [EU]
- 1-Touch : Easy squeeze opening and One-Hand slide adjustment [US]
- Swing Ratchet : The only self-adjusting reversible ratchet suspension [US]



Fas-Trac



Staz-On



Push Key



1-Touch



Swing Ratchet

Unit Per Pc.

CODE	Type	Size	Nom Inch	Part No. US	Part No. EU
31 01 21	Fas-Trac	Small	6 to 7-1/8"	492567	-
22		Standard	6-1/2 to 8"	10087220	-
23		Large	7 to 8-1/2"	492568	-
24			52 - 64 cm	-	10109261
31 01 25	Staz-On	Small	6 to 7-1/8"	467386	-
26		Standard	6-1/2 to 8"	10087218	-
27		Large	7 to 8-1/2"	492566	-
31 01 29	Push Key	Standard	52 - 64 cm	-	10165207
31 01 31	1-Touch	Standard	6-1/2 to 8"	10061123	-
31 01 33	Swing Ratchet	Standard	6-1/2 to 7-5/8"	816645	-

Name of Mfr.: MSA The Safety Company

Reduced Peak Safety Helmets Linesman

Casco de Seguridad con Visera Pequeña
小ひさし型安全ヘルメット　尖顶減厭型安全帽



High safety with low weight. Reassuring strength with feel-good comfort. Manufactured from high quality, strong ABS (Acrylonitrile-Buradiene-Styrene) material, the concept is 20% lighter than most other helmets. Unique design, provides an extended nape, ensuring increased neck protection. Dry-Tech sweatband for maximum comfort, for extended periods of use. It satisfies all the electric insulation requirements of EN397 and ANSI Z 89 class E. It comes complete with a high security head harness, quick release chinstrap, comfortable terylene cradle and sweatband. Standard size is 51-63 cm. Compliant with EN397–30°C (Low temperature), 440V A.C. (Electric resistance). Available also with wheel ratchet option.

Helmet Option: Reduced Peak Ratchet Non-Vented Weight 364 grm

Unit Per Pc.

CODE	Colour	CODE	Colour
31 03 01	White	31 03 06	Green
02	Blue	07	Black
03	Red	08	Light Blue
04	Yellow	09	Hi-Viz Yellow
05	Orange	10	Hi-Viz Orange

Name of Mfr.: Centurion Safety EU

Helmet Option: Reduced Peak Slip Non-Vented Weight 345 grm

Unit Per Pc.

CODE	Colour	CODE	Colour
31 03 41	White	31 03 46	Green
42	Blue	47	Black
43	Red	48	Light Blue
44	Yellow	49	Hi-Viz Yellow
45	Orange	50	Hi-Viz Orange

Name of Mfr.: Centurion Safety EU

Replacement Accessories



Cradle, Standard



Cradle with Ratchet



Sweatband

31 03 11	Harness (Chinstrap), 4 point quick release	Pc.
31 03 12	Sweatband, Dry-Tech, for Linesman helmet	"
31 03 13	Cradle, standard, with Dry-Tech sweatband	"
14	Cradle with Ratchet and Dry-Tech sweatband	"

Safety Helmets

V-Gard 900 series

Integrated Over-spectacle/Visor

Cascos de seguridad integrados con gafas/visera
ゴーグル / バイザー付きヘルメット　帯护目镜 / 面罩的头盔

V-Gard® 900 helmet range features a dynamic design and a premium shell for maximized strength. Various customization options (shell colors, stickers, badge holder, full color printing, etc.), ease of use and best in class comfort with Fas-Trac III suspension will optimize wearer acceptance.

The shell is made of ABS (Acrylonitrile Butadiene Styrene) and meet or exceed all applicable standard requirements in EN397, including optional requirements of very low temperature (-30°C), LD (Lateral Deformation), MM (Molten Metal), 440 VAC & EN 50365 1,000 VAC (non-vented version only for V-Gard 930), EN 134631-1, use in explosive atmosphere ATEX (zone 1, 2, 20, 21 and 22).

Size : 52 ... 64 cm.
Weight : V-Gard 930 is 495 grams, V-Gard 950 is 635 grams.

V-Gard 930 – Integrated over-spectacle with red micro-prismatic retro-reflective stickers



- Vented and non-vented shell in 6 different colors.
- Balanced, low profile with premium eye protection for Construction, Utilities, Shipping & OGPC.
- Premium anti-fog over-spectacle fits over all corrective glasses.
- Intelligent adjustment and innovative rubber seal to ensure gap free eye protection on the face.
- Grip area with rail system for quick and easy lens stowing.

Unit Per Pc.

Colour	Vented CODE	Vented Part No.	Non-Vented CODE	Non-Vented Part No.
White	31 03 15	GVC1A-00000H0-000	31 03 21	GVD1A-00000H0-000
Blue	16	GVC5A-00000H0-000	22	GVD5A-00000H0-000
Yellow	17	GVC2A-00000H0-000	23	GVD2A-00000H0-000
Red	18	GVC3A-00000H0-000	24	GVD3A-00000H0-000
Orange	19	GVC6A-00000H0-000	25	GVD6A-00000H0-000
Green	31 03 20	GVC4A-00000H0-000	31 03 26	GVD4A-00000H0-000

Name of Mfr. : MSA the Safety Company

V-Gard 950 – Integrated visor with red micro-prismatic retro-reflective stickers

- Non-vented shell in 6 different colors.
- Balanced, low profile electrician helmet with full face protection.
- For shipping, Utilities & OGPC.
- Visor protects against impact, chemical splash, Ultra-Violet radiation, molten metal splash and electric arc to GS-ET-29 Class 1 (4kA).

- Fits over corrective glasses.
- Reliable one handed smooth movement, even gloved
- Complete with 4 point chinstrap for better helmet retention.
- Optional arc flash ear-flaps to ensure side protection against arc flash.



Unit Per Pc.

Non-Vented

Colour	CODE	Part No.
White	**31 03 27**	GVF1A-80A00H0-000
Blue	**28**	GVF5A-80A00H0-000
Yellow	**29**	GVF2A-80A00H0-000
Red	**30**	GVF3A-80A00H0-000
Orange	**31**	GVF6A-80A00H0-000
Green	**31 03 32**	GVF4A-80A00H0-000

Name of Mfr. : MSA the Safety Company

Ventilated Safety Helmets

Cascos de seguridad ventilados
通気式安全ヘルメット　通气型安全帽



Six-point, webbed suspension system conforms to wearer's head for maximum comfort, safety, and stability; chinstrap designed to reduce risk of helmet loss during fall (strength greater than 50 daN); includes foam inserts in two thicknesses for custom fit. Sliding vent covers allow for adjustments to air circulation inside helmet. Slots, clips, and inserts for mounting ear and face protection and headlamps. Weight: 455 g. Circumference: minimum – 53 cm, maximum – 63 cm.

Certifications: CE EN 12492, UIAA, ANSI Z89.1-2009, Type I Class C.

Complies with EN 397 and EN 12492 for protection against impact and EN 397 for protection against lateral deformation and for wear in cold temperatures.

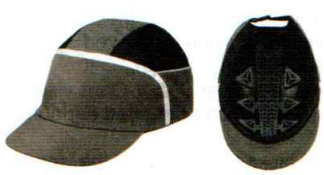
Unit Per Pc.

CODE	Colour	CODE	Colour
31 03 36	White	**31 03 39**	Orange
37	Blue	**40**	Red
38	Yellow		

Name of Mfr: Scandia Gear

Bump Cap

Tapa abombada
衝撃緩和機能性キャップ
减震功能帽



Designed to protect your head from minor impacts and bumps. The inner shell or cushioning materials inside of the cap absorbs and disperses of the force of impact. Suitable for working with lower-ceiling or small spaces, or other similar work conditions.

31 03 52	Bump cap with adjustable back strap, size 54 - 62 cm	Pc.

V-Gard Headgear and Accessories

V-Gard Headgear y accesorios
V ガードヘッドギアー＆付属品類　V-Gard 的头饰和配件



V-Gard Headgear is a brow guard that in combination with the wide range of V-Gard Visors offers a lightweight, comprehensive face protection system. Featuring a durable and stylish HDPE frame and the choice of over 20 visors it is ideal for many applications. With the unique 3-point visor load system visors are fitted or removed easily and quickly. Adjustable to all head sizes and with two comfort sweatbands all day comfort is for sure.

Headgear Frames

- Can be used with earmuffs, half-mask respirators and more ...
- V-shaped alignment guides for easy installation.
- Non-metal construction for use in electrical applications.
- Optional ET frame is made of heat resistant Nylon in grey with extended crown for additional coverage.
- ANSI tested to temperatures of 400°F (204°C).
- Fits head sizes 52 – 64 cm.

Approvals

ANSI / ISEA Z87-1 : 2010 / CSA Z94 / EN166:2001 389 BT/ EN1731-F / AS/NZS 1337

Unit Per Pc.

CODE	Description	MSA No.
31 05 10	V-Gard Headgear Standard without visor	10127061
31 05 20	V-Gard Headgear Elevated Temperature without visor	10127062

Name of Mfr. : MSA The Safety Company

Faceshield Frames

This frame works with any MSA slotted or non-slotted helmet and features our unique sloped design to help material slide off the frame and out of site. Can be used with earmuffs, half-mask respirators and other personal protective equipment. Stays securely on the cap, thanks to the heavy-duty, flat, rubber strap. The elevated temperature model withstands temps up to 350°F (176°C).

- Sloped design helps material easily slide off the frame.
- Pivot location for use with earmuffs, half-mask respirators and more.
- V-shaped alignment guides for easy installation.
- Replaceable, optional debris control creates tight seal between frame and helmet.
- Heavy-duty, flat, rubber strap for easy and secure placement of frame on cap.
- Non-metal construction for use in electrical applications.
- ET frame is tested to temperatures of 350°F (176.7°C), reducing warping, cracking or crazing.
- Fits MSA slotted or non-slotted helmets.

Approvals

ANSI / ISEA Z87-1 : 2010 / CSA Z94 / EN166 : 2001 389 BT/ EN1731-F / AS/NZS 1337



No. 10115730 No. 10121266 No. 10121268

Unit Per Pc.

CODE	Description	MSA No.
31 05 02	Frame with debris control, for slotted caps V-Gard	10115730
31 05 03	Frame with debris control, elevated temperature, for slotted caps V-Gard	10115821
31 05 04	Frame w/o debris control, for slotted caps V-Gard	10121266
31 05 05	Frame w/o debris control, elevated temperature, for slotted caps V-Gard	10121267
31 05 06	Universal frame with debris control, for caps V-Gard	10115822
31 05 07	Universal frame w/o debris control, for caps V-Gard	10121268
31 05 08	Universal frame with debris control, elevated temperature, for caps V-Gard	10116552
31 05 09	Universal frame w/o debris control, elevated temperature, for caps V-Gard	10124426
31 05 29	Frame, for full brim hats V-Gard	10116627
31 05 30	Frame elevated temperature, for full brim hats V-Gard	10116628

Name of Mfr. : MSA The Safety Company

Chin Protectors

V-Gard Chin Protectors work as a system with select V-Gard Nitrometer protector Visors to help provide extra protection from impact and splash hazards to face and neck.



Standard Retractable

Approvals

ANSI / ISEA Z87-1 : 2010 / CSA Z94 / EN166:2001 389 BT/ EN1731-F / AS/NZS 1337

Unit Per Pc.

CODE	Description	MSA No.
31 05 18	Chin protector V-Gard, standard	10115827
31 05 19	Chin protector V-Gard, retractable	10115828

Name of Mfr. : MSA The Safety Company

V-Gard Flat Polycarbonate Visors

A durable flat polycarbonate visors offer superior protection from flying debris, splash, or spray. Engineered wider than other visors, these visors provide improved resistance when it matters most. All V-Gard visors for general purpose can be worn with cap-mounted earmuffs.



- Fits MSA slotted or non-slotted helmets.
- 8" (20.32 cm) x 17" (43.2 cm) x .06" (1.52 mm).
- Anti-fog and anti-scratch coatings.
- Sides of visor are contoured towards face for a closer fit and improved resistance to impact and splash hazards.
- Maximum UV protection.
- Slightly thicker for industrial impact applications.
- Nitrometer can only be used with V-Gard Retractable or Standard Chin Protector.

Approvals

ANSI/ISEA Z87-1:2010 / CSA Z94-3 / EN 166:2001 (2C-1.2 1B, 2C-1.2 1B 389, 2C-1.2 1B 38 KN, 2-2 1B 38 KN) / AS/ NZS 1337

V-Gard Flat Visors for General Purpose Applications

Unit Per Pc.

CODE	Description	Size
31 05 27	10115836 Polycarbonate flat, clear, w/side contours	203×432×1.02 mm (8×17×0.04 inch)
31 05 28	10115837 Polycarbonate flat Nitrometer, clear, w/side contours	203×432×1.02 mm (8×17×0.04 inch)
31 05 36	10115840 Polycarbonate flat, clear, w/side contours	203×432×1.52 mm (8×17×0.06 inch)
31 05 37	10115863 Polycarbonate flat Nitrometer, clear, w/side contours	241×432×1.02 mm (9,5×1×0.04 inch
31 05 38	10117750 Polycarbonate flat, clear, non-CSA version	203×432×1.02 mm (8×17×0.04 inch)
31 05 39	10117781 Polycarbonate flat Nitrometer, clear, non-CSA version	203×432×1.02 mm (8×17×0.04 inch)
31 05 54	10117782 Polycarbonate flat, clear, non-CSA version	203×432×1.52 mm (8×17×0.06 inch)
31 05 55	10117783 Polycarbonate flat Nitrometer, clear, non-CSA version	203×432×1.52 mm (8×17×0.06 inch)
31 05 65	10118094 Polycarbonate flat, clear, non- CSA version	241×432×1.02 mm (9.5×17× 0.04 inch)

Name of Mfr. : MSA The Safety Company

V-Gard Molded Polycarbonate Visors



A durable molded polycarbonate visors offer superior protection from flying debris, splash, or spray. Engineered wider than other visors, these visors provide improved resistance when it matters most. All V-Gard visors for general purpose can be worn with cap-mounted earmuffs.

- Thickest visors on the market; helps prevent warping, cracking and crazing, especially when working in high heat.
- Available in both clear and green tint.
- Maximum UV protection.
- Wide, longer design for improved resistance to impact and splash hazards.
- Molded PC for superior optics.

- Anti-fog and anti-scratch coatings on select models.
- Select models accommodate cap-mounted earmuffs.
- Not for use in radiant heat hazards.

Approvals

ANSI/ISEA Z87-1:2010 / CSA Z94-3 / EN 166:2001 (2C-1.2 1BT 389 KN, 2-2 1BT 389 KN) / AS/NZS 1337

V-Gard Molded Visors for General Purpose Applications

Unit Per Pc.

CODE	Description	Size
31 05 40	10115853 Polycarbonate molded, clear, anti-fog, anti-scratch	263×432×2.49 mm (10.375×17×0.098 inch)
31 05 41	10115854 Polycarbonate molded, green tint [not IR], anti-fog, anti-scratch	263×432×2.49 mm (10.375×17×0.098 inch)

Name of Mfr. : MSA The Safety Company

V-Gard Molded Visors for Elevated Temperature Purpose Applications

Unit Per Pc.

CODE	Description	Size
31 05 42	10115844 Polycarbonate molded, clear, anti-fog, anti-scratch	235×432×2.49 mm (9.25×17×0.098 inch)
31 05 43	10115845 Polycarbonate molded, green tint, anti-fog, anti-scratch	235×432×2.49 mm (9.25×17×0.098 inch)
31 05 66	10115846 Polycarbonate molded, clear, anti-fog, anti-scratch	235x457x2,49 mm (9.25×8×0.098 inch)
31 05 67	10115849 Polycarbonate molded, green tint [not IR], anti-fog, anti-scratch	235x457x2,49 mm (9.25×18×0.098 inch)

Name of Mfr. : MSA The Safety Company

V-Gard Molded Welding, Cutting and Brazing Visors



MSA V-Gard Visors help protect against damage from impact and infrared (IR) radiation. They are thick to prevent warping from heat or weld spatter. Designed for metal pouring, gas soldering, welding, light cutting and brazing, these visors are engineered for heavy duty use.

- Suitable for most applications where welding, cutting and brazing hazards exist.
- Molded PC for superior optics.
- Wider design for improved resistance to impact and infrared (IR) radiation hazards, up to Shade 3 or Shade 5, depending on model.
- Thickness helps prevent warping, cracking and crazing. Shape accommodates cap-mounted earmuffs.
- Nitrometer version should be worn with V-Gard Chin Protector (sold separately).

Approvals

ANSI/ISEA Z87-1:2010 / CSA Z94-3 / EN 166:2001 [3 1BT 389 and 5 1BT 389] / AS/NZS 1337

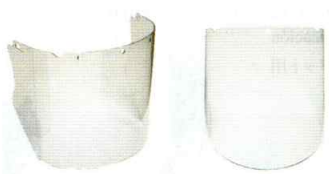
V-Gard Visors for Welding, Cutting and Brazing Purpose Applications

Unit Per Pc.

CODE	Description	Size
31 05 44	10115859 Polycarbonate molded, shade 3 IR	203×438×1.78 mm (8×17.25×0.07 inch)
31 05 45	10115860 Polycarbonate molded, shade 3 IR, Nitrometer	235×432×2.49 mm (9.25×17×0.098 inch)
31 05 46	10115861 Polycarbonate molded, shade 5 IR	235×457×2.49 mm (9.25×18×0.098 inch)
31 05 47	10115862 Polycarbonate molded, shade 5 IR, Nitrometer	235×457×2.49 mm (9.25×18×0.098 inch)

Name of Mfr. : MSA The Safety Company

V-Gard Molded Propionate Visors



These visors are for chemical and splash applications, and are ideal for use in manufacturing plants, laboratories, and other industrial applications that demand face protection against abrasive particles, splash and spray. Molded V-Gard Visors are manufactured with hand-polished molds for unsurpassed, distortion-free optical clarity and impact resistance.

- Green tint helps alleviate eye strain and fatigue by reducing excessive glare and light transmittance. Great for outdoor use in bright-light conditions.
- These visors provide maximum UV protection.

Approvals

ANSI/ISEA Z87-1:2010 / CSA Z94-3 / EN 166:2001 [1B 38] / AS/NZS 1337

V-Gard Visors for Splash/Chemical Purpose Applications

Unit Per Pc.

CODE	Description	Size
31 05 48	10115855 Propionate molded, clear	203×432×2.49 mm (8×17×0.098 inch)
31 05 49	10115856 Propionate molded, Nitrometer, clear	203×432×2.49 mm (8×17×0.098 inch)
31 05 50	10115851 Propionate molded, clear	235×457×2.49 mm (9.25×18×0.098 inch)

Name of Mfr. : MSA The Safety Company

Fire Fighter Helmets

Cascos de bombero

消火作業用ヘルメット 消防员头盔



The perfect head protection solution for Fire & Rescue Services and Emergency Services demanding high performance as well as being cost effective without compromise.

Thanks to the helmet's easy maintenance and adjustment procedures due to extremely simple product design, this allows the end user to confidently maintain, adjust and secure the helmet safely prior to use. EN 443: 2008 and EN 14458 certified, using high quality materials for all of its elements, providing a very high level of protection against the main risks encountered in structural fire-fighting operations: heat, flame, shock and electrical hazards.

Sizes M (52 - 62 cm) and L (58 - 65 cm).

Unit Per Pc.

CODE	Description	Size
31 05 31	Fire Fighter Helmet F1XF, Colour: White, Blue, Yellow, Green, Grey, Hi-Viz Yellow, Hi-Viz Orange, Photo Luminescent, Black	M
31 05 68		L

Name of Mfr.: MSA The Safety Company

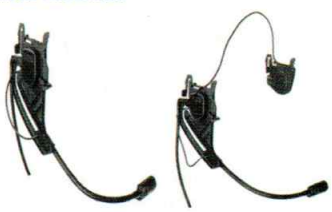
Communication System

integrated in Fire Fighter Helmet

Sistema de comunicación

消火作業用ヘルメット用ヘッドセット

通信系统



Single Ear Headset

Communication headset for integration in MSA Gallet F1XF fire helmet.

- One or two loudspeakers, in plastic housing with mounting clips.
- Flexible microphone, adjustable in length (80 mm) to optimize position in front of the mouth or the speech diaphragm (BA face piece).
- Downlead Cable with anti-tearing, LEMO connecting plug (green cover).

Operates with an MSA Push-to-Talk (PTT) module enabling connection to the PMR radio. Connection through an anti-tearing LEMO plug with color codification.

- PTT module with Yellow connector: non ATEX system.
- PTT module with Green connector: ATEX system (for use with approved ATEX radios only)

Microphone:

- Noise cancelling Electret, 100 Hz-10 kHz, distortion < 3%
- Loudspeaker: 32 Ω, 20 Hz – 3 kHz, max power 100 mW
- Amplifier: adjustable gain (0 to 26 dB), 300 Hz-3 kHz Nominal output 50 mV RMS, Harmonic distortion 5%
- Down lead Cable: Fire retardant, shielded cable
- Housing: Polyamide (PA6), Fire resistant (V0)
- Operation Temperature: -20°C to +65°C, humidity < 98%

Approvals:

- EMC performance: ESD/EMI: 10 V/m
- Ingress Protection testing: IP56 (tested inside the helmet)
- ATEX (when used with an ATEX certified PTT module)
- ATEX level: II 2G Ex ia IIC T4

Connection with a wide range of brand and types of radios is possible.

CODE	Description	Unit
31 05 69	Communication headset for F1XF helmet, single ear type (specify brand and type of radio in use)	Set

Name of Mfr. : MSA The Safety Company

Helmet Mounted Headset





Active Hearing Protection headset with built-in communication capabilities,

including:

- Two earmuffs with padding and noise attenuation foam.
- Ear cup height adjustment system for optimal wearing position.
- Flexible microphone attached to the left muff.
- Down Lead Cable with anti-tearing, LEMO connecting plug (green).

Operates with an MSA Push-to-Talk (PTT) module enabling connection to the PMR radio.

Connection through an anti-tearing LEMO plug with color codification.

- PTT module with Yellow connector: non ATEX system.
- PTT module with Green connector: ATEX system (for use with approved ATEX radios only).

Microphone:

- Noise cancelling electret, 100 Hz-10 kHz, sensitivity -61 dB (nominal) at 50% humidity.
- Loudspeaker: 32 Ω, 100 Hz-20 kHz, max power 100 mW.
- Material: Cup: PC/ABS, Cushion: Synthetic leather.
- Down lead Cable: Fire retardant, shielded cable.
- Battery: 2 x AAA batteries, Duracell, Varta, Energizer (ATEX versions).
- Surrounding sound amplifiers: Omnidirectional, sensitivity -38±2 dB, Max input 110 dB S.P.L.
- Operation Temperature: -20°C to +65°C, humidity < 98%.

Approvals:

- EMC performance: ESD/EMI: 10 V/m.
- Fully watertight – equivalent to IP67.
- ATEX (when used with an ATEX certified PTT module).
- ATEX level: II 2G Ex ia IIC T4.
- SNR value: 26 dB / H=26 / M=23 / L=18.

Connection with a wide range of brand and types of radios is possible.

CODE	Description	Unit
31 05 70	Communication headset for F1XF helmet, helmet mounted type (specify brand and type of radio in use)	Set

Name of Mfr. : MSA The Safety Company

Winter Liners

for MSA Helmet

Forros de Invierno para el Caso MSA
MSA ヘルメット用防寒用ライナー
MSA V-Gard 安全帽用防護面具及面罩

Get superior under-the-helmet warmth and protection with these winter liners. Choose Supreme, Select or Value in any of 8 different styles, including flame-retardant and flame-resistant models, for protecting the head and neck from outside cold wind, or refrigerator work. To be fitted under the helmet.

- Delivers extra warmth and protection under safety helmets.
- Supreme liners offer three layers of true flame resistance (FR) and superior resistance to arc exposure (ATPV of 8 cal/cm²) ATPV denotes Arc Thermal Protective Value.
- Select liners can be laundered up to 50 times without affecting flame retardancy.
- Many models offer quilted earflaps so earmuffs can be used without compromising hearing protection levels.
- Adjustable chinstrap or extended neck closure helps ensure comfortable fit.

Supreme: Offers multiple layers of warm flame resistant fabric, tested to withstand arc exposure to an ATPV of 8 cal/cm². Water repellant.



31 05 56



31 05 57



31 05 58

Unit Per Pc.

CODE	Type	Part No.
31 05 56	Flame resistant V-Gard Supreme liner	10118421
31 05 57	Flame resistant V-Gard Supreme 1-piece liner, extended and quilted flaps for earmuffs	10118425
31 05 58	Flame resistant V-Gard Supreme 2-piece liner, extended with zipper	10118427

Name of Mfr. : MSA The Safety Company

Select:

Offers two layers of flame retardant fabric for extra warmth. Water repellant.



31 05 59



31 05 61

Unit Per Pc.

CODE	Type	Part No.
31 05 59	Flame retardant V-Gard Select liner and quilted flaps for earmuffs	10118420
31 05 61	Flame retardant V-Gard Select liner, extended, quilted flaps for earmuffs and bright with reflective striping for high visibility	10118424

Name of Mfr. : MSA The Safety Company

Value:

Provides excellent protection against cold with maximum economy.



31 05 62



31 05 63

Unit Per Pc.

CODE	Type	Part No.
31 05 62	V-Gard Value liner, stylish skullie cap	10118417
31 05 63	V-Gard Value liner, Knit Hat-Cap Cover, extended and bright for high visibility	10118418

Name of Mfr. : MSA The Safety Company

Softframe Single Lens Goggles

Gafas Protectoras con Montura Blanda
単レンズ防塵眼鏡　防塵單眼鏡

MSA SightGard® Safety Goggle



For maximum visibility and all-around wear ability, this popular line of economical safety goggles offers impact protection. Choose anti-fog or anti-scratch coatings for improved visibility and lens life.

- Splash and impact resistant.
- Great fitting body provides all day comfort.
- Anti-fog coating protects against mist.
- Indirect vent allows air to circulate and reduce fogging.
- Meets ANSI/ISEA Z87.1-2010 and complies with CSA Z94.3.

Unit Per Pr.

CODE	Frame Colour	Lens Style	Head-band	Part No.
31 10 11	Clear	Sightgard NV, clear, Tuff-Stuff anti-scratch coated,anti-fog lens, non-vent	Elastic	10106268
31 10 13	Clear	Sightgard iV, Tuff-Stuff anti-scratch coated anti-fog, splash and impact resistant lens, indirect vent	Elastic	10106270

Name of Mfr. : MSA The Safety Company

MSA Flexi-Chem™ iV Safety Goggle

These clear, flexible safety goggles protect against significant eye impact hazards such as flying debris and splashes. Acetate lenses resist splashes while the pliable frame enhances comfort and fit. Features a wide, comfort-fit adjustable band.



- Chemical resistant acetate lens for maximum protection.
- Anti-fog coating for improved visibility.
- Indirect venting for comfortable, lasting wear.
- Adjustable band for a close-fitting seal.
- Meets ANSI/ISEA Z87.1-2010, including droplet and splash requirements. Certified to CSA Z94.3 by CSA International.

Unit Per Pr.

CODE	Frame Colour	Lens Style	Head-band	Part No.
31 10 15	Clear	Flexi-Chem iV, anti-fog acetate lens, indirect-vent	Elastic textile	10106281

Name of Mfr. : MSA The Safety Company

MSA Vault Safety Goggle



These high quality chemical goggles protect against all types of chemical, liquid and metal splash as well as coarse dust. Ideal for laboratory work, chemical handling, and stone dressing. Can be worn comfortably with prescription glasses or alone. Indirect venting permits proper air circulation while protecting against chemical or dust entry.

- Grade A polycarbonate lens resists impact at extreme temperatures, including molten metal splash.
- Indirect ventilation provides air movement as well as splash and dust protection.
- Clear, anti-fog lens offers high visibility.
- Medium impact rated lens (according to EN 166 (B)).
- Soft touch frame and adjustable strap provide extreme comfort and a custom fit.

Unit Per Pr.

CODE	Frame Colour	Lens Style	Head-band	Part No.
31 10 16	Black, grey	Vault Safety Goggle, clear, anti-fog lens, splash and impact resistant, Indirect-vent	Elastic textile	10106282

Name of Mfr. : MSA The Safety Company

UV-Resistant Goggles

Gafas Protectoras Contra Rayos UV
紫外線防止ゴーグル　紫外線防護眼鏡



Perspecta GIV 2300 a special UV-resistant soft frame goggle. The lens transmits less than 0.0012% below 400 nanometers. Above 400 nanometers (visible range), it transmits approximately 90% of the available light.

Approval according EN166 34 BT.

Specification

Frame colour : Light Green　　Frame Style : 11-vent
Lens Type : Anti-Fog　　Part No. : 10076384

31 10 31	Goggles, UV-resiistant	Pr.

Name of Mfr. : MSA The Safety Company

Protective Eyewear

Protector de Ojos
保護眼鏡　防护眼镜



Offers complete wrap around eye protection and the durability, compliance and comfort you'd expect from Sightgard® Protective Eyewear. It provides excellent side- and front-impact protection while still being comfortable to wear. All models comply with all applicable high-impact test requirements to ANSI Z87.1-2010 and certified by CSA International.

- Constructed of polycarbonate lens that stand up against impacts (Z87+).
- Temples flex for a custom fit.
- Easy-Fit nose bridge offers comfortable, non-slip support.
- Tuff Stuff™ Anti-scratch Coating provides excellent scratch resistance, extending lens life - a "must have" in abrasive work environments.
- Wraparound style offers maximum protection and unobstructed vision.
  - Clear lens.
  - Grey tint lens offer glare reduction with least amount of color distortion.
  - Amber lens increases contrast in low light.
  - Rich-orange mirrored lens reflects light and reduces glare without color degradation.

Unit Per Pr.

CODE	Frame Colour	Lens Colour	Part No.
31 10 51	Black	Clear	10070917
52		Grey	10070918
53		Amber	10070919
59		Orange Mirror	10070921

Name of Mfr. : MSA The Safety Company

Rx Overglasses



For users who wear prescription glasses, Rx Overglasses offer high protection while still providing excellent vision. The glasses fit over most prescription eyewear and feature horizontal and vertical adjustable temples, anti-fog lens and Tuff-Stuff™ anti-scratch lens coating. The limited lens curvature offers the best optics and distortion-free wide-angle viewing.

Meets general protector and impact requirements for ANSI/ISEA Z87.1-2010.

- Glasses fit over most prescription eyewear.
- Panto/retroscopic tilt and sliding horizontal length. adjustment offers a custom and secure fit.

Unit Per Pr.

CODE	Frame Colour	Lens Colour	Part No.
31 10 61	Clear - Black	Clear	10008175
62	Grey - Black	Grey	10012855

Name of Mfr. : MSA The Safety Company

Ultrasonic Goggles

Uvex 9302

Gafas Protectoras Ultrasónicos, Uvex 9302
ウルトラソニックゴーグル　防護眼鏡



Ultrasonic goggle shaped ergonomically design with a super panoramic lens, soft face and nose pads, a clever ventilation system and an infinitely adjustable, extra-wide headband. The lens, made of polycarbonate, is easily replaceable and is available with

the supervision HC-AF (Hard Coated Anti-Fog) coating. This unique technology guarantees a scratch-resistant surface as well as permanent anti-fog properties on the inside of the lens.

Recommendations for use:
Grinding work, acid work and galvanization, dusty environments

Compliant with requirement of DIN EN 166.

Unit Per Pr.

CODE	Frame Colour	Model
31 11 01	Orange	9302-210
02	Grey	9302-211

Name of Mfr.: Uvex Arbeitsschutz GmbH

Safety Glasses

Omnifit 3-way Adjustable

Gafas de seguridad ajustables en 3 direcciones
三段調整式安全メガネ　三级可调式防护眼镜



Ultra anti-fog and super anti-scratch. Polycarbonate lens with UV 400 protection (UV 400 which blocks all light rays with wavelengths up to 400 nanometers.) 3-way adjustable for various face types. Grey lens. Colours: Black & Orange.

Norms: CE Certified, EN 166-KN, EN 172, ANSI-Z87.1-2010, AS/NZS 1337.1-2010.

31 11 03	Glass, adjustable safety, omnifit 3-way, grey	Pr.

Name of Mfr. : Scandia

Harnesses

Fall Protection Range

Cinturón de Seguridad　作業用安全帯　工業用安全帯

Designed and used to prevent accidents at work or to protect against consequences of accidents at work.

Statistics prove, year after year, that lack of fall protection is a leading factor in job fatalities and injuries. The Fall Protection product lines enables your company to provide optimum quality, comfortable fall arrest systems for your workers. It combines quality, comfort, and value.

Approval: Most harnesses have compliance for each region depending on the delivery location, such as OSHA, ANSI, JP industrial standard, etc.

- Excellent value / Optimum quality / Reliable protection / Practical operation / User-friendly design / Comfortable

3M Full Body Harnesses for General Fall Arresting



A full body harness is personal protective equipment worn to prevent falls when working at heights and provide both high safety and comfort to support on-site work. The back D-ring is for fall arrest attached on the most harnesses. The chest-D ring enables connection to a ladder climbing safety system. Please specify if any additional attachment points or specifications are required.

- Durable polyester web construction.
- light and compact Pass-Thru buckle.
- Quick Connect buckles enhance adjust-ability.

Unit Per Pc.

CODE	Size	Attachment Point: Back, Chest	Part No. EU/US/JP
Buckle Type: Pass-Thru			
31 15 11	S	1B	1161600/1161570/1161648
12	M/L		1161601/1161571/1161649
13	XL		1161602/1161572/1161650
Buckle Type: Quick-Connect			
31 15 26	S	1B	- /1161524/1114080
27	M/L		- /1161525/1114081
28	XL		- /1161526/1114101
31 15 20	S	1B, 1C	1161615/1161556/1114102
21	M/L		1161616/1161557/1114103
22	XL		1161617/1161558/1114104

Name of Mfr.* 3M Company

3M Work Positioning Products



Positioning D-rings located on the hips are used with positioning devices and allow workers to use both hands. While work positioning belts may be used in conjunction with a harness you already have, they must never be used for personal fall arrest.

- Durable polyester web construction.
- Adjustable work positioning rope is Ideal for work positioning while pole climbing.

Unit Per Pc.

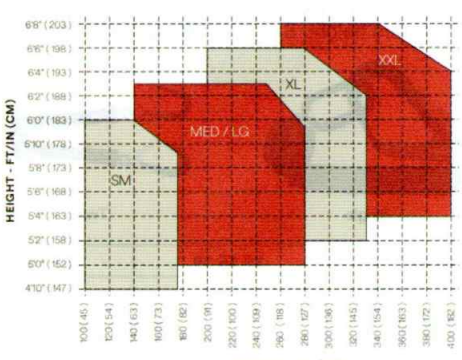
CODE	Size	Attachment Point: Back, Hip	Part No. EU/US/JP
Harness integral with WP belt			
31 15 29	S	1B, 2H	1161624/1161304/1161651
30	M/L		1161625/1161305/1161652
31	XL		1161626/1161306/1161653
WP belt*			
31 15 32	S	2H	- /1091014/1112988
33	M		- /1091015/1112989
WP rope*			
31 15 34	2.0~3.0 m	-	1200317/1234083/1112992

Name of Mfr.* 3M Company
*For right-handed

Harness Size Information

Here is the example of right fitting harness charts provided by 3M company, based on the height and weight. Sizes may be different by models and manufactures, so please make sure to check the right size through your local supplier.

3M™ Protecta® Harness Sizing Guidance



Lanyards

Lanyards ランヤード 挂绳

A rope or strap made of synthetic fiber with hooks, carabiners, shock absorbers to connect with safety harnesses as lifeline. Single leg or twin leg are available. Twin-lanyards provide 100% tie-off, allowing users to stay protected when changing locations.

Elastic Type Lanyards

Elastic type fall protection lanyard with shock absorber, elastic leg stretches in reaction to users movements. It is compact and fordable when not in use. Furthermore, it extends and effectively absorbs the impact during a fall event.



Single



Twin

Unit Per Pc.

CODE	31 15 35	31 15 36
Type	Single	Twin
Working length	1.7 m or longer	
Weight Capacity	130 kg or more	

Rope/Strap Lanyards

Rope lanyard type of fall protection equipment with pack-style shock absorber. It is compact and fordable when not in use. It dissipates energy, limiting the forces on the body by absorbing component in a fall event.



Single



Twin

Unit Per Pc.

CODE	31 15 37	31 15 38
Type	Single	Twin
Working length	1.8 m or more	
Weight Capacity	100 kg or more	

Self-Retracting Lanyard

It is designed to activate self-lock system when it detects the fall event to minimize the falling distance. It is very lightweight and easy to use. It is ideal fall protection equipment for workers under 5 meters height. Single or twin types are available.



Single



Twin

Unit Per Pc.

CODE	31 15 39	31 15 40
Type	Single	Twin
Working length	1.8 m or longer	
Weight Capacity	128 kg or more	

Guide to European Norms and Selection Guide of Protective Workwear

To assist you with the selection of chemical protective clothing the EU has developed six "types" of chemical protective clothing.

EN Types	Definition	Alpha Tech® Products
European "Types" of Chemical Protective Clothing		
Type 1 EN943-1 EN943-2	**Gas Tight Chemical Protective Clothing** Protective clothing against liquid and gaseous chemicals, aerosols and solid particulates.	-
Type 3 EN14605	**Liquid Tight Suits** Suits which can protect against strong and directional jets of liquid chemical.	2500 PLUS 3000 4000 5000
Type 4 EN14605	**Spray Tight Suits** Suits which offer protection against a spray of liquid chemicals.	2000 Ts PLUS 2500 PLUS 3000 4000 5000 CFR
Type 5 EN ISO 13982-1	**Dry Particulate Protection** Suits which provide protection to the full body against airborne solid particulates.	1500 STANDARD 1500 PLUS 1800 STANDARD 1800 TS PLUS 1800 COMFORT 2000 STANDARD 2000 COMFORT 2000 Ts PLUS 2300 STANDARD 2300 COMFORT 2300 PLUS 2500 PLUS 3000 4000 5000 FR
Type 6 EN13034	**Reduced Spray Suits** Suits which offer limited protection against a light spray of liquid chemicals.	1500 STANDARD 1500 PLUS 1800 STANDARD 1800 TS PLUS 1800 COMFORT 2000 STANDARD 2000 COMFORT 2000 Ts PLUS 2300 STANDARD 2300 COMFORT 2500 PLUS FR
Other European Standards relevant to the AlphaTec® Product Range		
EN1073-2	Non-ventilated Protective clothing against radioactive particulate contamination.	1500 PLUS 1800 TS PLUS 1800 COMFORT 2000 STANDARD 2000 COMFORT 2000 Ts PLUS 2300 STANDARD 2300 COMFORT 2300 PLUS 2500 PLUS 3000 4000 5000 FR

(to be contunued)

EN Types	Definition	Alpha Tech® Products
EN14126	Protective clothing against infective agents. ["Type" prefixed with "-B" (i.e. Type 3-B) indicates approval to this European Norm].	2000 STANDARD 2000 Ts PLUS 2300 STANDARD 2300 PLUS 2500 PLUS 3000 4000 5000
EN1149-5	Protective clothing with electrostatic properties.	1500 PLUS 2000 COMFORT 2000 STANDARD 2000 Ts PLUS 2300 STANDARD 2300 COMFORT 2300 PLUS 2500 PLUS 3000 4000 5000 FR CFR
DIN32781	Protective clothing. Protective suits against pesticides.	2000 STANDARD 2000 Ts PLUS
EN ISO 14116	Protective clothing. Limited flame spread materials, material assemblies and clothing.	FR CFR

Remark: This guide is an indication of your suits protection against a particular hazard (gas, liquid or dust). Please be aware that conformance to these types standards does not mean that your suit is 100% impervious to your hazard.

AlphaTec® Coverall Size Chart Guide

Body measurements

(The measurements shown below relate to the wearer's body measurements and not the garment measurements.)

Height (cm)	Chest (cm)	Recommended Garment Size
164 - 170	84 – 92	S
170 - 176	92 – 100	M
176 - 182	100 - 108	L
182 - 188	108 - 116	XL
188 - 194	116 - 124	2XL (XXL)
194 - 200	124 - 132	3XL (XXXL)

Application Table for AlphaTec® Protective Workwear

Type	For	From
AlphaTec® 1500 STANDARD	Dust protection.	Asbestos, powder.
AlphaTec® 1500 PLUS	Splash and particle protection.	Asbestos, brick, dust, cement dust.
AlphaTec® 2000 COMFORT	Working in warm environment, and spray protection.	Low hazard liquid, particles.
AlphaTec® 2000 STANDARD	Chemical & pharmaceutical industries, paint spraying and crime scene investigation.	Infective agents, pesticides, particulates, fibres & low hazard liquid chemical spray.
AlphaTec® 2000 Ts PLUS	Paint spraying.	Low hazard liquid and fine particulates.
AlphaTec® 2500 PLUS	Biological protection.	Heavy low hazard liquid spray and particulates.
AlphaTec® 3000	Chemicals, oil and petrochemicals.	Inorganic chemicals and biological hazards.
AlphaTec® 4000	Hazardous area.	Concentrated chemicals and biological agent.
AlphaTec® FR	Working in potential explosive / flammable environments. (Wear over a thermal protective garment.)	Low hazard liquid spray and particulates, such as oils and petrochemicals, petroleum distribution and processing and utilities.
AlphaTec®CFR	Working in potential explosive / flammable environments. (Wear over a thermal protective garment.)	Oil and petrochemicals, tank, pressure cleaning delete, petroleum, processing and utilities.

Protective Workwear

Ropa de trabajo protectora 防護着 防护服

Protective workwear under an ISO 9001 approved quality control system, and meets the European Norms specified in Category III of the PPE (Personal Protective Equipment) directive for chemical protective workwear.

Designed for operatives who require particle (dust) and low hazard liquid splash protection.

Made from highly breathable SMS (Spunbond + Meltblown + Spunbond Nonwovens) fabric, and designed for workers involved in the stripping, clear up or handling of asbestos, general maintenance, construction and contract cleaning.



AlhaTec®
1500 STANDARD

Applications:

Where the need for dust (particle) protection is greatest, such as; asbestos related work, handling powders, general maintenance and construction.

Meets the following European Norms:

Type 5 : EN ISO 13982-1 Dry particle suit
Type 6 : EN 13034 Reduced spray suit

Note: Respirator is sold separately.

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
White		**Navy Blue**		**Red**	
31 20 01	S	**31 20 07**	S	**31 20 13**	S
02	M	**08**	M	**14**	M
03	L	**09**	L	**15**	L
04	XL	**10**	XL	**16**	XL
05	XXL	**11**	XXL	**17**	XXL
06	XXXL	**12**	XXXL	**18**	XXXL

Name of Mfr.: Ansell Limited

Designed for operatives who require particle (dust) and low hazard liquid splash protection.

High quality 3-layer anti-static SMS fabric for splash and particle protection. The SMS fabric is highly breathable, making it ideal for operatives working in warmer environments.

SMS fabrics are a particularly good barrier against particulates such as, asbestos, brick, dust and cement dust and will provide protection from light aerosol mists as found in some paint spray environments.

Applications:

Asbestos related work, handling powders, general maintenance, construction, pharmaceutical industries, wood & metal processing, Touch-up paint spraying, fibreglass/resin applications/ceramic fibres.

Meets the following European Norms:
Type 5 : EN ISO 13982-1 Dry particle suit
Type 6 : EN 13034 Reduced spray suit
EN1073-2 : Barrier to radioactive particulates - Class 1
EN1149-5 : Anti-static

Note: Mask and goggles are sold separately.



AlhaTec®
1500 PLUS

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
White		**Light Blue**		**Navy Blue**	
31 20 21	S	**31 20 27**	S	**31 20 33**	S
22	M	**28**	M	**34**	M
23	L	**29**	L	**35**	L
24	XL	**30**	XL	**36**	XL
25	XXL	**31**	XXL	**37**	XXL
26	XXXL	**32**	XXXL	**38**	XXXL

Name of Mfr.: Ansell Limited

Ideal for operatives working in warmer climates or environments.

Specially designed for those working in warmer climates or warm working environments to help reduce heat stress. The critical areas to the front of the garment, including the hood, arms and legs, are AlphaTec® 2000 microporous PE laminate fabric which offers a high level of liquid and particle protection with a low level of water vapour resistance according to EN 31092 of Ret<15*.

*Ret is a measurement of a materials resistance to moisture vapour transfer.



AlhaTec®
2000 COMFORT

Applications:

Critical production environments where dust and low level spray protection are required, such as: paint spraying, pharmaceutical industries, fibreglass product manufacturing, Windmill manufacturing, boat and ship building and mining.

Meets the following European Norms:
Type 5 : EN ISO 13982-1 Dry particle suit
Type 6 : EN 13034 Reduced spray suit
EN1073-2 : Barrier to radioactive particulates - Class 1
EN1149-5 : Anti-static

Unit Per Pc.

CODE	Size	CODE	Size
White			
31 20 41	S	**31 20 44**	XL
42	M	**45**	XXL
43	L	**46**	XXXL

Name of Mfr.: Ansell Limited

Ideal for a wide range of industrial applications such as; Pharmaceutical industries and Agriculture.

Designed to allow water vapour (perspiration) to escape from the suit yet will withstand saturation of liquid chemicals and filter 100% of particulates down to 0.01 micron in size, and provides protection from infective agents, pesticides, particulates, fibres & liquid chemical spray.

Garment feature:

- Microporous PE laminate fabric.
- Optimised body fit.
- Bound seams ensure spray tight protection.



AlhaTec®
2000 SATANDARD

Applications:

Chemical & pharmaceutical industries, Cleanrooms, Paint spraying, Crime scene investigation.

Meet the following European Norms:
Type 5 : EN ISO 13982-1 Dry particle suit
Type 6 : EN13034 Low level spray tight suit
EN 14126 : Barrier to infective agents
EN1073-2 : Barrier to radioactive particulates – Class 2
EN1149-5 : Anti-static
DIN 32781: - Protection against pesticides

Unit Per Pc.

CODE	Size	CODE	Size
White			
31 20 51	S	**31 20 54**	XL
52	M	**55**	XXL
53	L	**56**	XXXL

Name of Mfr.: Ansell Limited

Ideal for a wide range of industrial applications such as; Pharmaceutical industries and Fibreglass product manufacturing.

Designed to allow water vapour (perspiration) to escape from the suit yet will withstand saturation of liquid chemicals and filter 100% of particulates down to 0.01 microns in size. (EMSL test method) With stitched and taped seams, it provides an exceptional overall barrier to low hazard liquid spray and fine particulates.



AlhaTec®
2000 Ts PLUS

Features and benefits:

Protection -
Proven barrier to low concentration liquid chemicals, diluted pesticides, liquid & particulate biological hazards.

Silicone Free –
Critical in spray painting applications.

Low Linting –
Reduced risk of contamination in critical areas.

Anti-static –
Tested according to EN 1149-5.

Applications:

Agriculture, paint spraying, pharmaceutical industries, fibreglass product manufacturing, boat and ship building and Mining.

Protection Levels & Additional Properties:

Type 4-B : Spray tight suits (Suits which offer protection

against saturation of liquid chemicals).

Type 5-B : Dry particulate protection (Suits which provide protection to the full body against airborne solid particulates).

Type 6-B : Reduced spray suits (Suits which offer limited protection against a light spray of liquid chemicals).

EN 14126 : Protective clothing against infective agents ["Type" suffix with "-B" [i.e. Type 3-B] indicates approval to this European Norm].

EN 1073-2 : Protective clothing against radioactive particulate contamination.

DIN 32781 : Protective clothing. Protective suits against pesticides.

EN 1149-5 : Protective clothing with electrostatic properties.

Unit Per Pc.

CODE	Size	CODE	Size
White		Green	
31 20 61	S	**31 20 73**	S
62	M	**74**	M
63	L	**75**	L
64	XL	**76**	XL
65	XXL	**77**	XXL
66	XXXL	**78**	XXXL

Name of Mfr.: Ansell Limited

Ideal for operatives looking for protection from biological agents.

Made from breathable microporous films, and designed to protect you from heavy liquid spray and particulates. The fabrics physical strength and flexibility ensures you are protected and comfortable in even the harshest environments.



AlhaTec®
2500 SATANDARD

Applications:

Where liquid tight protection and durability is required, such as: Biological Protection (Risk Groups 1-2, as per definition in the European BioDirective: Directive 2000/54/EC), chemical and pharmaceutical industries, low pressure industrial cleaning, industrial paint spraying and nuclear industry.

Meets the following European Norms:

Type 4-B : EN 14605 Spray tight suit
Type 5-B : EN ISO 13982-1 Dry particle suit
Type 6-B : EN 13034 Reduced spray suit
EN14126 : Barrier to infective agents
EN1073-2 : Barrier to radioactive particulates - Class 1
EN1149-5 : Anti-static

Note: Respirator is sold separately.

Unit Per Pc.

CODE	Size	CODE	Size
White			
31 20 81	S	**31 20 84**	XL
82	M	**85**	XXL
83	L	**86**	XXXL

Name of Mfr.: Ansell Limited

Effective barrier against both inorganic chemicals and biological agents.

A soft and flexible 3 layer fabric with strong ultrasonically welded seams and an extremely effective barrier against both inorganic chemicals and biological hazards.



AlhaTec® 3000

Applications:

Protection against many concentrated inorganic chemicals, biological hazards and particles smaller than 1 µm, in industries such as; Chemicals, oil and petrochemicals, pharmaceutical, food industry, sewage purification installations, industrial & tank cleaning and mining.

Meets the following European Norms:

Type 3-B : EN 14605 Liquid tight suit
Type 4-B : EN 14605 Spray tight suit
Type 5-B : EN ISO 13982-1 Dry particle suit
EN14126 : Barrier to infective agents
EN1073-2 : Barrier to radioactive particulates - Class 1
EN1149-1 : Anti-static

Note: Respirator is sold separately.

Unit Per Pc.

CODE	Size	CODE	Size
Yellow			
31 20 91	S	**31 20 94**	XL
92	M	**95**	XXL
93	L	**96**	XXXL

Name of Mfr.: Ansell Limited

Effective barrier against both organic and inorganic chemicals and biological agents

A unique multi-layer barrier fabric which is renowned for its lightweight textile feel and exceptional barrier to organic and inorganic chemicals and biological agents.



AlhaTec® 4000

Features and benefits:

- Double zip system, ultrasonically welded and taped seams to ensure liquid tight protection.
- Double cuff design for improved protection.
- Knitted internal sleeve cuff for wearer comfort.

Applications:

For hazardous areas where protection against concentrated chemicals and biological agents is required, such as: chemicals, oil and petrochemicals, pharmaceutical, mining, agriculture, industrial & tank cleaning, sewage purification installations and emergency services (HAZMAT, CBRN).

Note:

HAZMAT – Hazardous Materials.
CBRN – Chemical, Biological, Radiological, Nuclear, and Explosive.

Meets the following European Norms:

Type 3-B : EN 14605 Liquid tight suit
Type 4-B : EN 14605 Spray tight suit
Type 5-B : EN ISO 13982-1 Dry particle suit

EN14126 : Barrier to infective agents
EN1073-2 : Barrier to radioactive particulates - Class 1
EN1149-5 : Anti-static

Note: Respirator is sold separately.

Unit Per Pc.

CODE	Size	CODE	Size
Green			
31 21 01	S	**31 21 04**	XL
02	M	**05**	XXL
03	L	**06**	XXXL

Name of Mfr.: Ansell Limited

Designed for operatives in potentially explosive/ flammable environments.



AlhaTec® FR

Made from flame retardant material, and offers wearers protection from liquid chemicals to EN Type 6 and particulates to EN Type 5, and peace of mind to workers in potential explosive/flammable environments. To decrease the risk of burn injury, wear over thermal protective workwear. The fabric is designed to allow water vapour to escape from the suit helping to reduce the risk of heat stress.

Applications:

Wear over a thermal protective garment [EN ISO 14116 Index 2 or above] in areas with a risk of flash fire and where protection from low level liquid spray and particulates is required, such as: oil and petrochemicals, petroleum distribution and processing and Utilities.

Meets the following European Norms:

Type 5 : EN ISO 13982-1 Dry particle suit
Type 6 : EN 13034 Reduced spray suit
EN1073-2 : Barrier to radioactive particulates - Class 1
EN ISO 14116 : Limited flame spread materials and assemblies
EN1149-5 : Anti-static

Note: Respirator is sold separately.

Unit Per Pc.

CODE	Size	CODE	Size
Blue			
31 21 11	S	**31 21 14**	XXL
12	M	**15**	XXXL
13	L		

Name of Mfr.: Ansell Limited

Designed for operatives in potentially explosive/flammable environments



AlhaTec® CFR

Made from a flame retardant treated non-woven material with PVC barrier film it offers wearers protection from liquid chemicals to EN Type 3, 4 & 5, and peace of mind to workers in potential, explosive/flammable environments. This protective suit has been proven to decrease the risk of burn injury when worn over thermal protective workwear.

Applications:

Always wear over a thermal protective garment [EN ISO 14116 Index 2 or above] to provide chemical spray protection according to Type 3 & 4, in industries such as: Oil and petrochemicals, tank, pressure cleaning involving flammable liquids, petroleum distribution and processing and utilities.

Meets the following European Norms:

Type 3 : EN 14605 Liquid tight suit
Type 4 : EN 14605 Spray tight suit
Type 5 : EN ISO 13982-1 Dry particulate suit
EN ISO 14116 : Limited flame spread materials and assemblies
EN 1073-2 : Barrier to radioactive particulate
EN1149-5 : Anti-static

Note: Respirator is sold separately.

Unit Per Pc.

CODE	Size	CODE	Size
Red			
31 21 21	S	**31 21 24**	XL
22	M	**25**	XXL
23	L	**26**	XXXL

Name of Mfr.: Ansell Limited

Boilersuits, UV protection

Traje de calderas con protección UV
紫外線防護ボイラースーツ
防紫外线连衫裤工作服



Made of 100% fine cotton twill with UV protection finish with storage pockets for mobile phone/walkie-talkie, flashlight, and pen at chest, sleeve, side (× 2, open access), and seat (× 2). Attached with Velcro strips for rank and name badges, and epaulets can be affixed to shoulders

Standards

CE Certified / EN340 (general requirements)/ EN13758-2, 40+ (UV protection) / OEKO-TEX® Standard 100 Class II AS/NZS 4399 UPF rating 50+

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size	CODE	Size
White		**Navy**		**Orange**		**Royal Aqua**	
31 22 01	S	**31 22 07**	S	**31 22 13**	S	**31 22 19**	S
02	M	**08**	M	**14**	M	**20**	M
03	L	**09**	L	**15**	L	**21**	L
04	XL	**10**	XL	**16**	XL	**22**	XL
05	2XL	**11**	2XL	**17**	2XL	**23**	2XL
06	3XL	**12**	3XL	**18**	3XL	**24**	3XL

Name of Mfr.: Scandia Gear

Boilersuits, UV protection

Short Sleeves

Traje de calderas con protección UV de mangas cortas
紫外線防護半袖ボイラースーツ
防紫外线短袖连衫裤工作服



Made of 100% fine cotton twill with UV protection finish with storage pockets for mobile phone/walkie-talkie, flashlight, and pen at chest, sleeve, side (× 2, open access), and seat (× 2). Attached with Velcro strips for rank and name badges, and epaulets can be affixed to shoulders.

Standards

CE Certified / EN 340 (general requirements) / EN 13758-2, 40+ (UV protection) / OEKO-TEX® Standard 100 Class II / AS/NZS 4399 UPF rating 50+

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size	CODE	Size
White		**Navy**		**Orange**		**Royal Aqua**	
31 22 25	S	**31 22 31**	S	**31 22 37**	S	**31 22 43**	S
26	M	**32**	M	**38**	M	**44**	M
27	L	**33**	L	**39**	L	**45**	L
28	XL	**34**	XL	**40**	XL	**46**	XL
29	2XL	**35**	2XL	**41**	2XL	**47**	2XL
30	3XL	**36**	3XL	**42**	3XL	**48**	3XL

Name of Mfr.: Scandia Gear

Boilersuits, UV protection

Reflect Type

Traje de calderas con protección UV de tipo reflectante
反射テープ付き紫外線防護ボイラースーツ
带反光条防紫外线连衫裤工作服



Made of 100% fine cotton twill with UV protection finish, and with storage pockets for mobile phone/walkie-talkie, flashlight, and pen at chest, sleeve, side (× 2, open access), and seat (× 2). Striped with 3M reflective 50 mm (2.0 in) width belts at shoulders, arms, legs, and back to provide high visibility for day and night. Attached with Velcro strips for rank and name badges, and epaulets can be affixed to shoulders.

Standards

CE Certified / EN 340 (general requirements) / EN 13758-2, 40+ (UV protection) / OEKO-TEX® Standard 100 Class II / AS/NZS 4399 UPF rating 50+

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size	CODE	Size
White		**Navy**		**Sky Blue**		**Royal Aqua**	
31 22 49	S	**31 22 55**	S	**31 22 61**	S	**31 22 67**	S
50	M	**56**	M	**62**	M	**68**	M
51	L	**57**	L	**63**	L	**69**	L
52	XL	**58**	XL	**64**	XL	**70**	XL
53	2XL	**59**	2XL	**65**	2XL	**71**	2XL
54	3XL	**60**	3XL	**66**	3XL	**72**	3XL
Eco Green		**Grey**		**Orange**		**Red**	
31 22 73	S	**31 22 79**	S	**31 22 85**	S	**31 22 91**	S
74	M	**80**	M	**86**	M	**92**	M
75	L	**81**	L	**87**	L	**93**	L
76	XL	**82**	XL	**88**	XL	**94**	XL
77	2XL	**83**	2XL	**89**	2XL	**95**	2XL
78	3XL	**84**	3XL	**90**	3XL	**96**	3XL

Name of Mfr.: Scandia Gear

Boilersuits, UV protection

Reflect Type Short Sleeves

Traje de calderas con protección UV de tipo reflectante con mangas cortas
反射テープ付き紫外線防護半袖ボイラースーツ
带反光条防紫外线短袖连衫裤工作服



Made of 100% fine cotton twill with UV protection finish, and with storage pockets for mobile phone/walkie-talkie, flashlight, and pen at chest, sleeve, side (× 2, open access), and seat (× 2). Striped with 3M reflective 50 mm (2.0 in) width belts at shoulders, arms, legs, and back to provide high visibility for day and night. Attached with Velcro strips for rank and name badges, and epaulets can be affixed to shoulders.

Standards

CE Certified / EN 340 (general requirements) / EN 13758-2, 40+ (UV protection) / OEKO-TEX® Standard 100 Class II / AS/NZS 4399 UPF rating 50+

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size	CODE	Size
White		**Navy**		**Sky Blue**		**Royal Aqua**	
31 22 97	S	**31 23 03**	S	**31 23 09**	S	**31 23 15**	S
98	M	**04**	M	**10**	M	**16**	M
99	L	**05**	L	**11**	L	**17**	L
31 23 00	XL	**06**	XL	**12**	XL	**18**	XL
01	2XL	**07**	2XL	**13**	2XL	**19**	2XL
02	3XL	**08**	3XL	**14**	3XL	**20**	3XL
Eco Green		**Grey**		**Orange**		**Red**	
31 23 21	S	**31 23 27**	S	**31 23 33**	S	**31 23 39**	S
22	M	**28**	M	**34**	M	**40**	M
23	L	**29**	L	**35**	L	**41**	L
24	XL	**30**	XL	**36**	XL	**42**	XL
25	2XL	**31**	2XL	**37**	2XL	**43**	2XL
26	3XL	**32**	3XL	**38**	3XL	**44**	3XL

Name of Mfr.: Scandia Gear

Boilersuits, UV protection

Reflect Type for Women

Traje de calderas con protección UV de tipo reflectante para mujeres
女性用反射テープ付き紫外線防護ボイラースーツ
女用带反光条防紫外线连衫裤工作服



A boilersuit for women, made of 100% fine cotton twill with UV protection finish, and with storage pockets for mobile phone/walkie-talkie, flashlight, and pen at chest, sleeve, side (× 2, open access), and seat (× 2). Striped with 3M reflective 50 mm (2.0 in) width belts at shoulders, arms, legs, and back to provide high visibility for day and night. Attached with Velcro strips for rank and name badges, and epaulets can be affixed to shoulders.

Standards

CE Certified / EN 340 (general requirements) / EN 13758-2, 40+ (UV protection) / OEKO-TEX® Standard 100 Class II / AS/NZS 4399 UPF rating 50+

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
White		**Navy**		**Orange**	
31 23 45	XS	**31 23 51**	XS	**31 23 57**	XS
46	S	**52**	S	**58**	S
47	M	**53**	M	**59**	M
48	L	**54**	L	**60**	L
49	XL	**55**	XL	**61**	XL
50	2XL	**56**	2XL	**62**	2XL

Name of Mfr.: Scandia Gear

Boilersuits, Heat-regulating

UV Protection, Reflect Type

Traje de calderas de regulación de temperatura con protección UV, de tipo reflectante
高温環境用反射テープ付き紫外線防護ボイラースーツ
高温环境用带反光条防紫外线连衫裤工作服

Designed for hot climates and engine rooms thanks to mesh moisture management at back pleats. Made of lightweight 100% fine cotton with UV protection finish, and with storage pockets for flashlight, and pen at chest, sleeve, side (× 2, open access), and seat (× 2). Striped with 3M reflective 50 mm (2.0 in) width belts at shoulders, arms, legs, and back to provide high visibility for day and night. Attached with Velcro strips for rank and name badges, and epaulets can be affixed to shoulders.



Standards

CE Certified / EN 340 (general requirements) / EN 13758-2, 40+ (UV protection) / OEKO-TEX® Standard 100 Class II / AS/NZS 4399 UPF rating 50+

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
White		**Navy**		**Grey**	
31 23 63	S	**31 23 69**	S	**31 23 75**	S
64	M	**70**	M	**76**	M
65	L	**71**	L	**77**	L
66	XL	**72**	XL	**78**	XL
67	2XL	**73**	2XL	**79**	2XL
68	3XL	**74**	3XL	**80**	3XL
Orange		**Red**			
31 23 81	S	**31 23 87**	S		
82	M	**88**	M		
83	L	**89**	L		
84	XL	**90**	XL		
85	2XL	**91**	2XL		
86	3XL	**92**	3XL		

Name of Mfr.: Scandia Gear

Boilersuits, Heat-regulating

UV Protection, Reflect Type Short Sleeves

Traje de calderas de regulación de temperatura con protección UV, de tipo reflectante de mangas cortas

高温環境用反射テープ付き紫外線防護半袖ボイラースーツ

高温环境用带反光条防紫外线短袖连衫裤工作服

Designed for hot climates and engine rooms thanks to mesh moisture management at back pleats. Made of lightweight 100% fine cotton with UV protection finish, and with storage pockets for flashlight, and pen at chest, sleeve, side (× 2, open access), and seat (× 2). Striped with 3M reflective 50 mm (2.0 in) width belts at shoulders, arms, legs, and back to provide high visibility for day and night. Attached with Velcro strips for rank and name badges, and epaulets can be affixed to shoulders.



Standards

CE Certified / EN 340 (general requirements) / EN 13758-2, 40+ (UV protection) / OEKO-TEX® Standard 100 Class II / AS/NZS 4399 UPF rating 50+

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
White		**Navy**		**Grey**	
31 23 93	S	**31 23 99**	S	**31 24 05**	S
94	M	**31 24 00**	M	**06**	M
95	L	**01**	L	**07**	L
96	XL	**02**	XL	**08**	XL
97	2XL	**03**	2XL	**09**	2XL
98	3XL	**04**	3XL	**10**	3XL

(to be contunued)

Orange		Red	
31 24 11	S	**31 24 17**	S
12	M	**18**	M
13	L	**19**	L
14	XL	**20**	XL
15	2XL	**21**	2XL
16	3XL	**22**	3XL

Name of Mfr.: Scandia Gear

Boilersuits, Flame-resistant

Offshore, Multi-Hazard

Traje de calderas, ignífugo, para múltiples riesgos de uso en alta mar

反射テープ付き耐炎性ボイラースーツ

带反光条阻燃性连衫裤工作服



Flame-resistant offshore boilersuit. Made of 99% mercerized cotton, 1% carbon fiber. Equipped pockets at chest (× 2, slanted, concealed, zipped), sleeve, side (× 2, open access), cargo, seat (× 2), and inner. 2 walkie-talkie loops on upper chest. Striped with flame-resistant reflective 50 mm (2.0 in) width belts at shoulders, arms, legs, and back to provide high visibility for day and night. Attached with Velcro strips for rank and name badges.

Standards

CE Certified / EN 340 (general requirements) / EN 11611, Class 1 A1 (welding) / EN 11612, A1 B1 C1 F1 (flame-resistant) / EN 1149-5 (anti-static) / IEC 61482-2, Class 1 (electric arc) / EN 13758-2, 40+ (UV protection) / OEKO-TEX® Standard 100 Class II / AS/NZS 4399 UPF rating 50+ / AS/NZS 1906.4 : 2010 / AS/NZS 4399: 1996

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
White		**Orange**		**Red**	
31 24 23	S	**31 24 29**	S	**31 24 35**	S
24	M	**30**	M	**36**	M
25	L	**31**	L	**37**	L
26	XL	**32**	XL	**38**	XL
27	2XL	**33**	2XL	**39**	2XL
28	3XL	**34**	3XL	**40**	3XL

Name of Mfr.: Scandia Gear, Product Code: 1035.12

Boilersuits, Heat-regulating

Flame-resistant, Anti-static

Traje de calderas de regulación de temperatura, ignífugo y antiestático

反射テープ付き高温環境用耐炎性静電防止ボイラースーツ

带反光条高温环境用阻燃性防静电连衫裤工作服



Offshore boilersuit designed for hot climates and engine rooms. Made of 99% long staple cotton, 1% carbon fiber with mesh moisture management at back pleats. Equipped pockets at chest (× 2, slanted, concealed, zipped), sleeve, side (× 2, open access), seat (× 2), and inner. 2 walkie-talkie loops on upper chest. Striped with flame-resistant reflective 50 mm (2.0 in) width belts at shoulders, arms, legs, and back to provide high visibility for day and night. Attached with Velcro strips for rank and name badges.

Standards

CE Certified / EN 13688 (general requirements) / EN 11612, A1 B1 C1 (flame-resistant) / EN 1149-5 (anti-static) / EN 13758-2 (UV protection) / OEKO-TEX® Standard 100 Class II / AS/NZS 4399 UPF rating 50+ / AS/NZS 1906.4 : 2010 / AS/NZS 4399 : 1996

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size	CODE	Size
White		**Navy**		**Orange**		**Red**	
31 24 41	S	**31 24 47**	S	**31 24 53**	S	**31 24 59**	S
42	M	**48**	M	**54**	M	**60**	M
43	L	**49**	L	**55**	L	**61**	L
44	XL	**50**	XL	**56**	XL	**62**	XL
45	2XL	**51**	2XL	**57**	2XL	**63**	2XL
46	3XL	**52**	3XL	**58**	3XL	**64**	3XL

Name of Mfr.: Scandia Gear

UV Protection High Visibility Boiler Suits

Traje de calderas con protección UV de alta visibilidad
紫外線防護高視覚ボイラースーツ
防紫外线高能见度连衫裤工作服



Designed for high-visibility class 3, and UV protection finish. Mesh Moisture Management at back pleats. Reflective striping 50 mm (2.0 in): shoulders, arms, legs, and back. Storage: mobile phone/walkie-talkie, flashlight, and pen. Pockets: chest, sleeve, side (× 2, open access), and seat × 2). Velcro strips for rank and name badges. Two-way zipper closure. Colours: High viz yellow & navy.

Norms

CE-certified, EN13688:2013 (general requirements), EN13758-2, 40+ (UV protection), EN20471, class 3 (high visibility), AS/NZS 1906.4, Class R+F (high visibility) , AS/NZS 4399 UPF Rating 50+ (UV protection), OEKO-TEX® Standard 100 Class II.

Unit Per Pc.

CODE	Size	CODE	Size
31 24 65	XS	**31 24 69**	XL
66	S	**70**	2XL
67	M	**71**	3XL
68	L		

Name of Mfr.: Scandia Gear

Multi-Hazard Offshore Boiler Suits

Traje de calderas, para múltiples riesgos de uso en alta mar
複合的危機対応オフショアボイラースーツ
可对应多项危机的海上作业连衫裤工作服



Flame-resistant fluo reflective perforated striping 2.0 inches (50 mm): shoulders, arms, legs, and back. Storage: mobile phone/walkie-talkie, flashlight, and pen. Pockets: chest, sleeve, side (× 2), open access), seat (× 2) and inner. Velcro strips for rank and name badges. 99% long staple cotton, 1% carbon fiber, and chemical, oil, and stain-resistant.

Norms

NFPA 2112 - ASTM F1930 Bodyburn rate 7%, NFPA 70E - ASTM F1959, HRC 2 / ATPV 9.4 cal/cm2, ASTMF1506, AS/NZS 4399 UPF rating 50+, AS/NZS 1906.4 : 2010, AS/NZS 4399 : 1996, CE Certified, EN 340 (general requirements), EN 11611, Class 1 A1 (welding), EN 11612, A1 B1 C1 F1 (flame-resistant), EN 13034:2005 (chemical protection), IEC 61482-2, Class 1 (electric arc), EN 13758-2, 40+ (UV protection).

Unit Per Pc.

CODE	Size	CODE	Size
Navy		**Orange**	
31 24 72	XS	**31 24 79**	XS
73	S	**80**	S
74	M	**81**	M
75	L	**82**	L
76	XL	**83**	XL
31 24 77	2XL	**31 24 84**	2XL
78	3XL	**85**	3XL

Name of Mfr.: Scandia Gear

Offshore Jackets & Trousers, Multi-Hazard

Chaqueta y pantalones para múltiples riesgos de uso en alta mar
オフショア作業用上着・ズボン
海上作业用上装、裤子



Jacket



Trousers

Made of 99% cotton, 1% carbon fiber with storage pockets [Jacket: at chest (× 2, slanted, concealed, zipped), and sleeve and Trousers: at side (× 2), seat (× 2) and cargo]. Striped with flame-resistant reflective 50 mm (2.0 in) width belts at shoulders, arms, and back on jacket, and at legs on trousers to provide high visibility for day and night. Attached with Velcro strips on jacket for rank and name badges. Colour: Orange & Navy.

Standards

CE Certified / EN 340 (general requirements) / EN 11611, Class 1 A1 (welding) / EN 11612, A1 B1 C1 F1 (flame-resistant)/EN 1149-5 (anti-static)/IEC 61482-2, Class 1 (electric arc)/EN 13758-2, 40+ (UV protection)/OEKO-TEX® Standard 100 Class II/AS/NZS 4399 UPF rating 50+/AS/NZS 1906.4: 2010/AS/NZS 4399: 1996

Unit Per Pc. Unit Per Pr.

CODE	Size	CODE	Size
Jacket		**Trousers**	
31 24 86	S	**31 24 92**	S
87	M	**93**	M
88	L	**94**	L
89	XL	**95**	XL
90	2XL	**96**	2XL
91	3XL	**97**	3XL

Name of Mfr.: Scandia Gear

Multi Hazard Winter Offshore Boiler Suits

Trajes para calderas de invierno para múltiples riesgos de uso en alta mar
複合的危機対応防寒オフショアボイラースーツ
可对应多项危机的防寒海上作业连衫裤工作服

Thermal insulation to -20ºC (-4ºF), and lined and padded body, sleeves, and legs. Ultra soft down feel padding for optimal comfort. Flame-resistant reflective striping 50 mm (2.0 in): shoulders, arms, legs, and back. Storage: flashlight. Pockets: chest (x 2), slanted, concealed, zipped), side,

sleeve, seat (× 2), and cargo. Velcro strips for rank and name badges. Shell: 99% cotton, 1% carbon fiber, Lining: 55% modacrylic, 45% cotton. Colours : Orange & Navy.



Norms

CE Certified, EN 340 (general requirements), EN 11611, Class 1 A1 (welding), EN 11612, A1 B1 C1 F1 (flame-resistant), EN 1149-5 (anti-static), IEC 61482-2, Class 1 (electric arc), EN 13758-2, 50+ (UV protection), OEKO-TEX® Standard 100 Class II, AS/NZS 4399 UPF rating 50+, AS/NZS 1906.4 : 2010, AS/NZS 4399: 1996.

Unit Per Pc.

CODE	Size	CODE	Size
31 24 98	S	**31 25 01**	XL
99	M	**02**	2XL
31 25 00	L	**03**	3XL

Name of Mfr.: Scandia Gear

High Visibility Waterproof Winter Boiler Suits

Trajes para calderas de invierno impermeables de alta visibilidad

高視覚防水防寒ボイラースーツ

高能见度防水防寒连衫裤工作服



Suitable for thermal insulation to -50°C (-58°F), and waterproof breathable polyester oxford with fur lining in body. Reflective striping 50 mm (2.0 in): chest, waist, shoulders, arms, legs, and back. Storage: flashlight. Pockets: chest (× 2), side (× 2), slanted and covered), sleeve (× 1), seat (× 2 covered), hammer pocket (× 1) and inner (× 2). Velcro strips for rank and name badges. Two-way zipper closure on front. Shell: 100% polyester Oxford / PU-coated (breathable), Lining body: 100% acrylic fur and Lining arms and legs: 100% polyester.

Norms

CE Certified, EN ISO 13688 (general requirements), EN 342 Icler 0.431 X-2-2 (cold weather), EN 343 Class 3-1 (foul weather), EN 20471 Class 3 (high-visibility).

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
High Viz Orange & Navy		**High Viz Yellow & Navy**		**High Viz Orange & Grey**	
31 25 04	S	**31 25 10**	S	**31 25 16**	S
05	M	**11**	M	**17**	M
06	L	**12**	L	**18**	L
07	XL	**13**	XL	**19**	XL
08	2XL	**14**	2XL	**20**	2XL
31 25 09	3XL	**31 25 15**	3XL	**31 25 21**	3XL

Name of Mfr.: Scandia Gear

High Visibility Waterproof Winter Parkas & Trousers

Parkas y pantalones de invierno de alta visibilidad, impermeables

高視覚防水防寒パーカ＆ズボン　高能见度防水防寒连帽衫和裤子



Thermal insulation to -45°C (-49°F) in combination with Scan Polar HV 002 trousers. Waterproof breathable polyester twill with teddy lining in body. Pockets: chest (× 2), waist (× 2), inner (× 2) for parka, and side (× 2, slanted and covered), seat (× 2, covered) and hammer pocket (× 1) for trousers. Reflective striping 50 mm (2.0 in): chest, shoulders, arms, back and legs. Velcro strips for rank and name badges, and double zipper closure. Shell: 100% polyester twill / PU-coated (breathable), and Lining body: 100% acrylic teddy for parka, and shell: 100% polyester twill / PU-coated (breathable), and Lining: 100% polyester for trousers. Wearing Bib & Brace Trousers in combination with Winter Parka together conforms to class 3 protection.

Norms

CE Certified, EN 13688 (general requirements), EN 342, Icler 0.359 X-2-2 (cold weather), EN 343, Class 3-1 (foul weather), EN 20471, Class 2 (high-visibility) for parka and Class 1 (high-visibility) for trousers.

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
High Viz Yellow & Navy		**High Viz Orange & Navy**		**High Viz Orange & Grey**	
		Parks			
31 25 22	S	**31 25 28**	S	**31 25 34**	S
23	M	**29**	M	**35**	M
24	L	**30**	L	**36**	L
25	XL	**31**	XL	**37**	XL
26	2XL	**32**	2XL	**38**	2XL
27	3XL	**33**	3XL	**39**	3XL
		Trousers			
31 25 40	S	**31 25 46**	S	**31 25 52**	S
41	M	**47**	M	**53**	M
42	L	**48**	L	**54**	L
43	XL	**49**	XL	**55**	XL
44	2XL	**50**	2XL	**56**	2XL
45	3XL	**51**	3XL	**57**	3XL

Name of Mfr.: Scandia Gear

Work Shirts, Flame-resistant Multi-Risk

Camisas de trabajo, ignífugas, para múltiples riesgos

耐炎性作業用シャツ　阻燃性作业用衬衫



A flame-resistant workwear shirt made of 99% cotton, 1% carbon with pockets at chest (× 2), pen pocket opening, and sleeve. Colour : Navy.

Standards

CE Certified/EN 13688 (general requirements)/EN 11612 (flame-resistant)/EN 1149-5 (anti-static) / EN 13758-2 (UV protection)/OEKO-TEX® Standard 100 Class II/AS/NZS 4399 UPF rating 50+ /AS/NZS 1906.4: 2010 / AS/NZS 4399: 1996

Unit Per Pc.

CODE	Size	CODE	Size
31 25 61	S	**31 25 64**	XL
62	M	**65**	2XL
63	L	**66**	3XL

Name of Mfr.: Scandia Gear

Antistatic Safety Shoes

Conformed to BS EN 345-1



Zapato de Seguridad Anti-Electroestático, según la Norma BS EN 345-1

BS 規格適合静電防止安全靴

防静电安全鞋

Made of black smooth leather with double density polyurethane sole. Extra wide fit with the following safety features.

- 200 joules toe protection to EN 345-1 and oil resistant outsole.
- Antistatic (dissipates static electricity between 100 kilohms - 1,000 megohms).
- Energy absorbing and shock absorbing heel.
- Heat resistant up to 200°C

Unit Per Pr.

CODE	Size		CODE	Size	
	U.K.	cm		U.K.	cm
31 35 01	3	22	**31 35 09**	8.5	27
02	4	23	**10**	9	27.5
03	5	23.5	**11**	9.5	28
04	6	24.5	**12**	10	28.5
05	6.5	25	**13**	10.5	29
31 35 06	7	25.5	**31 35 14**	11	29.5
07	7.5	26	**15**	12	30.5
08	8	26.5	**16**	13	31.5

Leather Safety Hi Shoes

European Safety Footwear Protection Type: S3



Calzado alto de seguridad de cuero

耐油・酸・アルカリ静電防止安全ハイシューズ

耐油耐酸碱防静电高帮安全靴

Made of upper in black printed leather and water repellent lining in full leather. Fiberplast® toecap and Kevlar midsole, and dual density TPU (Thermoplastic Polyurethane) sole. Acid-, oil-, and alkali-resistant sole. Anti-static sole and shock absorbing heel. Colour: Black.

Standards

EN ISO 20345:2012 compliant / ASTM F2413-11 compliant

Unit Per Pr.

CODE	Size			CODE	Size		
	EU	UK	USA		EU	UK	USA
31 35 61	37	4	5	**31 35 67**	43	9	10
62	38	5	6	**68**	44	10	11
63	39	6	7	**69**	45	10.5	11.5
64	40	6.5	7.5	**70**	46	11	12
65	41	7	8	**71**	47	12	13
31 35 66	42	8	9	**31 35 72**	48	13	14

Name of Mfr: Scandia Gear
S3: 200 joule toecap protection.
Closed seat region (fully enclosed heel).
Antistatic properties. Energy absorption of seat region.
Water penetration and water absorption resistance.
Sole penetration resistance. Cleated outsole.

Antistatic Rigger Boots

Conformed to BS EN 345-1



Botas de Seguridad Anti-Electroestático, según la Norma BS EN 345-1

BS 規格適合静電防止リガーブーツ

防静电安全鞋

Made of rustic tan smooth leather, and with double density polyurethane sole. Extra wide fit with the following safety features.

- 200 joules toe protection to EN 345-1 and oil resistant outsole.
- Antistatic (dissipates static electricity between 100 kilohms - 1,000 megohms).
- Energy absorbing and shock absorbing heel.
- Heat resistant up to 200°C.

Unit Per Pr.

CODE	Size		CODE	Size	
	U.K.	cm		U.K.	cm
31 35 21	6	24.5	**31 35 25**	10	28.5
22	7	25.5	**26**	11	29.5
23	8	26.5	**27**	12	30.5
24	9	27.5			

Antistatic Ski Boots

Conformed to BS EN 345-1



Botas para Esquiar Anti-Electroestático, según la Norma BS EN 345-1

BS 規格適合静電防止スキーブーツ

防静电滑雪鞋

Made of black grain leather, and with double density polyurethane sole. Wide fit with the following safety features.

- 200 joules toe protection to EN 345-1 and oil resistant outsole.
- Antistatic (dissipates static electricity between 100 kilohms - 1,000 megohms).
- Energy absorbing and shock absorbing heel.
- Heat resistant up to 200°C.

Unit Per Pr.

CODE	Size		CODE	Size	
	U.K.	cm		U.K.	cm
31 35 31	3	22	**31 35 38**	9	27.5
32	4	23	**39**	10	28.5
33	5	23.5	**40**	10.5	29
34	6	24.5	**41**	11	29.5
35	6.5	25	**42**	12	30.5
31 35 36	7	25.5	**31 35 43**	13	31.5
37	8	26.5			

Industrial Wellington Boots



Botas Wellington　ウエリントンブーツ

Wellington 工業用長靴

PVC / Nitrile knee length Wellington. Green with crepe coloured sole, and steel midsole. Resistance to most oils, fats, grease, acids and alkalis. Sole tread designed to give maximum grip.

200 joules toe protection to EN 345-1.

Unit Per Pr.

CODE	Size		CODE	Size	
	U.K.	cm		U.K.	cm
31 35 51	6	24.5	**31 35 55**	10	28.5
52	7	25.5	**56**	11	29.5
53	8	26.5	**57**	12	30.5
54	9	27.5			

Anti-shatter Films

(Blast Mitigation)

Láminas de seguridad para cristales (antiexplosiones)
窓硝子用粉砕防止フィルム　窗玻璃防碎贴膜



Anti-shatter film provides protection from flying glass in the event of a natural disaster or demolition by pirates. It forms an almost invisible protective coating on the glass surface. This window film should only be applied to flat glass. It should never be applied to polycarbonate (plastic). Adhesive window films are constructed from a multi-lamination of micro-thin polyester. They also have a scratch resistant coating to protect the film surface and enhance durability (except films for external application). The film should be cut 10 mm over size in both dimensions, and trim around the oversized edges using a sharp trimming knife after squeezed the film.

15 08 21	Film, anti-shatter (Blast mitigation), 200 micron, Width 152 cm x Length 15 mtr	Rls.

Anti-Piracy Goods

Bulletproof Accessories

Productos antibalas antipiratería
海賊対策用防弾装具　反海盗用防弹装备

Bulletproof Combat Helmet	DC4-4NIJ IIIA level 9 mm colour Black, included cotton protection cover.
Bulletproof Body Armer (Vest)	DC2-3NIJ IIIA level 44 mm colour Black Due the layer of fibers in a vest, the protection level (resistance level) was determined. This model has the NIJ level IIIA protection, which against the heaviest bullets from a handgun, such as the 44 and 9 mm.
Bulletproof Plate	Vests with level III and IV require hard plates in the vest for protection against machine gun fire.

Remark: These products are dual use items, and may therefore be restricted in supply by some authorities.



Bulletproof Helmet



Bulletproof Helmet Visor



Bulletproof Body Armor



Bulletproof Plate



Plate Carrier

Unit Per Pc.

CODE	Description	Weight grm
31 03 51	Combat helmet, NIJ IIIA 9 mm DC4-4	1,500
31 05 71	Helmet visor NIJ level IIIA	1,500
31 41 11	Body armor (vest) DC2 NIJ Standard IIIA -.44	2,600
31 41 12	Plate DC3-5 Alumina ceramic	3,000
13	Plate DC3-7 Silicone carbide ceramic	2,550
14	Plate carrier, black (Universal size)	-

(to be contunued)

Gunsafes

Caja fuerte para armas　銃保管庫　枪支保管库



For quantity of weapons maximum 8 and 125 cm. 4 points lock system and mechanical or electronic lock possible. Thickness of steel 3 mm, door 45 mm with anthracite green colour. One separate ammunition safe inside. Safetyclass A/VDMA and Safe II-NCP, and Securitylevel I.

Unit Per Pc.

CODE	No. of Weapons	Dimensions L × W × D mm	Weight kg
31 41 15	8	150 × 55 × 35	97

Anti-Piracy Dummies

Muñecos antipiratería
海賊対策用マネキン人形
反海盗用人体模型



A false security patrol man to assist deterring pirates from boarding ships. Any equipment dummy wearing are separate order.

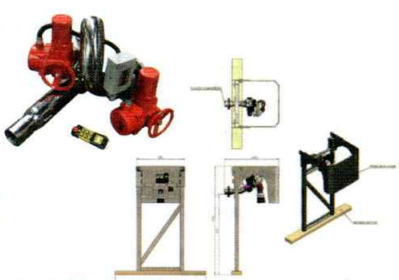
31 41 16	Dummy, anti-piracy, bare	Pc.

Anti-Piracy Water Jet Cannons

Cañones de agua antipiratería　海賊対策水射出器　反海盗水枪

A water jet cannon is based on the use of high quality oscillating water cannons, which are installed on several points on the ship and prevent any boarding attempt when activated. The system is sent to the ship as a modular package that is installed by the crew without any required external help. Training will be given to operate the system and a user manual will enable smooth operation of the system.





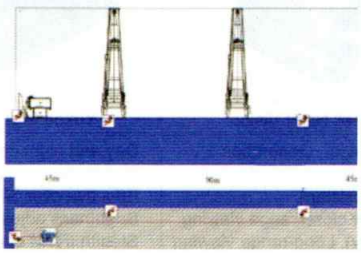
The installation of the system is divided into 2 main categories.

A – Engine room related installation

- Ensure existing pump has enough capacity.
- Else, in case the capacity is not available, connect engine room pumps to on deck diesel powered booster pump.
- Connection of hoses from pump (via engine room or deck).

B – Deck related installation

- Install water cannons on deck or railing, using supplied connection kit.
- Run 6" feeder hoses from main pump outlet / manifold.
- Run 4" hoses from feeder to water cannon.



System Components

- Storage container.
- High quality oscillating water cannons, (a modified type of the systems used by fire fighting departments).
- Special fittings to temporarily attach the cannons to deck or railing.
- Hoses, supplying water from pump to water cannons.
- Ballistic shields to protect water cannons from direct small caliber fire arms.

Typical Installation Pattern per Ship's Overall Length

Overall Length	No. of Cannon	Water Supply	
		ltr/min.	m3/hr
200 mtr	5 cannons	10,000	600
280 mtr	7 cannons	14,000	840
360 mtr	9 cannons	18,000	1,080

Performance of Water Jet Cannon

- Ultra compact
- Weight : just 11.4 kg
- Totally adjustable
- Capacity 2,000 ltr/min at 5.5 bar
- Range 50 – 55 meters
- High quality aluminium
- Includes manometer
- Left right radius between -180 degrees to +180 degrees
- Up down radius between -45 degrees to +90 degrees
- 12/24V electro motor
- Remote control option with joystick
- 10 year warranty

Water Supplying Hose:



Made from thick woven synthetic thread with a bacl PVC/Nitril protection coating. The internal and external tubes are seamlessly interwoven to long levity. Consequently the internal tube cannot disconnect from the external tube. Totally oil and chemical resistant as well as extreme UV and Ozon protected.

Long levity, remains flexible, no maintenance, no rotting, temperature range -35°C to +100°C, sea water proof, high resistance to tearing and bending, and special textile cuff protect connector areas.

Couplings & Connectors:



High quality aluminium connectors with fast connect and release system, as used by fire fighting department worldwide

How to order: 31 - 41 - 21

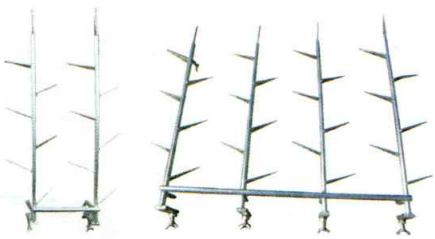
Water jet cannon system,With further details

Anti Piracy Spike Fence (APSF)

Valla de púas contra piratería　海賊対策用フェンス　防海盗用栅栏



Specially designed to safeguard ships sailing across high-risk sea area. The fence is steel welded with galvanized surface treatment, effective to prevent pirates or stealers to climb onboard. It can work for much longer time with effective anti-corrosive function, and easily installed firmly one by one along deck fishplate, gunnels with wing bolts. 2-spikes type fence and 4-spikes type fence are available, and can be designed other type as per requirement.



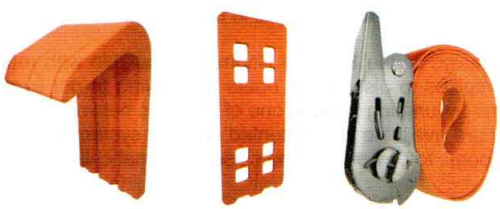
Unit Per Pc.

CODE	Model	Dimension L × B mm	Weight (kg/pcs)	Typical qty as per Ship's LOA
31 41 25	4-spikes	850 × 680	4.9	Quantity required =LOA×2/0.95
26	2-spikes	425 × 680	2.45	Quantity required =LOA×2/0.5

Anti Piracy Barrier

Barrera contra la piratería　海賊対策用バリア　反海盗屏障





An innovative defensive solution to prevent unwanted personnel (using ladders, poles, and ropes) from boarding a vessel. Sustainable and cost-effective denial of access maritime security solution used to protect commercial sea vessels passing through high-risk areas.

Unique patented design that allows for each unit to be self-installed with speed and strapped to vessel guardrail by using mounting panels and straps. Fend plate design along with innovative ribbed surface will repel hooked ladders and climbing poles to defeat rope based climbing systems. Available in orange and black colour.

Unit Per Pc.

CODE	Model	Material	Dimensions (mm)	Weight (Kg/pcs)
31 41 27	ABaC Barrier	Virgin Grade Polyethylene Powder with 5% UV Stabilizer	H1,365 × W700 × D775	16.5
28	ABaC Mounting Panel		H1,180 × W495 × D25	6.5
29	ABaC Mounting Strap	316 SUS Grade Ratchet, 100% Polyester strapping	H4 × W25 × L4,000	0.12

Ballistic Protection Plate System

Sistema de placas de protección balística
弾道保護プレートシステム　防弾保护板系统



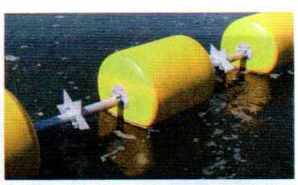
Ballistic Protection Plate System (BPP) is a robust, ballistic and permanent non-lethal defensive solution that protects vessels from high velocity. It's a ballistic steal modular system comes in two materials, a Kevlar composite and an alloyed ballistic steel, and straps to the guard rail of any existing ship, offering complete protection of by preventing ballistic rounds, high velocity, and blast impacts.

Plate size: W595 x H1,163 x T12 mm

How to order: 31 - 41 - 30
Ballistic Protection Plate System (BPP), specify the total meterage for use

Anti-Piracy Security Booms

Auge de la seguridad contra la piratería
海賊対策用安全フェンス
反海盗安全围栏



Designed to be used in conjunction with unmanned maritime assets to fortify onboard defences against piracy. The tubular backbone makes the booms immensely strong, designed to take loads in excess of 50 tons.

The design of the Security Booms is available with rotating steel spikes to discourage boats from trying to get over the booms by jumping through one of the gaps between the oats. They are available with patented latching system that allows the booms to be opened and closed automatically.

How to order: 31 - 41 - 31
Anti-Piracy Security Booms, specify the total meterage for use

Night Vision Binoculars

for Anti-piracy

Binoculares de visión nocturna antipiratería
海賊対策用暗視双眼鏡　反海盗用夜视望远镜

An optical instrument that you can see a night view even in a moonless, cloudy night.

Remark: The products are dual use items, and may therefore be restricted in supply by some authorities.





Bushell Night Vision	Yukon Night Vision
· Night vision: Generation 1 · Infrared illuminator: Built-in · Water resistant · Great for close-range viewing (Security). Long-range viewing (Wildlife observation) · Magnification x objective lens: 2.5 × 42	· Day and night operation · Higher resolution than Gen. 1 · Effective over 300 yards · Brightness adjustment control · Stealth IRTM operation with invisible, powerful dual IR illuminators · Direct video output capability · Magnification x objective lens: 5 × 42

Unit Per Pr.

CODE	Model	Capacity Magnification × Objective Lens
37 03 55	Bushell night vision	2.5 × 42
56	Yukon night vision	5 × 42

Camera Monitoring System

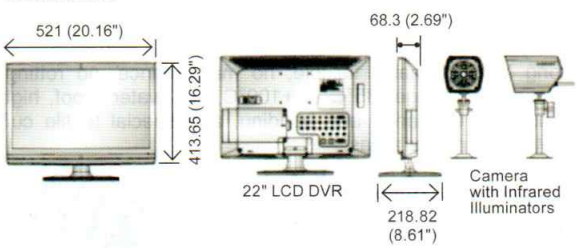
with Infrared Illuminators

Sistema de observación con cámara con iluminación infrarroja
赤外線発光式監視カメラシステム
红外灯监控摄像系统



Camera monitoring system provides maximum protection for any spot 24 hours a day, 7 days a week. Simple to set up, you can monitor any time from anywhere around the world. All four cameras are waterproof to IP66, compact and highly durable to achieve clear stable video, even in harsh outdoor conditions. Single cable to each camera cover all wiring needs including power so you have the freedom to place them anywhere, even if there is no electrical outlet in the area. The four night vision cameras are equipped with 30 infrared LEDs which allow them to detect and show objects as far as 50 feet, even in the darkest conditions. The built in 500 GB hard drive allows for extended recording time and is expandable to 1 TB for maximum data capacity. Please contact your local supplier about more details.

Dimensions



Main Feature:

· Smartphone ready
· 4 x infra red night vision cameras – 600 TV lines of high super resolution

· H.264 high performance compression
· 8 channel digital video recorder
· Vivid 22" LCD display
· 500 GB of storage USB 2.0

Accessories:

4 pcs	Camera & bracket	1 pc	Power cable
4 pcs	60ft. extension cable	1 pc	Remote control
1 pc	User manual	1 pc	Quick guide
1 pc	VGA cable	1 pc	Mouse
1 pc	Network setup guide	1 pc	Ethernet cable
2 pcs	Battery		

37 05 43	Camera monitoring system with infrared illuminators Samsun model SME-4220	Set

Razor Wire

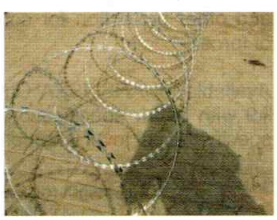
Alambre de púas　蛇腹式レーザーワイヤー　蛇腹式铁丝

A concertina configured galvanized steel wire used for outer boundary fencing on ship's deck to defend ships from the vandals, like pirates. The razor wire prevents any intruders from penetrating by piercing or gripping them.

Two patterns of loop are available; Single Loop or Crossed Loop, and also standard diameter are available from 400 mm to 900 mm. Standard coil length when extended is 15 mtr, and they can be lengthened by connecting clips.



Single Loop



Crossed Loop

Unit Per Mtr.

CODE	Diameter	Standard Extended Length	CODE	Diameter	Standard Extended Length
Single Loop			**Crossed Loop**		
67 12 01	400 mm		**67 12 11**	400 mm	
02	500 mm		**12**	500 mm	
03	600 mm	15 mtr	**13**	600 mm	15 mtr
04	700 mm		**14**	700 mm	
05	800 mm		**15**	800 mm	
67 12 06	900 mm	15 mtr	**67 12 16**	900 mm	15 mtr

Connecting Clips and Ties for Razor Wire



Connecting Clip



Connecting Tie

CODE	Unit	CODE	Unit
Connecting Clip		**Connecting Tie**	
67 12 18	Per Piece	**67 12 20**	Per Piece
19	100's / Packet	**21**	100's / Packet

Stainless Steel Razor Wire

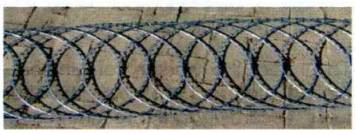
Unit Per Mtr.

CODE	Circle Diam.	CODE	Circle Diam.
67 12 25	900 mm	**67 12 26**	1,000 mm

Remark: Standard length is 15 mtr per coil

Flat Wrap Razor Wire

Alambre de afeitar plano
平面式レーザーワイヤー
扁平缠绕剃刀线



A flat wrap razor wire is suitable for installations where a neat appearance is required. Due to its flat construction, it does not overhanging into neighboring property and will therefore not harm innocent bystanders. The flat wrap razor wire can be used to upgrade any existing fence or wall, by adding directly to a wire mesh fence, or adding it on top of a brick or pre-cast wall to instantly upgrade your security.

Unit Per Lgh.

CODE	Diam.	Length
67 12 31	500 mm	10 mtr
32	700 mm	"

Tools for Razor Wire Installation



19 01 41	Gloves for razor wire installation	Pr.
43	Arm Protector for razor wire installation	Pr.
45	Apron for installation razor wire	Pc.
61 17 65	Razor wire clip pliers	Pr.

Barbed Wire

Alambre de espino
有刺鉄線　有刺铁丝

A galvanized wire with sharp edges to protect your property from invaders by fencing around.



67 12 41	Barbed wire, 250 mtr (App.28 kg)	Rls.

Reference Table of EU Glove Size

EU	EU	Palm circumference
7	S	< 17.8 - 20.2
8	M	20.3 - 22.8
9	L	22.9 - 25.3
10	XL	25.4 - 27.8
11	2XL	27.9 - 30.4
12	3XL	30.5 >

Anti-Vibration Gloves

Guantes antivibración 耐振手袋 防震手套

To protect the worker from impact and vibration, reducing the vibration and absorbing the shock from handheld power tools, according to the recommendation of "Maritime Labour Convention 2006" – Guideline B4.3.3 – Exposure to vibration".



Leather


Oil Resistant

Unit Per Prs

CODE	Description	Material
31 45 01	Leather	Palm: leather/Back: canvas
31 45 02	Oil resistant	Palm and back: Nitril-latex

Flame Resistant Impact Protection Gloves

Guantes ignífugos de protección contra impactos
耐炎性耐衝撃手袋 阻燃耐冲击手套



Flame resistant stitching tread, and provide protection from heat, flames and sparks. Made of digital goat leather palm. CE Category III.

Unit Per Prs

CODE	Size (EU)		CODE	Size (EU)	
31 45 05	M	8	**31 45 07**	XL	10
06	L	9			

Name of Mfr.: Scandia Gear

Impact Protection Waterproof Winter Working Gloves

Guantes de trabajo de invierno, impermeables de protección contra impactos
耐衝撃防水防寒手袋 耐冲击防水防寒手套



Impact TPR (Thermo Plastic Rubber) protection, and waterproof palm and back. Silicone palm for improved grip. Cold resistance up to -30°C (-22°F), and washable at 30°C (86°F). CE category II.

Norms:

CE Certified, EN 420, EN 388 (4543), EN 511 (X13), ANSI 105:2011 cut level 4, ANSI 105:2011 puncture level 4, ANSI 105:2011 abrasion level 6.

Unit Per Prs

CODE	Size (EU)		CODE	Size (EU)	
31 45 08	S	8	**31 45 10**	XL	10
09	M	9	**11**	2XL	11

Name of Mfr.: Scandia Gear

Abrasion-Resistance Working Gloves

Guantes de trabajo resistentes a la abrasión
耐摩耗性グローブ 耐磨工作手套



Nitrile palm foam-coated gloves to provide excellent grip in oily condition with excellent abrasion-resistance. Seamless nylon liner gives an excellent fit and maximum dexterity.

Unit Per Prs

CODE	Size (EU)		CODE	Size (EU)	
31 45 16	S	7	**31 45 19**	XL	10
17	M	8	**20**	2XL	11
18	L	9			

Cut Resistant Working Gloves

Guantes de trabajo resistentes a los cortes
耐切創性グローブ 防割工作手套



Made of High-Performance Polyethylene (HPPE) featuring great cut resistance and other protection for common types of force.

Available for ANSI/ISEA Cut Level A1 - A9 with below specification and please specify the cut level when ordering.

Level	Weight (grams) needed to cut through material with 20 mm of blade travel
A1	≥ 200
A2	≥ 500
A3	≥ 1,000
A4	≥ 1,500
A5	≥ 2,200
A6	≥ 3,000
A7	≥ 4,000
A8	≥ 5,000
A9	≥ 6,000

Unit Per Prs

CODE	Size (EU)		CODE	Size (EU)	
31 45 21	S	7	**31 45 24**	XL	10
22	M	8	**25**	2XL	11
23	L	9			

Cut Resistant Sleeves

Manguitos resistentes a los cortes
耐切創用スリーブ 防割套管



Designed to protect your arms from sharp objects such as knives or blades.

31 45 26	Cut resistant sleeve	Prs

33
Safety Equipment

Liferafts and Lifeboats  P. 33-1	Life Jackets/ Lifebuoys/ Immersion Suits  P. 33-1 ~ 3	Lifeboat/ Liferaft Accessories  P. 33-3 ~ 7
IMO Symbols/Safety Signs  P. 33-8 ~ 41	SOLAS Publication  P. 33-42	Pyrotechnics  P. 33-42 ~ 46
Breathing Apparatus  P. 33-46 ~ 48	Air Compressors  P. 33-48 ~ 49	Gas Detectors  P. 33-49 ~ 64
Safety Lights/Signal Lamps  P. 33-64 ~ 71	Fire Hose/Fire Hose Couplings  P. 33-71 ~ 88	Fire Fighting Equipment  P. 33-88 ~ 89
Chemical and Gas Protection Suits  P. 33-89 ~ 91	Asbestos Safety Kits  P. 33-91	Fire Extinguishers  P. 33-91 ~ 94
Smoke Detector/ Testers  P. 33-94 ~ 96	Flame Detectors  P. 33-96 ~ 97	Marine Fire Stop Systems  P. 33-97 ~ 100
Safety Belts  P. 33-100 ~ 101	Safety Masks/Respirators  P. 33-101 ~ 107	Goggles/Ear Muffs/Helmets  P. 33-107 ~ 108
Work Vests/Whistles  P. 33-108 ~ 109	Safety Tapes Anti-Slip Products  P. 33-109 ~ 113	Alcohol Checkers/ Drug Testing Kits  P. 33-113 ~ 114

Inflatable Liferafts

Balsas Sallvavidas Inflables　膨張式救命いかだ　膨胀式救生筏

A wide variety of models from different manufacturers are available to meet the requirements of the International Convention for the Safety of Life at Sea (SOLAS), known as "96SOLAS".





They are furnished with standard equipment and additional features as the customer specifies, such as Deck Cradle, Hydrostatic Release, etc.

An exceptionally rugged construction supplied in glass-reinforced plastic (GRP) containers.

There are two types of inflatable liferaft mainly used on board, Throw-over type and Davit-Launching type. Throw-over type can be launched manually or by securing the tow line to a strong point on deck and throwing the container overboard. When the tow line is pulled taut, an integral CO_2 gas cylinder is activated which inflates the boarding step, buoyancy chambers and canopy support. Davit- Launching type is obliged to use for either Port or Starboard side on Bulk Carriers since 2007, lowering down by davit and inflate manually by pulling the tow line.

Every liferaft shall be serviced at intervals not exceeding 12 months.

Please specify the following points when ordering.

1) Capacity, 2) Throw-over or DL(Davit-launching) type,

3) Ship's registered flag, 4) Installation Height,

5) Classification society

Unit Per Set

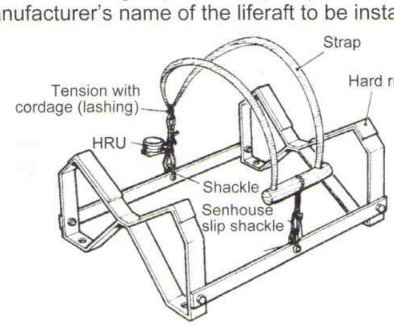
Throw-over type		Davit-Launching type	
CODE	Capacity	CODE	Capacity
33 01 01	6 men	**33 02 06**	6 men
02	10 men	**08**	10 men
03	16 men	**14**	16 men
04	20 men	**19**	20 men
05	25 men	**20**	25 men

Note: Deck cradle and hydrostatic release are not included with the above unit.

Deck Cradles for Liferaft

Cuna o Soporte para Balsas Salvavidas　ライフラフト用架台　救生筏台架

When ordering, please specify the capacity and manufacturer's name of the liferaft to be installed.



Unit Per Set

CODE	For Liferaft	CODE	For Liferaft
33 01 61	6 men	**33 01 64**	20 men
62	10 "	**65**	25 "
63	16 "		

Hydrostatic Release Units

Double Looped Rope Line Type

Desprendimientos Hidrostáticos, Tipo: Linea Cuerda Doble Lazo
自動離脱装置　静水压力释放器（双循环绳线路）

These units consist of a double looped rope line, a release mechanism, and a weak link. This release unit conforms with the requirements of the 1983 amendments to SOLAS 1974.



For Liferaft　For Epirb

These units will release the liferaft or EPIRB (Emergency Position Indicating Radio Beacon) at a depth of between 1.5 and 4 mtrs underwater. The units could be round or square shape. Below is a reference of brand & manufacturers, but there are specific types of HRU for certain EPIRB brand. Please specify the types and brand when ordering.

Unit Per Set

33 01 19 **26**	Hammar H20R Hammar H20-YSE	Liferaft Epirb	C M Hammer AB
33 01 28	Thanner DK-2004	Liferaft	Thanner
33 01 29 **93**	SafeteTmate LR-2 SafeteTmate EP-2	Liferaft Epirb	SafeTmate

Totally Enclosed Lifeboats

Botes Salvavidas Totalmente Cerrado
全閉囲型救命艇　全封闭式救生艇



According to the 1983 amendments to the International Convention for the Safety of Life at sea 1974, all new building ships of which the keel is laid on or after July 1st 1986 require the installation of fully enclosed lifeboats.

Please specify the required number of persons on board and also specify the required classification society.

33 01 30	Lifeboat, totally enclosed with further detail	Set

Life Jackets

Chalecos Salvavidas　救命胴衣　救生衣（带哨子）



A life jacket, comply with new SOLAS regulations (Amendments to chapter II of LSA (Life-Saving Appliance) Code effective on July 01, 2010) should be provided for every person on board the ship. Each life jacket is fitted with a whistle, retro-reflective material, lifting loop and buddy line. Made of polyethylene foam material covered by polyester. Life Jacket for Infants should be supplied to all passenger ships.

Adult		Child	Infant
Weight: Chest:	Over 43 kg Under 175 cm	Weight: 15–43 kg	Weight: Under 15 kg

Unit Per Pc.

CODE	Usage	Approved	CODE	Usage	Approved
33 01 31	Adult	H.K.	**33 01 38**	Adult	U.K. DOT
32	Child		**39**	Child	
33	Infant		**47**	Infant	
33 01 34	Adult	U.S.C.G.	**33 01 48**	Adult	MED
35	Child		**49**	Child	
46	Infant		**50**	Infant	

Inflatable Life Jackets

Chalecos Salvavidas Inflables
膨張式救命胴衣　膨胀式救生衣



Made of air and watertight rubberlined nylon. Inflation is done by means of CO_2 cylinders provided with the jacket.

Unit Per Pc.

CODE	Approved	Usage	Material	Required time to expand
33 01 40 **41** **42** **66**	U.K. DOT H.K. U.S.C.G. MED	Adult	Rubber lined nylon	app. 5 min.

Life Jacket Lights

Luces para Chalecos Salvavidas
救命胴衣灯　救生衣灯



Each life jacket shall be fitted with a light complying with the requirements for a 0.75 cd light for 8 hours. The battery will be operated automatically upon entry into the water.

33 01 43	Life jacket light	Pc.
45	Bag for life jacket light	"

Lifebuoys

Aros Salvavidas　救命浮環　救生圈



Throw-over Lifebuoy



Quick Release Life buoy

Normally made from polyethylene outer skin and polyurethane foam inner core.

Cargo ships shall carry no less than the number or lifebuoys complying with the requirements of SOLAS described in the table below. In compliance with requirements it is fitted with a buoyant lifeline.

When being in used for operating the quick-release arrangement provided for the self-activated smoke signals and self-igniting lights, the lifebuoy have a mass sufficient to operate the quick-release arrangement or 4 kg, whichever is greater.

Required quantity by Regulation 32

Length of ship	Numbers of Lifebuoys
Under 100 mtr	8 pcs.
100 and under 150	10 pcs.
150 and under 200	12 pcs.
200 and over	14 pcs.

Unit Per Pc.

CODE	Approved	O.D.	I.D.	Weight
Weight Over 2.5 kg (Throw-over Lifebuoy)				
33 01 51 **56** **57** **58** **59**	H.K. U.K.DOT N.V. U.S.C.G. MED	Under 800 mm	Over 400 mm	Over 2.5 kg and less than 4.0 kg
Weight Over 4 kg (For Quick-release Arrangement)				
33 01 54 **53** **55** **52** **60**	H.K. U.K.DOT N.V. U.S.C.G. MED	Under 800 mm	Over 400 mm	Over 4.0 kg

Immersion Suits

Trajes de Inmersión　イマーションスーツ　保温服



Made of foam rubber. Serves to prevent the loss of body heat when submerged in cold water. Shall be provided for every person assigned to the crew of the rescue boat and at least three immersion suits shall be provided for each open type lifeboat on the ship.

Below is reference of sizes available from several manufacturers.

Size		Height
Universal	M	140 - 170 cm
	L	170 - 190 cm
Oversize	XL	190 - 210 cm

Unit Per Set

CODE	Approved	Material
33 01 69 **70** **71** **72** **95**	U.K. DOT H.K. N.M.D. U.S.C.G. MED	Foam rubber

Universal Testing Device

for Immersion Suit/Anti-exposure Suit

Dispositivo de pruebas universal para trajes de inmersión/trajes contra la intemperie
イマーションスーツ用テスト・修理キット
保暖救生服 / 海上救生服用测试和修理套件



Complies with IMO guidelines for periodic testing of seams and closures on immersion suits and anti-exposure suits. Universal compatibility, including universal maintenance and repair kit. Consists of stainless steel pressure gauge, pressing and stable board and connecting hose, including metal carrying case and "Super Repair", contains: neoprene gasket, waterproof marker, two emergency lights.

Note: Two whistles, Sleeve cones for detachable gloves available separately.

Standards: MED/SOLAS-certified

33 01 97	Universal testing device for immersion suit & anti-exposure suit, MED/SOLAS certified	Set

Name of Mfr: Scandia Gear

Sleeve Cones for use with Universal Testing Device for Immersion Suit



Designed to test immersion suits with detachable gloves. Cone shape creates a universal fit.

Standards: MED/SOLAS-certified.

33 01 98	Sleeve cones for use with universal testing device for immersion suit, MED/SOLAS certified	Set

Name of Mfr: Scandia Gear

Portable Air Compressors for use with Universal Testing Device

An Air compressor with storage compartment designed for use with the Universal Testing Device for Immersion Suits. Easy maintenance, does not require oil.



Unit Per Set

CODE	33 01 99
Model	8100.04
Power	1,100W/1.5 pk.
Maximum pressure	8 bar
Tank capacity	6 L
Motor	3,400 rpm. 230 Vac.
Dimensions	470 × 580 × 330 mm
Weight	12 kg

Name of Mfr: Scandia Gear

Thermal Protective Aids

Ayudas Terinales o Térmicas 保温具 保温材料

A thermal protective aid is made of waterproof material with low thermal conductivity, and shall be provided for every person on the ship who has not been provided with one of the immersion suits in the open type lifeboat.



Unit Per Set

CODE	Approved	Material	Thermal Conductivity
33 01 75	H.K.	Polyethylene	Not more than 7,800 W/(m².K)
76	U.S.C.G.		
77	U.K.DOT		
96	MED		

Retro-Reflective Tapes

Cintas Retro-reflectivas 再帰反射テープ 反光带（银灰色）

Retro-reflective tape which reflects light. All life-saving equipment (Liferafts, Life Jackets, etc.) shall be fitted with retro-reflective tapes where it will assist in detection.

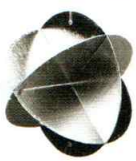


CODE	Colour	Width	Usage	Unit
33 01 86	Silver SOLAS grade	50 mm	For life saving equipment, conforms to IMO Res. A.658 (16) and approved by numerous national authorities.	Mtr.
33 01 87	Orange	50 mm	Marking to vehicles or sign boards.	Mtr.
33 01 88	Silver white	50 mm	Marking to raingear, leisure or emergency equipment.	Mtr.
33 01 89	Silver SOLAS grade	50 mm × 45.7 mtr	For life saving equipment, conforms to IMO Res. A.658 (16) and approved by numerous national authorities.	Rls.

Radar Reflectors

Reflectores para Radar レーダー・リフレクター 雷达反射器

For reflecting radar signals back to their source. Used to inform a position to rescue squads while at open sea.



Prefabricated



Inflatable

Unit Per Pc.

CODE	Type	Material	Diam
33 01 90	Prefabricated	Polypropylene panel & alum. coated	320 mm
33 01 91	Inflatable	Double high-density polymer	460 mm

Note: All conforms to SOLAS requirement

Bailers

Achicadores あか汲み 救生艇水斗



For bailing out water accumulated in the bottom of the boat.

33 02 01	Bailer for lifeboat	Pc.
02	Bailer for liferaft	"

Hatchets

Hachuelas 手斧 救生艇手斧



A short handled, single edge rectangular head, usually with a lanyard.

33 02 03	Hatchet for lifeboat	Pc.

Sponges

Esponjas スポンジ 海绵

For absorbing water.

33 02 04	Sponge for liferaft	Pc.

Lifeboat Oil Lamps

Lámparas de aceite para Bote Salvavidas

ライフボート・ランプ 救生船油灯



Made of brass with a clear glass globe operated by kerosene.

33 02 05	Lifeboat oil lamp	Pc.

Lifeboat Matches

Fósforos para Bote Salvavidas

水密マッチ 救生火柴



Windproof matches for use during inclement weather conditions.

33 02 07	Lifeboat match	Pkt

Lifeboat Buckets

Cubetas para Bote Salvavidas バケツ 救生桶



For bailing out water.

33 02 09	Lifeboat bucket	Pc.

Dippers
Liara　ひしゃく　带绳索勺

Rustproof dipper with lanyard.

33 02 10	Lifeboat dipper with lanyard	Pc.

Lifeboat Compasses
Compases para Bote Salvavidas
ライフボート・コンパス　救生艇磁罗经



A small liquid compass, card dia 100 mm in a binnacle.

33 02 11	Lifeboat compass 100 mm w/cover	Pc.

Rescue Quoits
Aros Salvavidas de Rescate
救命浮輪　救生浮环（救生艇用）



Attached to not less than 30 mtr of buoyant line.

33 02 12	Rescue quoit for lifeboat	Pc.
13	Rescue quoit for liferaft	"

Sea Anchors
Anchas Flotantes　シー・アンカー　救生艇海锚



Fitted with a shock-resistant hawser & tipping line.

33 02 15	Sea anchor for liferaft	Pc.
16	Sea anchor for lifeboat	"

Sea Anchor Oil Cans
Latas de Aceite para las Anclas Flotantes
撒油缶　救生艇油罐



Made of galvanized sheet iron for holding storm oil.

33 02 17	Lifeboat sea anchor oil can	Pc.

Signal Tables
Tablas de Señales　救命信号説明表　救生信号



Waterproof card or in a waterproof container.

33 02 18	Signal table plastic	Pc.

Rations
Raciones　食料　救生艇食量



Approved by M.I.T.I. (Ministry of Industry and Transport, Japan). Each ration contains 9 meals.

33 02 23	Ration combination 9 meals	Pc.

Rations "Seven Ocean"
Raciones "Siete Océanos" Alimentos
セブン・オーシャン　救身艇用压缩饼干



Compressed vitaminized biscuit bars. Takes up little space and will keep for 5 years.

33 02 25	Ration seven ocean, 500 grm	Pkt
26	Ration seven ocean, 1,000 grm	"

Drinking Water
Agua para Beber　飲料水　救生艇饮用水



Completely sterile, vacuum-sealed water in a can. Required 1.5 ltr per person.

33 02 36	Drinking water, 385 ml	Can
37	Drinking water, 500 ml	Btl

Drinking Cups
Vasos para Beber　コップ　救生艇饮水杯



Should be rustproof and graduated.

33 02 41	Drinking cup for lifeboat	Pc.
42	Drinking cup for liferaft	"

First Aid Kits
Equipos de Primeros Auxilios　応急医療具　救生艇应急药箱

Stores medicines and medical instruments in a watertight container.



33 02 45	First aid kit for liferaft	Set
46	First aid kit for ifeboat	"

Anti-Seasickness Medicine
Pastilas Antimareos　船酔い薬　晕船药

Required 6 doses per person.

33 02 47	Anti-seasickness medicine	Pkt

Seasickness Bags
Bolsas para Vómito　船酔い用の袋　晕船用的清洁袋

1 seasickness bag required for each person.

33 02 48	Sea-sickness bag	Pc.

Can Openers
Abrelatas　缶切り　开罐器



3 pieces required for each liferaft or lifeboat.

33 02 49	Can openers, 3's	Set

Jack Knives
Navajas de Bolsillo Silbatos
ジャック・ナイフ　水手刀



Furnished with lanyard for attaching the knife to the boat.

33 02 50 51	Jack knife for liferaft Jack knife for lifeboat	Pc. "

Whistles
Sibatos　笛　救生艇哨笛



Made of seawater resistant tough plastic.

33 02 52	Whistle	Pc.

Signalling Typhoons
Bocina Niebla-Tifón　ラッパ　救生艇台风信号



Made with waterproof tin plate. Will provide a loud sound.

33 02 53	Signalling typhoon	Pc.

Fishing Tackles
Equipos de Pesca　釣り道具　救生艇鱼具



Contains hooks, lines and other equipment packed in a watertight container.

33 02 54	Fishing tackle	Set

Survival Manuals
Manuales de Supervivencia
生存する方法を示すマニュアル　救生艇求救信号书



A guidebook for survival at sea to meet the requirement of the SOLAS convention.

33 02 56	Survival manual	Pc.

Instructions for Immediate Action
Instrucciones para Acción Inmediata
迅速な措置の為の指導書　紧急救生筏登筏手册



A guidebook for immediate action aboard a liferaft.

33 02 58	Instruction for immediate action for liferaft	Vol

Waterproof Torches
Linterna (Merse) Bote Salvavidas　水密電気灯　救生艇防水手电筒



For Morse signalling, sealed in a waterproof container.

33 02 61	Torch electric waterproof	Pc.

Seawater Torches
Luz Activada para Agua de Mar
海水電灯　救生艇海水自动灯



Electric torch automatically activated in seawater.

33 02 62	Seawater torch	Pc.

Searchlights
Proyectores　サーチライト　探照灯



Provides illumination for a total period of 6 hours and will remain in operation for at least 3 hours.

33 02 64	Searchlight for lifeboat	Pc.

Daylight Signal Mirrors
Espejos Señales-Heliógrafo
日光信号鏡　救生艇反光镜



For daylight signalling to ships and aircraft.

33 02 71	Daylight signal mirror	Pc.

Lifeboat Ditty Bags
Equipo para Reparaciones de Vela
ライフボート小袋　救生艇针线袋



Consist of a strong waterproof canvas bag containing a sail makers palm, sail needles, sail twine, a marline spike, and beewax.

33 02 76	Lifeboat ditty bag	Pc.

Repair Outfit for Liferaft
Equipo para Reparacióne de Balsas Salvavidas
ラフト用修理用具　救生筏修理用具



For repairing punctures in buoyancy compartments.

33 02 77	Repair outfit for liferaft	Set

Topping up Pumps for Liferaft
(Bellows)
Bomba para inflar Balsa Salvavidas
充気ポンプ　充气泵



For pumping air into a liferaft when reinflation is required.

33 02 79	Topping up pump (Bellows) for liferaft	Pc.

Pumps for Lifeboat
Bombas Bote Salvavidas　手動ポンプ　救生船泵

For bailing water out of the lifeboat.

33 02 80	Manual bilge pump for lifeboat	Pc.

Storm Oil
Aceite para Tormentas　ストーム・オイル　救生艇防浪油

A vegetable oil which is spread on the sea to reduce the crest.

33 02 81	Storm oil, 4 ltr	Tin

Paddles

Canaletes かい 船桨



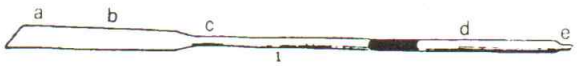
Shall be buoyant and light for easy propulsion of the raft.

33 02 83	Paddles buoyant for liferaft	Pc.

Oars

Remos オール 救生艇桨

Usually made of ash or similar wood. When ordering, please specify the overall length, if possible, also specify the sizes of (a) tip, (b) blade, (c) neck, (d) loom and (e) handle.



33 02 84	Oar buoyant for lifeboat	Pc.

Boat Hooks

Bicheros ボートフック 救生艇杆钩

When ordering, please specify the hook material and the overall length.



33 02 85	Boat hook for lifeboat	Pc.

Lifeboat Rowlocks

(Crutches)

Chumaceras ライフボート クラッチ 桨叉



Made of galvanized malleable iron. When ordering, please specify the size of the opening and the overall length.

33 02 86	Rowlock, lifeboat, length × opening	Pc.

Manually Powered Reverse Osmosis Desalinators

Desalinizador de osmosis inversa de operación manual

手動式海水脱塩装置 手动式海水除盐装置



LSA Code 4.1.5.1.19 requires the watertight receptacles containing a total of 1.5 liters of fresh water for each person the liferaft is permitted to accommodate. Of which either 0.5 liter per person may be replaced by a desalting apparatus capable of producing an equal amount of fresh water in 2 days, or 1 liters per person may be replaced by a manually powered reverse osmosis desalinator capable of producing an equal amount of fresh water in 2 days;

An emergency desalinator, which produces enough water up to 2.0 litres per hour.

* Desalination degree : more than 95%, eliminating bacteria or virus.
* Optimum pump frequency: 40 pumps per minute.
* Weighs only 1.6 kg.

33 02 24	Desalinator, reverse osmosis, manually powered, conformed to LSA Code 4.1.5.1.19	Pc.

Name of Mfr.: Kyumei

Lifeboat Repair Kits

Equipos para Reparación de Bote Salvavidas

ライフボート用補修キット 救生船修补工具箱

Used for lifeboat leakage repair in emergency. Consists of polyester resin, hardener, glass fibre mat, wool roller, etc. The ThistleBond kit is also used for the repair of liferaft containers.



Unit Per Set

CODE	33 02 87	33 02 88	33 02 89
Type	ThistleBond	Standard Set	Plus Abrasive Paper Set
Contents	• 2 set Resin & hardener • 1 sht Glass mat/0.5 m² • 1 sht Surface/ tissue 0.35 m² • 1 rol Cellophane • 1 pc Brush • 2 pcs Stirring tools • 1 sht Emery cloth • 1 pr Polythene gloves • 1 pc Barrier cream • 1 pc Resin removing cream • 1 vol Instruction manual • 1 pc Container	• 1 set Resin & hardener 2.05 kg • 1 btl Poly putty/ 200 grm • 1 can Acetone/ 1 ltr • 1 sht Glass mat/ 2 mtr • 1 pc Wool roller/ 3" • 1 pc Syringe • 1 pc Spatula • 1 vol Instruction manual	• 1 set Resin & hardener 4.1 kg • 1 btl Poly putty/500 grm • 1 sht Glass mat/ 4 mtr • 1 pc Wool roller/3" • 1 sht Sand paper/#100 • 1 sht Sand paper/#180 • 2 sht Silicon paper/#240 • 2 sht Silicon paper/#400 • 1 pc Spatula • 1 can Acetone/1.8 ltr • 1 pc Syringe • 1 vol Instruction manual

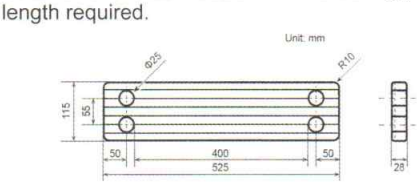
Name of Mfr.: Unique Polymer Systems Ltd.

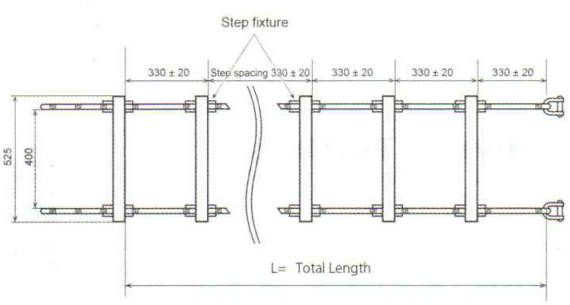
Lifeboat Embarkation Ladders

(Ref. JIS F2617-2012)

Escalas de Botes ライフボート用なわばしご 登乗梯

This lifeboat embarkation ladder conforms to ISO 5489 -2008, SOLAS 1974 & LSA Code. When ordering, please specify the length required.





Specifications	
Length	According to users option but the overall length must be an integral multiple of 330 mm and be enough to ensure safe embarkation from the boat deck even when the ship is at its lightest sea-going draught and is listed 15 degrees to the opposite side.
Material	Steps are hard wood and step fixtures must be secured on both top and bottom of each step. The bottom 4 steps may be made of rubber of sufficient strength and stiffness. Side Rope 22 mm Manila Rope or 22 mm Synthetic fibre rope
Step Size	Length 525 mm, Width 115 mm, Thick 28 mm
Step Space	330 mm ±20
Side Rope Distance	400 mm

33 02 96	Lifeboat embarkation ladder overall length mtrs	Pc.

Liferaft Accessories

Accesorios para Balsa Salvavidas
救命いかだの艤装品　防寒防水救生服

International Life-Saving Appliance (LSA) Code, Regulation Chapter 4.1.5.

CODE	Description	Quantity
33 01 75	Thermal protective aid	Minimum 2 pc. For 25 men capacity, minimum. 3 pc
90	Radar reflector	1 pc.
33 02 02	Buoyant bailer	1 pc.
04	Sponges	2 pcs.
13	Buoyant rescue quoit	1 pc.
33 02 15	Sea anchors	2 pcs.
18	Life-saviing signal	1 copy
26	Food rations. Not less than 10,000 kj/person	For each person
37	Watertight receptacle containing 1.5 ltr of fresh water/person	For each person
42	Rustproof graduated drinking cup	1 pc.
33 02 46	First-aid kit	1 set
47	6 tablets of anti-seasickness medicine(for 48 hours)	For each person
48	1 seasickness bag	For each person
49	Can openers	3 pcs.
50	Knife	1 pc.
33 02 52	Whistle, or equivalent	1 pc.
54	Fishing tackle	1 set
56	Survival manual	1 copy
58	Instructions for immediate action	1 copy
33 02 61	Waterproof electric torch (w/1 spare battery, 1 spare bulb)	1 pc.
71	Daylight signal mirror	1 pc.
77	Repair outfit	1 pc.
79	Topping-up pump (Bellows)	1 pc.
83	Buoyant paddles	2 pcs.
33 03 11	Rocket parachute flares	4 pcs.
14	Hand flares	6 pcs.
31	Buoyant smoke signals	2 pcs.

Note:

1. Thermal protective aids: Shall be equipped for 10 % of the number of persons or 2, whichever is greater.
2. Buoyant bailer: In the case where 13 persons or more are aboard the liferaft, it shall be equipped with an additional buoyant bailer.
3. Knife: In the case where 13 persons or more are aboard the liferaft, it shall be equipped with an additional knife.

Lifeboat Accessories

Accesorios de los botes salvavidas
救命艇の艤装品　救生艇配件

International Life-Saving Appliance (LSA) Code, Regulation Chapter 4.4.8.

CODE	Description	Quantity
33 01 75	Thermal protective aid	10% of the number of persons
90	Radar reflector	1 pc.
33 02 01	Buoyant bailer	1 pc.
03	Hatchets	2 pcs.
09	Buckets	2 pcs.
33 02 10	Rustproof dipper with lanyard	1 pc.
11	Binnacle containing an efficient compass	1 pc.
12	Buoyant rescue quoits	2 pcs.
16	Sea-anchor	1 pc.
18	Life-saving signal	1 copy
33 02 26	Food ration. Not less than 10,000 kj / person	For each person
37	Watertight receptacle containing 3 ltr of fresh water/person	For each person
41	Rustproof graduated drinking vessel	1 pc.
46	First-aid kit	1 Set
47	6 tablets of anti-seasickness medicine(for 48 hours)	For each person
33 02 48	1 seasickness bag	For each person
49	Can openers	3 pcs.
51	Jack-knife	1 pc.
52	Whistle, or equivalent	1 pc.
33 02 54	Fishing tackle	1 set
56	Survival manual	1 copy
61	Waterproof electric torch (w/1 spare battery, 1 spare bulb)	1 pc.
64	Searchlight	1 pc.
71	Daylight signal mirror	1 pc.
33 02 80	Manual pump	1 pc.
84	Buoyant oars with thole pins or crutches	Sufficient
85	Boat-hooks	2 pcs
90	Tools for minor adjustments to the engine	Sufficient
93	Painters	2 pcs
33 03 11	Rocket parachute flares	4 pcs
14	Hand flares	6 pcs
31	Buoyant smoke signals	2 pcs
33 10 01	Portable fire-extinguishing equipment	1 pc.

Note:

1. Thermal protective aids: Shall be equipped for 10 % of the number of persons or 2, whichever is greater.

IMO Symbols, on self adhesive photoluminescent vinyl



33.4100
150x150mm
33.4123
300x300mm



33.4101
150x150mm



33.4102
150x150mm



33.4103
150x150mm



33.4104
150x150mm



33.4105
150x150mm



33.4106
150x150mm



33.4107
150x150mm



33.4108
150x150mm



33.4109
150x150mm



33.4110
150x150mm



33.4111
150x150mm



33.4142
150x150mm



33.4143
150x150mm



33.4112
150x150mm



33.4113
150x150mm



33.4114
150x150mm



33.4115
150x150mm



33.4116
150x150mm



33.4117
150x150mm



33.4118
150x150mm



33.4119
150x150mm
33.4124
300x300mm



33.4120
150x150mm



33.4121
150x150mm



33.4125
150x150mm



33.4126
150x150mm



33.4127
150x150mm



33.4128
150x150mm



33.4129
150x150mm



33.4146
150x150mm



33.4131
150x150mm



33.4134
150x150mm



33.4141
150x150mm



33.4050
150x150mm



33.4051
150x150mm



33.4052
150x150mm



33.4053
150x150mm



33.4054
150x150mm



33.4055
150x150mm



33.4056
150x150mm



33.4057
150x150mm



33.4058
150x150mm



33.4082
150x150mm



33.4059
150x150mm



33.4060
150x150mm



33.4061
150x150mm



33.4080
150x150mm



33.4062
150x150mm



33.4063
150x150mm



33.4064
150x150mm



33.4065
150x150mm



33.4066
150x150mm



33.4067
150x150mm



33.4068
150x150mm



33.4069
150x150mm



33.4070
150x150mm



33.4071
150x150mm



33.4075
150x150mm



33.4076
150x150mm



33.4078
150x150mm



33.4081
150x150mm



33.4150
150x150mm



33.4420
150x150mm



33.4421
150x150mm

IMO Symbols, on self adhesive photoluminescent vinyl



33.5100
150x150mm



33.5101
150x150mm



33.5102
150x150mm



33.5103
150x150mm



33.5104
150x150mm



33.5105
150x150mm



33.5106
150x150mm



33.5107
150x150mm



33.5108
150x150mm



33.5109
150x150mm



33.4210
75x150mm
33.4250
150x300mm



33.4211
75x150mm
33.4251
150x300mm



33.4212
75x150mm
33.4252
150x300mm



33.4213
75x150mm
33.4253
150x300mm



33.4214
75x150mm
33.4254
150x300mm



33.4215
75x150mm
33.4255
150x300mm



33.4200
75x150mm
33.4240
150x300mm



33.4201
75x150mm
33.4241
150x300mm



33.4202
75x150mm
33.4242
150x300mm



33.4203
75x150mm
33.4243
150x300mm



33.4204
75x150mm
33.4244
150x300mm



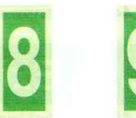
33.4205
75x150mm
33.4245
150x300mm



33.4206
75x150mm
33.4246
150x300mm



33.4207
75x150mm
33.4247
150x300mm



33.4208
75x150mm
33.4248
150x300mm



33.4209
75x150mm
33.4249
150x300mm

Safety Signs, on self adhesive photoluminescent vinyl



33.4170
200x200mm



33.4130
100x300mm



33.4171 300x100mm



33.4172 300x100mm



33.4173 300x100mm



33.4174 300x100mm



33.4175 300x100mm



33.4176 300x100mm



33.4177 300x100mm



33.4178 300x100mm



33.4179 300x100mm



33.4180 300x100mm



33.4181 300x100mm



33.4182 300x100mm



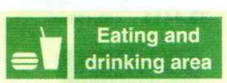
33.4183 300x100mm



33.4184 300x100mm



33.4185 300x100mm



33.4186 300x100mm



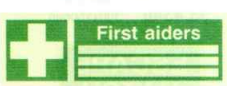
33.4187 300x100mm



33.4188 300x100mm



33.4189 300x100mm



33.4193 300x100mm



33.4132
150x150mm


33.4135
150x150mm



33.4139
150x150mm


33.4152
150x150mm


33.4154
150x150mm


33.4156
150x150mm


33.4427
300x150mm


33.4426
150x75mm



33.4133
150x150mm


33.4137
150x150mm


33.4151
150x150mm


33.4153
150x150mm


33.4155
150x150mm



33.4157
150x150mm


33.4420
150x150mm


33.4421
150x150mm

Direction Signs, on self adhesive photoluminescent vinyl



33.4401 400x150mm



33.4301 300x100mm



33.4331 300x100mm



33.4321 300x100mm



33.4409 400x150mm



33.4309 300x100mm



33.4339 300x100mm



33.4329 300x100mm



33.4402 400x150mm



33.4302 300x100mm



33.4332 300x100mm



33.4322 300x100mm



33.4404 400x150mm



33.4304 300x100mm



33.4334 300x100mm



33.4324 300x100mm



33.4406 400x150mm



33.4306 300x100mm



33.4336 300x100mm



33.4326 300x100mm



33.4403 400x150mm



33.4303 300x100mm



33.4333 300x100mm



33.4323 300x100mm



33.4405 400x150mm



33.4305 300x100mm



33.4335 300x100mm



33.4325 300x100mm



33.4407 400x150mm



33.4307 300x100mm



33.4337 300x100mm



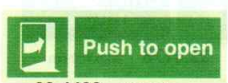
33.4327 300x100mm



33.4410 400x150mm



33.4413 400x150mm



33.4480 300x100mm



33.4481 300x100mm



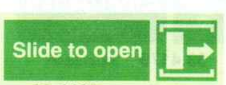
33.4411 400x150mm



33.4341 300x150mm



33.4482 300x100mm



33.4483 300x100mm



33.4340 300x150mm



33.4343 300x150mm



33.4342 300x150mm



33.4345 300x150mm



33.4344 300x150mm



33.4821 400x150mm



33.4824 300x100mm



33.4825 300x100mm

Signs within this shaded area may be combined with the arrows to make direction signs to suit various applications


33.4420 150x150mm


33.4421 150x150mm



33.4415 300x150mm


33.4454 150x150mm


33.4455 150x150mm



33.4417 300x150mm


33.4422 150x150mm


33.4423 150x150mm



33.4424 150x150mm



33.4425 150x150mm


33.4820 150x150mm



33.4100 150x150mm



33.4102 150x150mm



33.4120 150x150mm



33.4119 150x150mm

Photoluminescent Low Location Lighting System

LLL Strips

The simplest option to install the photoluminescent rigid strips, 35 mm, 57 mm, and 83 mm widths, is to reuest from with a self-adhesive backing foam which will allow you to paste them directrly to the wall of the escape route walkways.

33.2332 1000 × 35 mm LLL stips for wall marking
33.2331 1000 × 57 mm LLL stips for wall marking
33.2333 1000 × 83 mm LLL stips for wall marking

Aluminium LLL Carrier

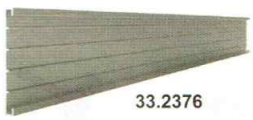
Consisting of an aluminium carrier extrusion with a rigid photoluminescent PVC insert, which provides a quick and easy installation, combined with rugged and durable quality. We can supply in two sizes which offer a 54mm visible width of Class B photoluminescent or 32mm Class C photoluminescent. LLL signs should be used to give direction indication. End caps are available to neatly terminate the extrusion where required.

33.2394 - Angle Aluminium Rail 57 × 2000 mm
33.2395 - End cap Angled Rail 57 mm right
33.2397 - End cap Angled Rail 57 mm left
33.2376 - Aluminium rail for LLL strips 35 × 2000 mm
33.2377 - Plastic 35 mm end cap for aluminium rail
33.2378 - Aluminium rail for LLL strips 57 × 2000 mm
33.2379 - Plastic 57 mm end cap for aluminium rail
33.2388 - Aluminium rail for LLL strips 83 × 2000 mm
33.2392 - Plastic 83 mm end cap for aluminium rail


33.2395


33.2394


33.2377


33.2376

LLL Signage


33.2380
107×57mm


33.2381
107×57mm


33.2384
83×83mm


33.2382
107×57mm


33.2383
107×57mm


33.2385
83×83mm


33.2361
107×57mm


33.2362
107×57mm


33.2363
107×57mm


33.2364
107×57mm



33.2386
57×200mm



33.2387
57×200mm

A range of signs sized to fit the systems above. The signs are printed on transparent, heavy duty vinyl which allows the photoluminescent LLL strip to shine through, highlighting the printed symbol.
The signs are supplied in packs of ten.

Self Adhesive Photoluminescent Tape

Installation

When used as part of a low location lighting system, the installer must ensure that there is sufficient ambient light available to activate the tape to attain the required performance.



Photoluminescent Vinyl Tape
35mm wide×10m 33.2014
83mm wide×10m 33.2018



Photoluminescent Green Diagonal Tape
35mm wide×10m 33.2034
83mm wide×10m 33.2038



Photoluminescent Black Diagonal Tape
35mm wide×10m 33.2044
83mm wide×10m 33.2048



Photoluminescent Red Diagonal Tape
35mm wide×10m 33.2054
83mm wide×10m 33.2058



Photoluminescent Wayfinding Tape
35mm wide×10m 33.2024
83mm wide×10m 33.2028
10 right & 10 left handed decals supplied with each roll.

Photoluminescent Wayfinding Dots



With Arrows
60mm wide×10m 33.2086
100mm wide×10m 33.2088

Without Arrows
60mm wide×10m 33.2096
100mm wide×10m 33.2098

Fire control symbols (A654), on self adhesive photoluminescent vinyl

Regulations:

Resolution A654(16) amending Chapter II - 2, Regulation 20 requires the use of these symbols on fire control plans and booklets as international standard. These symbols are often used to identify actual equipment where no standard sign is available.



Fire control plan
33.6001
150×150mm



Push - button/switch for fire alarm
33.6002
150×150mm



Horn fire alarm
33.6003
150×150mm



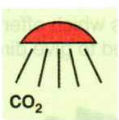
Bell fire alarm
33.6004
150×150mm



Manually operated call point
33.6005
150×150mm



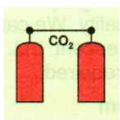
Space protected by automatic fire alarm
33.6006
150×150mm



Space protected by CO2
33.6007
150×150mm



CO2 horn
33.6008
150×150mm



CO2 release station
33.6009
150×150mm



Halon 1301 battery
33.6010
150×150mm



Space protected by halon 1301
33.6011
150×150mm



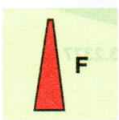
Halon horn
33.6012
150×150mm



Foam installation
33.6013
150×150mm



Foam monitor (gun)
33.6014
150×150mm



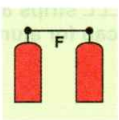
Foan nozzle
33.6015
150×150mm



Space protected by Foam
33.6016
150×150mm



Foam valve
33.6017
150×150mm



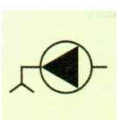
Foam release station
33.6018
150×150mm



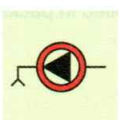
Emergency fire pump
33.6019
150×150mm



Remote controlled p/p or em switches
33.6020
150×150mm



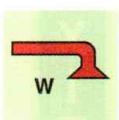
Bilge pump
33.6021
150×150mm



Emegency bilge pump
33.6022
150×150mm



Water monitor (gun)
33.6023
150×150mm



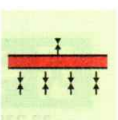
Water fog applicator
33.6024
150×150mm



Emergency telephone station
33.6025
150×150mm



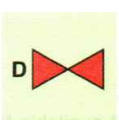
Fire axe
33.6026
150×150mm



Drenching installation
33.6027
150×150mm



Space protected by drenching installation
33.6028
150×150mm



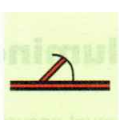
Section valves drenching
33.6029
150×150mm



Fire station
33.6030
150×150mm



'A' class division
33.6031
150×150mm



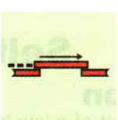
'A' class fire door
33.6032
150×150mm



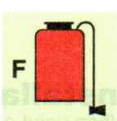
'A' class fire door self-closing
33.6033
150×150mm



'A' class sliding fire door
33.6034
150×150mm



'A' class sliding fire door self-closing
33.6035
150×150mm



Potable Foam application
33.6036
150×150mm



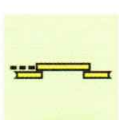
'B' class division
33.6037
150×150mm



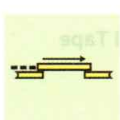
'B' class fire door
33.6038
150×150mm



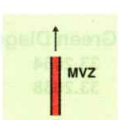
'B' class fire door self-closing
33.6039
150×150mm



'B' class sliding fire door
33.6040
150×150mm



'B' class sliding fire door self-closing
33.6041
150×150mm



Main vertical zone
33.6042
150×150mm



Fire alarm panel
33.6043
150×150mm



Sprinkler installation
33.6044
150×150mm

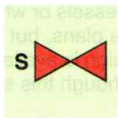
Fire control symbols (A654), on self adhesive photoluminescent vinyl



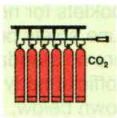
Space protected by sprinkler
33.6045
150×150mm



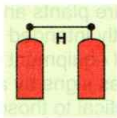
Splinkler horn
33.6046
150×150mm



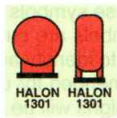
Sprinkler section valve
33.6047
150×150mm



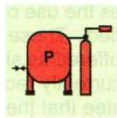
CO2 battery
33.6048
150×150mm



Halon release station
33.6049
150×150mm



Halon 1301 bottles in a protected area
33.6050
150×150mm



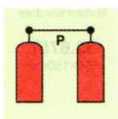
Powder installation
33.6051
150×150mm



Powder monitor (gun)
33.6052
150×150mm



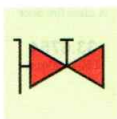
Powder hose and hand gun
33.6053
150×150mm



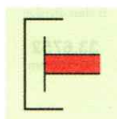
Powder release station
33.6054
150×150mm

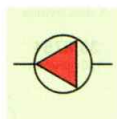

Flame detector
33.6055
150×150mm


Smoke detector
33.6056
150×150mm

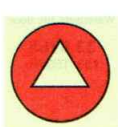

Fire main with valves
33.6057
150×150mm

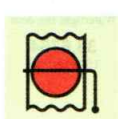

Hose box with spray/jet
33.6058
150×150mm

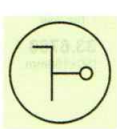

International shore connection
33.6059
150×150mm

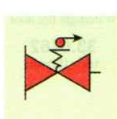

Fire pump
33.6060
150×150mm


Heat detector
33.6061
150×150mm


Gas detector
33.6062
150×150mm


Fire damper in vent duct
33.6063
150×150mm


Remote controlled skylights
33.6064
150×150mm


Remote controlled fuel/ lubricating oil valves
33.6065
150×150mm



Control station
33.6066
150×150mm



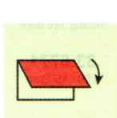
Locker with fireman's outfit
33.6067
150×150mm


Locker with additional breathing apparatus
33.6068
150×150mm


Locker with additional protective clothing
33.6069
150×150mm


Primary means of escpe
33.6070
150×150mm

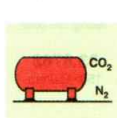

Secondary means of escape
33.6071
150×150mm


Closing applicance for exterior vent in/out
33.6072
150×150mm



Inert gs installation
33.6073
150×150mm

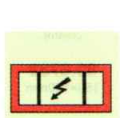

High expansion Foam supply tank
33.6074
150×150mm



CO2/Nitrogen bulk installation
33.6075
150×150mm



Emergency generator
33.6076
150×150mm


Emergency switchboard
33.6077
150×150mm


Remote ventilation shut-off
33.6078
150×150mm



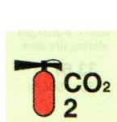
6 kg Powder fire extinguisher
33.6079
150×150mm



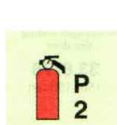
91 Foam fire extinguisher
33.6080
150×150mm



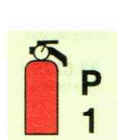
4kg Halon 1211 fire extinguisher
33.6081
150×150mm



2kg CO2 fire extinguisher
33.6082
150×150mm



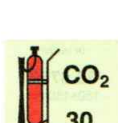
2kg Powder fire extinguisher
33.6083
150×150mm



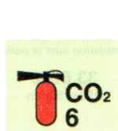
1kg Powder fire extinguisher
33.6084
150×150mm



50kg Wheeled Powder fire extinguisher
33.6085
150×150mm



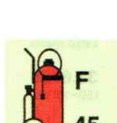
30kg Wheeled CO2 fire extinguisher
33.6086
150×150mm



6kg CO2 fire extinguisher
33.6087
150×150mm



9kg Powder fire extinguisher
33.6088
150×150mm



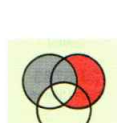
451 wheeled Foam fire extinguisher
33.6089
150×150mm



5kg Powder fire extinguisher
33.6090
150×150mm



91 Foam fire extinguisher
33.6091
150×150mm


Extinguisher spare charges
33.6715
150×150mm

Fire control symbols (ISO 17631), on self adhesive photoluminescent vinyl

Regulations:

ISO 17631 requires the use of these symbols on fire plants and booklets for new vessels or where existing fire plans have been significantly modified. These symbols are currently intended for use solely on fire plans, but in response to requests from the industry they are offered as signs to identify actual equipment where no standard sign is available. Purchasers should be aware that they are not currently recommended for use as signs by any official body. Although this situation may change if the future, there is no guarantee that the designs will be identical to those shown below.

A class division

33.6751
150×150mm

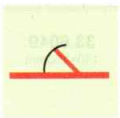
B class division

33.6752
150×150mm



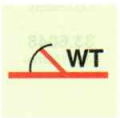
Main vertical zone division

33.6753
150×150mm



A class fire door

33.6754
150×150mm



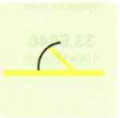
A class Watertight fire door

33.6755
150×150mm



A class semi - Watertight fire door

33.6756
150×150mm



B class fire door

33.6757
150×150mm



B class Watrtight fire door

33.6758
150×150mm



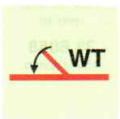
B class semi - Watertight fire door

33.6759
150×150mm



A class self closing fire door

33.6760
150×150mm



A clss self closing Watertight fire door

33.6761
150×150mm



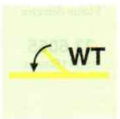
A class self closing semi - Watertight fire door

33.6762
150×150mm



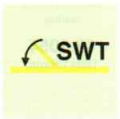
B class self closing fire door

33.6763
150×150mm



B class self closing Watertight fire door

33.6764
150×150mm



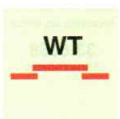
B class self closing semi - Watertight fire door

33.6765
150×150mm



A class sliding fire door

33.6766
150×150mm



A class Watertight sliding fire door

33.6767
150×150mm



A class semi - Watertight sliding fire door

33.6768
150×150mm

B class sliding fire door

33.6769
150×150mm



B class Watertight sliding fire door

33.6770
150×150mm



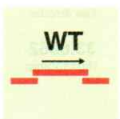
B class semi - Watertight sliding fire door

33.6771
150×150mm



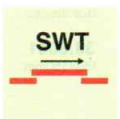
A class self closing sliding fire door

33.6772
150×150mm



A class self closing Watertight sliding fire door

33.6773
150×150mm



A class self closing semi - Watertight sliding fire door

33.6774
150×150mm

B class self closing sliding fire door

33.6775
150×150mm



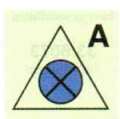
B class self closing Watertight sliding fire door

33.6776
150×150mm



B class self closing semi - Watertight sliding fire door

33.6777
150×150mm



Remote ventilation shut-off for the accomodation

33.6778
150×150mm



Remove ventilation shut-off for machinery spaces

33.6779
150×150mm



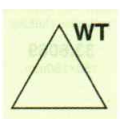
Remote ventilation shut-off for cargo spaces

33.6780
150×150mm



Skylight remote control

33.6781
150×150mm



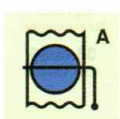
Watertight door remote control

33.6782
150×150mm



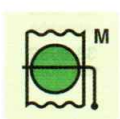
Fire door remote control

33.6783
150×150mm



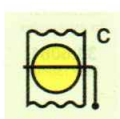
Fire damper for accommodation and service spaces

33.6784
150×150mm



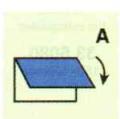
Fire damper for machinery spaces

33.6785
150×150mm



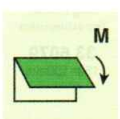
Fire damper for cargo spaces

33.6786
150×150mm



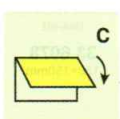
Closing device for the accommodation ventilation inlet or outlet

33.6787
150×150mm



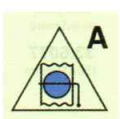
Closing device for machinery spaces ventilation inlet or outlet

33.6788
150×150mm



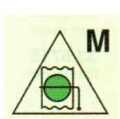
Closing device for cargo spaces ventilation inlet or outlet

33.6789
150×150mm



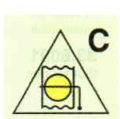
Remove control for fire dampers for accommodation

33.6790
150×150mm



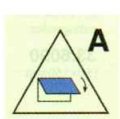
Remote control for fire dampers for machinery spaces

33.6791
150×150mm



Remote control for fire dampers for cargo spaces

33.6792
150×150mm



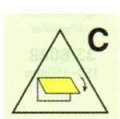
Remote control for closing devices for accommodation

33.6793
150×150mm



Remote control for closing devices for machineery spaces

33.6794
150×150mm



Remote control for closing devices for cargo spaces

33.6795
150×150mm



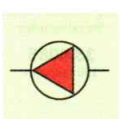
Fire plans and associated plans

33.6001
150×150mm



Remote control for fire pump

33.6797
150×150mm



Fire pump

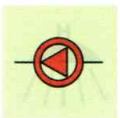
33.6060
150×150mm

Fire control symbols (ISO 17631), on self adhesive photoluminescent vinyl



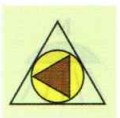
Remote control for emergency fire pump

33.6799
150×150mm



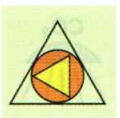
Emergency fire pump

33.6019
150×150mm



Fuel pumps remote shut - off

33.6801
150×150mm



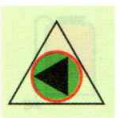
Lub oil pumps remote shut - off

33.6802
150×150mm



Bilge pump remote control

33.6803
150×150mm



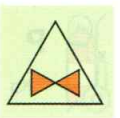
Emergency bilge pump remote control

33.6804
150×150mm



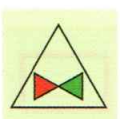
Fuel oil valves remote control

33.6805
150×150mm



Lub oil valves remote control

33.6806
150×150mm



Fire pump vales remote control

33.6807
150×150mm



Remote release station for CO2

33.6808
150×150mm



Remote release station for Nitrogen

33.6809
150×150mm



Remote release statioon for Halon equivalent

33.6810
150×150mm



Remote release sttion for Foam

33.6811
150×150mm



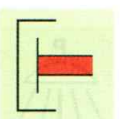
Remote release station for Powder

33.6812
150×150mm



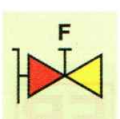
Remote release station for Water

33.6813
150×150mm



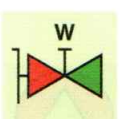
International shore connection

33.6059
150×150mm



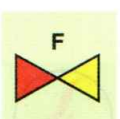
Foam hydrant

33.6879
150×150mm



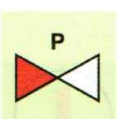
Fire hydrant

33.6815
150×150mm



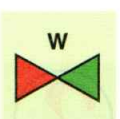
Foam section valve

33.6816
150×150mm



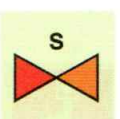
Powder section valve

33.6817
150×150mm



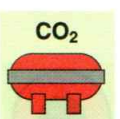
Fire main section valve

33.6818
150×150mm



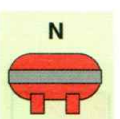
Sprinkler section valve

33.6819
150×150mm



Fixed CO2 fire extinguishing installation

33.6820
150×150mm



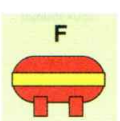
Fixed nitrogen fire extinguishing installation

33.6821
150×150mm



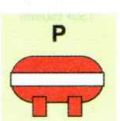
Fixed Halon equivalent fire extinguishing installation

33.6822
150×150mm



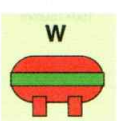
Fixed Foam fire extinguishing installation

33.6823
150×150mm



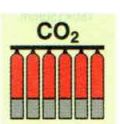
Fixed Powder fire extinguishing installation

33.6824
150×150mm



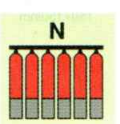
Fixed Water fire extinguishing installation

33.6825
150×150mm



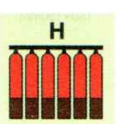
Fixed CO2 fire extinguishing battery

33.6826
150×150mm



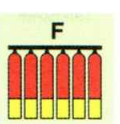
Fixed Nitrogen fire extinguishing battery

33.6827
150×150mm



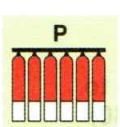
Fixed Halon equivalent fire extinguishing battery

33.6828
150×150mm



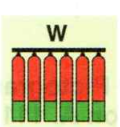
Fixed Foam fire extinguishing battery

33.6829
150×150mm



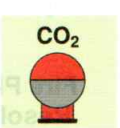
Fixed Powder fire extinguishing battery

33.6830
150×150mm



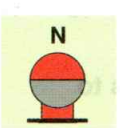
Fixed Water fire extinguishing battery

33.6831
150×150mm



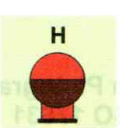
Fixed CO2 fire extinguishing bottle in protected area

33.6832
150×150mm



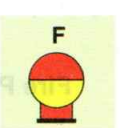
Fixed Nitrogen fire extinguishing bottle in protected area

33.6833
150×150mm



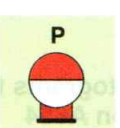
Fixed Halon equivalent fire extinguishing bottle in protected area

33.6834
150×150mm



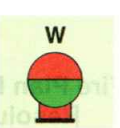
Fixed Foam fire extinguishing bottle in protected area

33.6835
150×150mm



Fixed Powder fire extinguishing bottle in protected area

33.6836
150×150mm



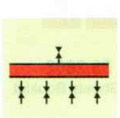
Fixed Water fire extinguishing bottle in protected area

33.6837
150×150mm



High expansion Foam supply tank

33.6838
150×150mm



Water spray system valves

33.6027
150×150mm



Inert gas installation

33.6073
150×150mm



Foam monitor

33.6841
150×150mm



Powder monitor

33.6842
150×150mm



Water monitor

33.6843
150×150mm



Foam fire hose and nozzle

33.6844
150×150mm



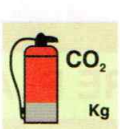
Powder fire hose and nozzle

33.6845
150×150mm



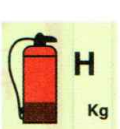
Water fire hose and nozzle

33.6846
150×150mm



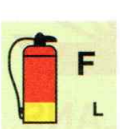
CO2 fire extinguisher

33.6847
150×150mm



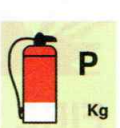
Halon fire extinguisher

33.6848
150×150mm



Foam fire extinguisher

33.6849
150×150mm



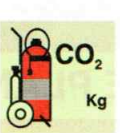
Powder fire extinguisher

33.6850
150×150mm



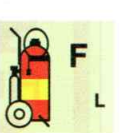
Water fire extinguisher

33.6851
150×150mm



CO2 wheeled fire extinguisher

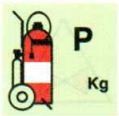
33.6852
150×150mm



Foam wheeled fire extinguisher

33.6854
150×150mm

Fire control symbols (ISO 17631), on self adhesive photoluminescent vinyl



Powder wheeled fire extinguisher

33.6855
150×150mm



Water wheeled fire extinguisher

33.6856
150×150mm



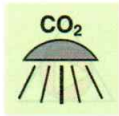
Portable Foam applicator unit

33.6857
150×150mm



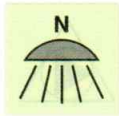
Fire fighters outfit Locker

33.6858
150×150mm



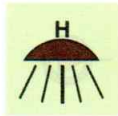
Space protected by CO2 fire extinguishing system

33.6859
150×150mm



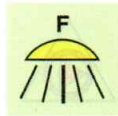
Space protected by Nitrogen fire extinguishing system

33.6877
150×150mm



Space protected by halon equivalent fire extinguishing system

33.6860
150×150mm



Space protected by Foam fire extinguishing system

33.6861
150×150mm



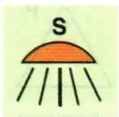
Space protected by Powder fire extinguishing system

33.6862
150×150mm



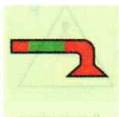
Space protected by Water fire extiguishing system

33.6863
150×150mm



Space protected by sprinkler system

33.6864
150×150mm



Water for applictor

33.6865
150×150mm



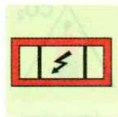
Emeregency source of electrical power (generator)

33.6076
150×150mm



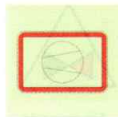
Emergency source of electrical power (battery)

33.6867
150×150mm



Emergency switch board

33.6077
150×150mm



Breathing device air compressor

33.6869
150×150mm



Fire alarm control panel

33.6043
150×150mm



Push - button/switch for fire alarm

33.6002
150×150mm



Manually operated call point

33.6872
150×150mm



Space protected by smoke detector(s)

33.6056
150×150mm



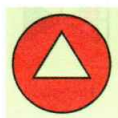
Space protected by heat detector(s)

33.6061
150×150mm



Space protected by flame detector(s)

33.6875
150×150mm



Space protected by gas detector(s)

33.6876
150×150mm



Fire Blanket

33.6878
150×150mm

33

Safety Equipment

Fire Control & Life Saving Appliance Plan Modification

Each 10mm square printed on self adhesive gloss paper for updating fire plans.

Fire Plan Pictograms to Resolution A654

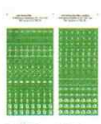


33.2600
A5 Sheets Booklet

Fire Plan Pictograms to ISO 17631

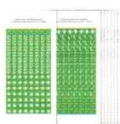


33.2603
A5 Sheets Booklet



33.2604
A5 Sheets Booklet

Fire Plan Pictograms to Resolution A. 1116(30)



33.2601
A5 Sheets Booklet



33.2602
A5 Sheets Booklet



33.2607
A5 Sheets Booklet



33.6093
400×300mm



33.6092
400×300mm



33.6094
400×300mm

Fire-fighting Equipment Signs


33.6100
150×150mm
33.2365
57×57mm


33.6101
150×150mm
33.2367
57×57mm


33.6102
150×150mm
33.2366
57×57mm


33.6103
150×150mm


33.6104
150×150mm


33.6105
150×150mm


33.6106
150×150mm


33.6107
150×150mm


33.6108
150×150mm
33.2368
57×57mm


33.6109
150×150mm


33.6110
150×150mm


33.6111
150×150mm


33.6112
150×150mm


33.6113
150×150mm


33.6114
150×150mm


33.6115
150×150mm


33.6116
150×150mm


33.6117
150×150mm


33.6118
150×150mm


33.6119
150×150mm


33.6125
150×150mm


33.6210
150×150mm
33.6260
200×200mm


33.6211
150×150mm
33.6261
200×200mm

Fire-fighting Equipment signs with Supplementary Text



33.6120
150×200mm



33.6121
150×200mm



33.6122
150×200mm



33.6123
150×200mm



33.6124
150×200mm



33.6436
150×200mm



33.6437
150×200mm



33.6438
150×200mm



33.6439
150×200mm



33.6440
150×200mm



33.6441
150×200mm


33.6200
75×150mm
33.6250
150×300mm


33.6201
75×150mm
33.6251
150×300mm


33.6202
75×150mm
33.6252
150×300mm


33.6203
75×150mm
33.6253
150×300mm


33.6204
75×150mm
33.6254
150×300mm


33.6205
75×150mm
33.6255
150×300mm


33.6206
75×150mm
33.6256
150×300mm


33.6207
75×150mm
33.6257
150×300mm


33.6208
75×150mm
33.6258
150×300mm


33.6209
75×150mm
33.6259
150×300mm

Fire Extinguishing Agent ID Supplementary Signs



33.6126
75×150mm



33.6127
75×150mm



33.6128
75×150mm



33.6129
75×150mm



33.6130
75×150mm



33.6131
75×150mm



33.6132
75×150mm



33.6133
75×150mm



33.6134
75×150mm



33.6135
75×150mm



33.6136
75×150mm



33.6137
75×150mm



33.6138
75×150mm



33.6139
75×150mm



33.6187
75×150mm



33.6188
75×150mm

Fire Equipment Signs with Supplementary Extinguishing Agent ID Signs



33.6450
200×150mm
33.2372
75×57mm



33.6451
200×150mm



33.6452
200×150mm



33.6453
200×150mm



33.6454
200×150mm
33.2371
75×57mm



33.6455
200×150mm



33.6456
200×150mm



33.6457
200×150mm
33.2369
75×57mm



33.6458
200×150mm



33.6459
200×150mm



33.6460
200×150mm



33.6461
200×150mm



33.6462
200×150mm



33.6463
200×150mm



33.6464
200×150mm



33.6465
200×150mm



33.6466
200×150mm



33.6467
200×150mm



33.6468
200×150mm



33.6469
200×150mm



33.6470
200×150mm



33.6471
200×150mm



33.6472
200×150mm



33.6473
200×150mm



33.6474
200×150mm
33.2370
75×57mm



33.6475
200×150mm



33.6476
200×150mm



33.6477
200×150mm



33.6478
200×150mm



33.6479
200×150mm



33.6480
200×150mm



33.6481
200×150mm



33.6482
200×150mm



33.6483
200×150mm



33.6484
200×150mm



33.6485
200×150mm



33.6486
200×150mm



33.6487
200×150mm



33.6488
200×150mm



33.6489
200×150mm



33.6490
200×150mm



33.6491
200×150mm



33.6492
200×150mm



33.6493
200×150mm



33.6494
200×150mm



33.6495
200×150mm



33.6496
200×150mm



33.6497
200×150mm



33.6498
200×150mm



33.6499
200×150mm



33.6511
200×150mm



33.6512
200×150mm



33.6513
200×150mm



33.6514
200×150mm



33.6515
200×150mm



33.6516
200×150mm



33.6517
200×150mm



33.6518
200×150mm



33.6519
200×150mm



33.6520
200×150mm



33.6521
200×150mm



33.6522
200×150mm

Fire-fighting Equipment Signs with Supplementary Text



33.6140
300×100mm



33.6141
300×100mm



33.6142
300×100mm



33.6143
300×100mm



33.6144
300×100mm



33.6145
300×100mm



33.6146
300×100mm



33.6147
300×100mm



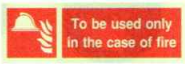
33.6148
300×100mm



33.6149
300×100mm



33.6150
300×100mm



33.6151
300×100mm



33.6152
300×100mm



33.6153
300×100mm



33.6154
300×100mm



33.6155
300×100mm



33.6157
300×100mm



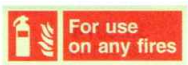
33.6158
300×100mm



33.6159
300×100mm



33.6160
300×100mm



33.6163
300×100mm



33.6164
300×100mm



33.6165
300×100mm



33.6166
300×100mm



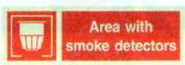
33.6167
300×100mm



33.6168
300×100mm



33.6169
300×100mm



33.6170
300×100mm



33.6171
300×100mm



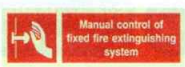
33.6172
300×100mm



33.6173
300×100mm



33.6174
300×100mm



33.6175
300×100mm



33.6176
300×100mm



33.6177
300×100mm



33.6178
300×100mm



33.6179
300×100mm



33.6180
300×100mm



33.6181
300×100mm



33.6182
300×100mm



33.6183
300×100mm



33.6184
300×100mm



33.6185
300×100mm



33.6186
300×100mm



33.6189
300×100mm



33.6430
75×200mm



33.6431
75×200mm



33.6432
75×200mm



33.6433
75×200mm



33.6434
75×200mm



33.6435
75×200mm



33.6300
150×200mm



33.2702
100×150mm



33.6301
100×300mm

Panoramic Fire Signs



33.6500
300×300mm



33.6501
150×150mm



33.6502
200×300mm



33.6503
150×150mm



33.6504
200×300mm



33.6505
200×150mm



33.6506
200×300mm



33.6507
150×150mm

Mandatory Signs, on self adhesive photoluminescent vinyl



33.5641
150×150mm



33.5642
150×150mm



33.5643
150×150mm



33.5644
150×150mm



33.5645
150×150mm



33.5646
150×150mm



33.5647
150×150mm



33.5648
150×150mm



33.5649
150×150mm



33.5650
150×150mm



33.5651
150×150mm



33.5652
150×150mm



33.5653
150×150mm



33.5654
150×150mm



33.5655
150×150mm



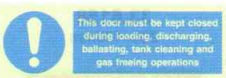
33.5656
150×150mm



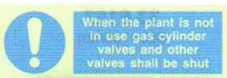
33.5870
300×100mm



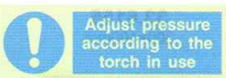
33.5871
300×100mm



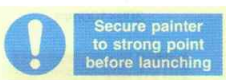
33.5872
300×100mm



33.5873
300×100mm



33.5874
300×100mm



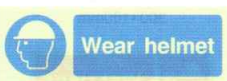
33.5875
300×100mm



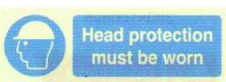
33.5876
300×100mm



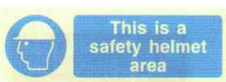
33.5837
300×100mm



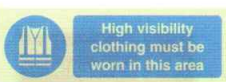
33.5709
300×100mm



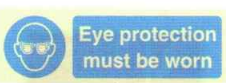
33.5710
300×100mm



33.5733
300×100mm



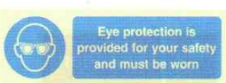
33.5782
300×100mm



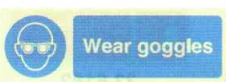
33.5712
300×100mm



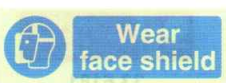
33.5734
300×100mm



33.5730
300×100mm



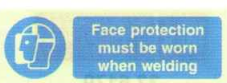
33.5715
300×100mm



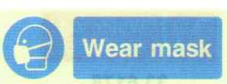
33.5716
300×100mm



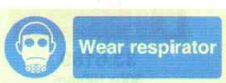
33.5732
300×100mm



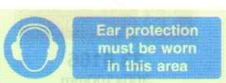
33.5735
300×100mm



33.5719
300×100mm



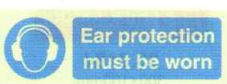
33.5731
300×100mm



33.5721
300×100mm



33.5722
300×100mm



33.5723
300×100mm



33.5724
300×100mm



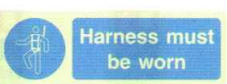
33.5725
300×100mm



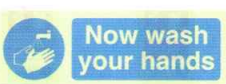
33.5726
300×100mm



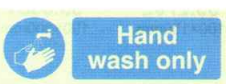
33.5727
300×100mm



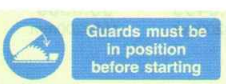
33.5743
300×100mm



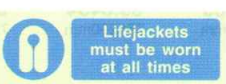
33.5728
300×100mm



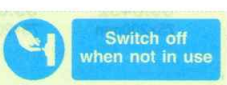
33.5737
300×100mm



33.5729
300×100mm



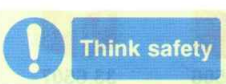
33.5742
300×100mm



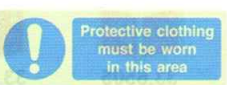
33.5744
300×100mm



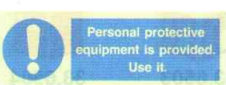
33.5838
300×100mm



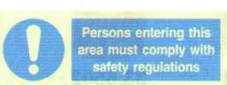
33.5675
300×100mm



33.5677
300×100mm

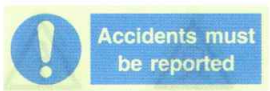


33.5678
300×100mm

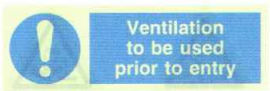


33.5679
300×100mm

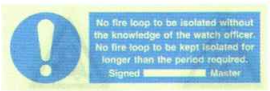
Mandatory Signs, on self adhesive photoluminescent vinyl



33.5851
300×100mm



33.5852
300×100mm



33.5853
300×100mm



33.5854
300×100mm



33.5830
400×150mm



33.5831
400×150mm



33.5800
150×150mm



33.5801
150×150mm



33.5802
150×150mm



33.5803
150×150mm



33.5804
150×150mm



33.5805
150×150mm



33.5806
150×150mm



33.5807
150×150mm



33.5808
150×150mm



33.5809
150×150mm



33.5811
150×150mm



33.5812
150×150mm



33.5814
150×150mm



33.5815
150×150mm



33.5816
150×150mm



33.5817
150×150mm



33.5818
150×150mm



33.5819
150×150mm



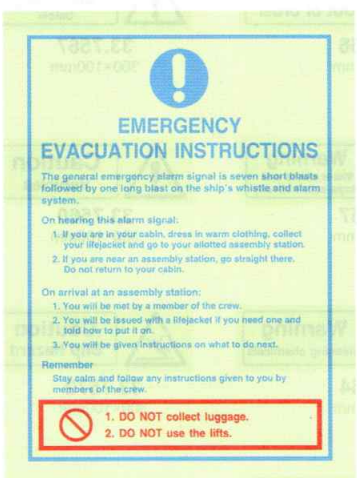
33.5820
150×150mm



33.5821
150×150mm



33.5822
150×150mm



33.5900
200×300mm



33.5901
200×300mm



33.5110
200×150mm



33.5111
200×150mm



33.5902
150×200mm



33.5903
150×200mm



33.5112
200×150mm

Hazard Signs, on self adhesive photoluminescent vinyl


33.7500
150×150mm


33.7501
150×150mm


33.7502
150×150mm


33.7503
150×150mm


33.7504
150×150mm


33.7505
150×150mm


33.7506
150×150mm


33.7507
150×150mm


33.7508
150×150mm


33.7509
150×150mm


33.7510
150×150mm


33.7511
150×150mm


33.7514
150×150mm


33.7515
150×150mm

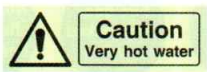

33.7516
150×150mm



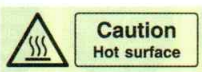
33.7578
300×100mm



33.7569
300×100mm



33.7577
300×100mm



33.7579
300×100mm



33.7540
300×100mm



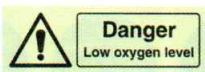
33.7541
300×100mm



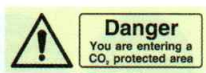
33.7542
300×100mm



33.7543
300×100mm



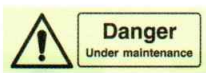
33.7544
300×100mm



33.7545
300×100mm



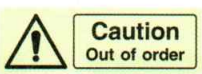
33.7546
300×100mm



33.7547
300×100mm



33.7548
300×100mm



33.7566
300×100mm



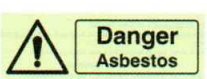
33.7567
300×100mm



33.7549
300×100mm



33.7551
300×100mm



33.7554
300×100mm



33.7557
300×100mm



33.7560
300×100mm



33.7561
300×100mm



33.7643
300×100mm



33.7624
300×100mm



33.7664
300×100mm



33.7572
300×100mm



33.7573
300×100mm



33.7574
300×100mm



33.7570
300×100mm



33.7571
300×100mm



33.7580
300×100mm



33.7581
300×100mm



33.7582
300×100mm



33.7583
300×100mm



33.7584
300×100mm



33.7585
300×100mm



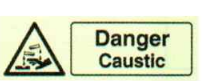
33.7590
300×100mm



33.7591
300×100mm



33.7596
300×100mm



33.7597
300×100mm



33.7555
300×100mm

Hazard Signs, on self adhesive photoluminescent vinyl



33.7600
300×100mm



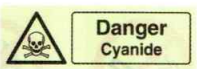
33.7601
300×100mm



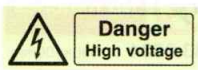
33.7604
300×100mm



33.7605
300×100mm



33.7586
300×100mm



33.7610
300×100mm



33.7611
300×100mm



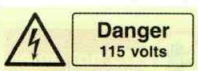
33.7613
300×100mm



33.7587
300×100mm



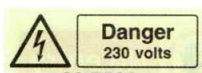
33.7619
300×100mm



33.7618
300×100mm



33.7617
300×100mm



33.7588
300×100mm



33.7616
300×100mm



33.7615
300×100mm



33.7614
300×100mm



33.7625
300×100mm



33.7626
300×100mm



33.7627
300×100mm



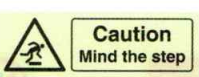
33.7628
300×100mm



33.7620
300×100mm



33.7550
300×100mm



33.7623
300×100mm



33.7629
300×100mm



33.7631
300×100mm



33.7635
300×100mm



33.7630
300×100mm



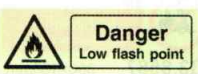
33.7632
300×100mm



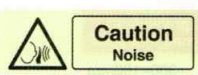
33.7633
300×100mm



33.7634
300×100mm



33.7636
300×100mm



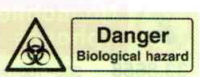
33.7650
300×100mm



33.7660
300×100mm



33.7670
300×100mm



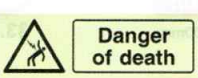
33.7680
300×100mm



33.7681
300×100mm



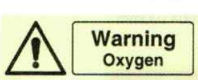
33.7673
300×100mm



33.7668
300×100mm



33.7000
300×100mm



33.7700
300×100mm



33.7701
300×100mm

Push



33.2761
73×200mm

Pull



33.2762
73×200mm

Pull



33.2763
73×200mm

Push



33.2760
73×200mm

Prohibition Signs, on self adhesive photoluminescent or white vinyl



33.8500
150×150mm



33.8501
150×150mm



33.8502
150×150mm



33.8503
150×150mm



33.8504
150×150mm



33.8505
150×150mm



33.8506
150×150mm



33.8508
150×150mm



33.8509
150×150mm



33.8510
150×150mm



33.8511
150×150mm



33.8530 300×100mm



33.8531 300×100mm



33.8532 300×100mm



33.8533 300×100mm



33.8575 300×100mm



33.8534 300×100mm



33.8536 300×100mm



33.8537 300×100mm



33.8539 300×100mm



33.8540 300×100mm



33.8541 300×100mm



33.8542 300×100mm



33.8544 300×100mm



33.8545 300×100mm



33.8546 300×100mm



33.8549 300×100mm



33.8547 300×100mm



33.8559 300×100mm



33.8690 300×100mm



33.8691 300×100mm



33.8557 300×100mm



33.8684 300×100mm



33.8548 300×100mm



33.8550 300×100mm



33.8553 300×100mm



33.8563 300×100mm



33.8658 300×100mm



33.8570 300×100mm



33.8585 300×100mm



33.8587 300×100mm



33.8551 300×100mm



33.8552 300×100mm



33.8576 300×100mm



33.8543 300×100mm



33.8555 300×100mm



33.8556 300×100mm



33.8560 300×100mm



33.8561 300×100mm



33.8565 300×100mm



33.8567 300×100mm



33.8522
300×200mm



33.8526
300×200mm



33.8568 300×100mm



33.8569 300×100mm

Combination Signs, on self adhesive white vinyl



33.3122
300×300mm



33.3128
300×300mm



33.3129
300×300mm



33.3136
300×300mm



33.3137
300×300mm



33.3111
300×300mm



33.3123
300×300mm



33.3125
300×300mm



33.3126
300×300mm



33.3141
300×300mm



33.3127
300×300mm



33.3135
300×300mm



33.3108
300×300mm



33.3124
300×300mm



33.3139
300×300mm



33.3138
300×400mm

Combination Signs, on self adhesive white vinyl



33.3100
300×200mm



33.3101
300×200mm



33.3102
300×200mm



33.3103
300×200mm



33.3109
300×200mm



33.3112
300×200mm



33.3116
300×200mm



33.3117
300×200mm



33.3118
300×200mm



33.3115
300×200mm



33.3114
300×200mm



33.3113
300×200mm



33.3106
300×200mm



33.3107
300×200mm



33.3014
600×900mm



33.3104
300×200mm



33.3119
300×200mm



33.3120
300×200mm



33.3110
300×200mm



33.3105
300×200mm

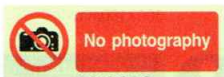
ISPS Code Signs & Security Signs



33.8690
300×100mm



33.8691
300×100mm



33.8692
300×100mm



33.5824
300×100mm



33.5825
300×100mm



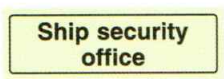
33.5855
300×100mm



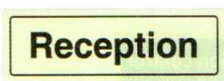
33.2924
300×300mm



33.2894
300×300mm



33.2895
300×100mm



33.2907
300×100mm



33.2909
300×100mm



33.2532
75×150mm



33.2540
75×150mm

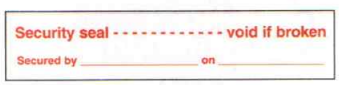
Sold in packs of 10 complete with wired 'twists' for fixing.



33.8695 500×250mm
33.8696 300×200mm
Conforming to ABS requirements



33.2703
200×180mm
Rigid PVC sign with printed insert that can be oriented to show one of three security levels through a window in the front face.



33.2700
150×300mm
Security seal manufactured from a special plastic which tears when attempts to peel it off are made. Ideal for securing bonds etc. Sold in sheets of 10.



33.2890
25×50mm



33.2891
25×50mm



33.2892
25×50mm



33.2893
25×50mm

These signs can be placed beside the lock on a door to indicate the correct status at specifi c security levels. Sold only in sheets of 10.



33.2896
200×300mm



33.2889
150×150mm



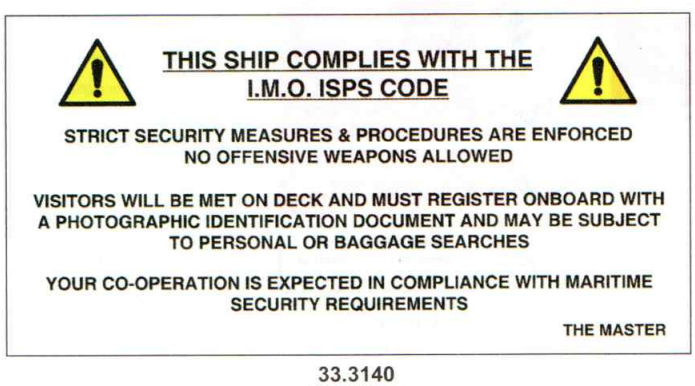
33.2974
150×150mm



33.3138
300×400mm



33.3139
300×300mm



33.3140
900×450mm

Regulations:

ISPS Code Part B Section 9 requires the identification of restricted areas, access notices and forms of declaration. Part B 16.23 also requires that port facilities show similar identification.

ISPS Code 2003 edition SOLAS amendments came into force in July 2004 and require certain areas to have restricted access and be identified as such.

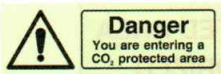


33.2419
150×150mm

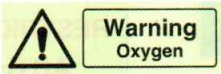
Deck and Engine Room Signs



33.7541
300×100mm



33.7545
300×100mm



33.7700
300×100mm



33.7701
300×100mm



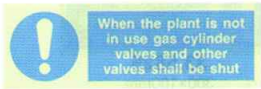
33.7578
300×100mm



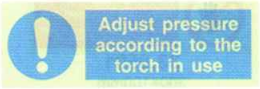
33.5876
300×100mm



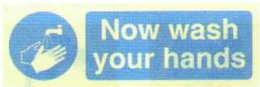
33.5881
300×100mm



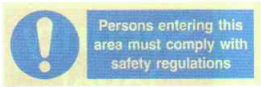
33.5873
300×100mm



33.5874
300×100mm



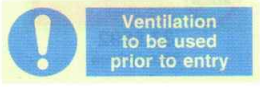
33.5728
300×100mm



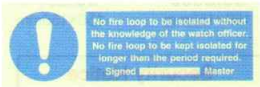
33.5679
300×100mm



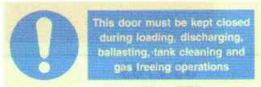
33.5851
300×100mm



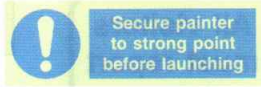
33.5852
300×100mm



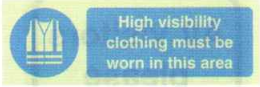
33.5853
300×100mm



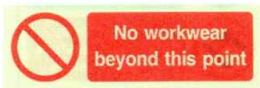
33.5872
300×100mm



33.5875
300×100mm



33.5782
300×100mm



33.8574
300×100mm



33.8530
300×100mm



33.8539
300×100mm



33.8565
300×100mm



33.8546
300×100mm



33.8547
300×100mm



33.4180
300×100mm



33.4185
300×100mm



33.4181
300×100mm



33.3116
300×200mm



33.3110
300×200mm



33.3014
600×900mm

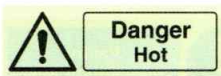


33.5902
150×200mm



33.3103
300×200mm

Galley Signs



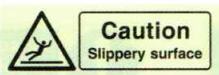
33.7569
300×100mm



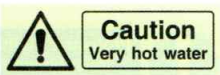
33.7572
300×100mm



33.7573
300×100mm



33.7574
300×100mm



33.7577
300×100mm



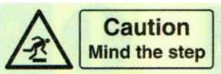
33.7579
300×100mm



33.7598
300×100mm



33.7611
300×100mm



33.7623
300×100mm



33.7664
300×100mm



33.5690
300×100mm



33.5691
300×100mm



33.5692
300×100mm



33.5693
300×100mm



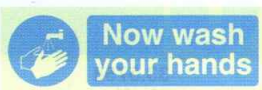
33.5694
300×100mm



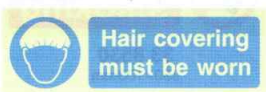
33.5695
300×100mm



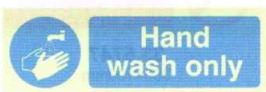
33.5696
300×100mm



33.5728
300×100mm



33.5736
300×100mm



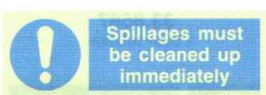
33.5737
300×100mm



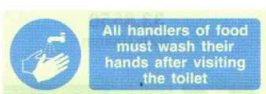
33.5738
300×100mm



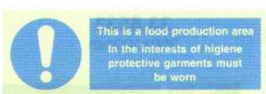
33.5739
300×100mm



33.5740
300×100mm



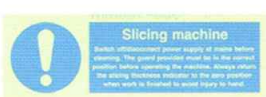
33.5745
300×100mm



33.5746
300×100mm



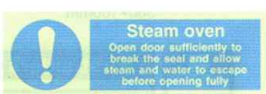
33.5748
300×100mm



33.5750
300×100mm



33.5751
300×100mm



33.5752
300×100mm



33.5753
300×100mm



33.5754
300×100mm



33.5755
300×100mm



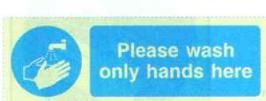
33.5756
300×100mm



33.5757
300×100mm



33.5759
300×100mm



33.5760
300×100mm

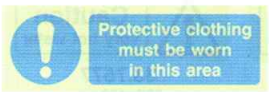


33.5761
300×100mm

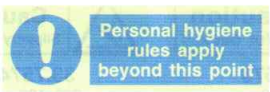


33.5763
300×100mm

Galley Signs



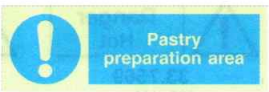
33.5764
300×100mm



33.5768
300×100mm



33.5771
300×100mm



33.5772
300×100mm



33.5773
300×100mm



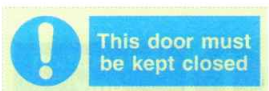
33.5774
300×100mm



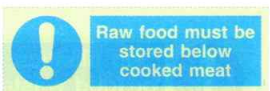
33.5775
300×100mm



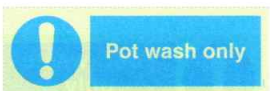
33.5776
300×100mm



33.5777
300×100mm



33.5778
300×100mm



33.5779
300×100mm



33.5783
300×100mm



33.5758
400×150mm



33.5762
400×150mm



33.5765
400×150mm



33.5766
400×150mm



33.2884
300×100mm



33.2885
300×100mm



33.5747
300×100mm



33.8530
300×100mm



33.8532
300×100mm



33.8533
300×100mm



33.8550
300×100mm



33.8567
300×100mm



33.8619
300×100mm



33.4171
300×100mm



33.4173
300×100mm



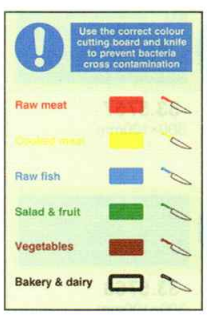
33.4177
300×100mm



33.4180
300×100mm



33.4193
300×100mm



33.5784
200×300mm



33.3124
300×300mm

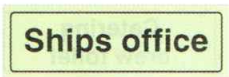


33.5654
100×100mm



33.3522
300×150mm

Accommodation Signs



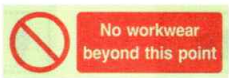
33.2874
300×100mm



33.2909
300×100mm



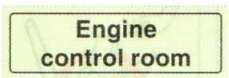
33.2908
300×100mm



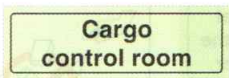
33.8574
300×100mm



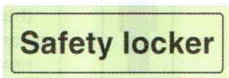
33.8500
150×150mm



33.2877
300×100mm



33.2878
300×100mm



33.2879
300×100mm



33.8619
300×100mm



33.8505
150×150mm



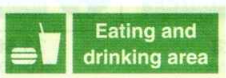
33.1713
200×300mm



33.4197
150×150mm



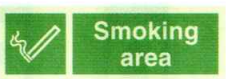
33.4198
150×150mm



33.4186
300×100mm



33.4180
300×100mm



33.4185
300×100mm



33.8529
300×100mm



33.8530
300×100mm



33.8531
300×100mm



33.8532
300×100mm



33.8533
300×100mm



33.8526
300×200mm



33.8525
300×200mm



33.8550
300×100mm



33.8658
300×100mm



33.8582
300×100mm



33.8570
300×100mm



33.8520
300×100mm



33.5877
300×100mm



33.5878
300×100mm



33.1714
200×300mm



33.8524
150×150mm



33.5822
150×150mm



33.5811
150×150mm



33.5803
150×150mm



33.5804
150×150mm

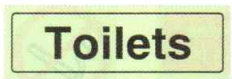


33.5809
150×150mm

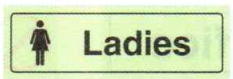


33.1712
200×300mm

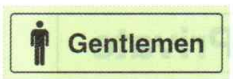
Accommodation Signs



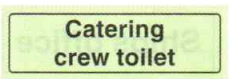
33.2918
300×100mm



33.2919
300×100mm



33.2920
300×100mm



33.2876
300×100mm


33.2940
150×150mm



33.2932
150×150mm


33.2941
100×150mm


33.2942
100×150mm



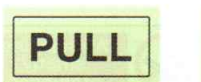
33.2931
200×150mm



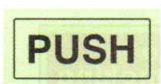
33.8002
150×200mm



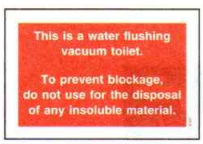
33.8003
150×200mm



33.2938
100×50mm



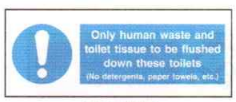
33.2939
100×50mm



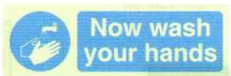
33.8001
150×100mm



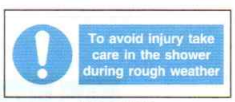
33.7000
300×100mm



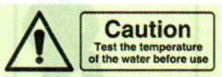
33.5769
300×100mm



33.5728
300×100mm



33.5680
300×100mm



33.8000
300×100mm



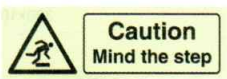
33.7572
300×100mm



33.7573
300×100mm



33.7574
300×100mm



33.7623
300×100mm



33.7624
300×100mm



33.2760
73×200mm



33.2761
73×200mm



33.4210
75×150mm



33.4211
75×150mm



33.4212
75×150mm



33.4213
75×150mm



33.4214
75×150mm



33.4215
75×150mm


33.4420
150×150mm



33.2762
73×200mm



33.2763
73×200mm



33.4201
75×150mm



33.4202
75×150mm



33.4203
75×150mm



33.4204
75×150mm



33.4205
75×150mm



33.4206
75×150mm

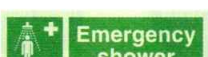

33.4421
150×150mm



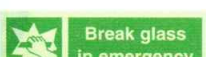
33.4470
400×150mm
33.4471
400×150mm



33.4171
300×100mm



33.4176
300×100mm



33.4187
300×100mm

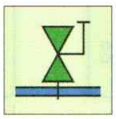


33.4177
300×100mm

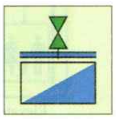
Damage Control Plan Signs



33.6901
150×150mm



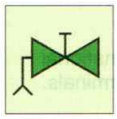
33.6902
150×150mm



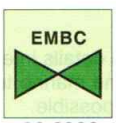
33.6903
150×150mm



33.6904
150×150mm



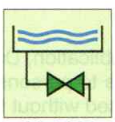
33.6905
150×150mm



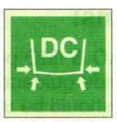
33.6906
150×150mm



33.5907
150×150mm



33.6908
150×150mm



33.6909
150×150mm



33.6910
150×150mm

Temporary Tie Tags

Installation:

Tie tags are required wherever a need occurs to temporarily mark items and areas for safety reasons, usually during maintenance and in connection with the permit to work system. These tags are printed on a semi - rigid PVC with a matt finish to allow an authorisation signature and the date to be added in pen. The tags are supplied in packs of ten and come complete with cable ties for easy fixing.



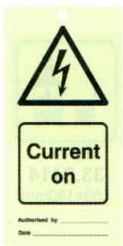
33.2501
75×150mm



33.2502
75×150mm



33.2503
75×150mm



33.2504
75×150mm



33.2505
75×150mm



33.2506
75×150mm



33.2507
75×150mm



33.2508
75×150mm



33.2509
75×150mm



33.2510
75×150mm



33.2541
75×150mm



33.2542
75×150mm



33.2520
75×150mm



33.2521
75×150mm



33.2522
75×150mm



33.2523
75×150mm



33.2524
75×150mm



33.2525
75×150mm



33.2526
75×150mm



33.2527
75×150mm



33.2528
75×150mm



33.2529
75×150mm



33.2530
75×150mm



33.2531
75×150mm



33.2532
75×150mm



33.2540
75×150mm

Passenger Vessel and Terminal Building Signs

Regulations:

The joint ICAO & IMO publication, Document 9636 details international signs to provide guidance to persons at airports and marine terminals. These signs should be used without text wherever possible.



Disabled access
33.2401
150×150mm



Elevators
33.2402
150×150mm



Foot passengers
33.2403
150×150mm



Cars
33.2404
150×150mm



Lorries
33.2405
150×150mm



sea arrivals
33.2406
150×150mm



Sea departures
33.2407
150×150mm



Toilets, bosh
33.2408
150×150mm



Toilets, ladies
33.2409
150×150mm



Toilets, men's
33.2410
150×150mm



Drinking water
33.2411
150×150mm



Nursery
33.2412
150×150mm



First aid (DP)
33.2413
150×150mm



Pharmacy
33.2414
150×150mm



Baggage claim
33.2415
150×150mm



Baggage cart
33.2416
150×150mm



Baggage store
33.2417
150×150mm



Baggage lockers
33.2418
150×150mm



No weapons
33.2419
150×150mm



No smoking
33.2420
150×150mm



No entry
33.2421
150×150mm



Bar
33.2422
150×150mm



Coffee shop
33.2423
150×150mm



Restaurant
33.2424
150×150mm



Shopping area
33.2425
150×150mm



Information
33.2426
150×150mm



Hotel reversations
33.2427
150×150mm



Lost and found
33.2428
150×150mm



Telephones
33.2429
150×150mm



Cables and faxes
33.2430
150×150mm



Postal facility
33.2431
150×150mm



Banking facility
33.2432
150×150mm



Taxis
33.2433
150×150mm



Buses
33.2434
150×150mm



Trains
33.2435
150×150mm



Car rental
33.2436
150×150mm



Air arrivals
33.2437
150×150mm



Air departures
33.2438
150×150mm



Connecting flighhts
33.2439
150×150mm



Helicopters
33.2440
150×150mm



Horizontal arrow
33.2441
150×150mm



Diagonal arrow
33.2442
150×150mm



Baby change
33.2443
150×150mm

Hazard Diamonds, on self adhesive white vinyl

Hazard Warning Diamonds with Class Numbers



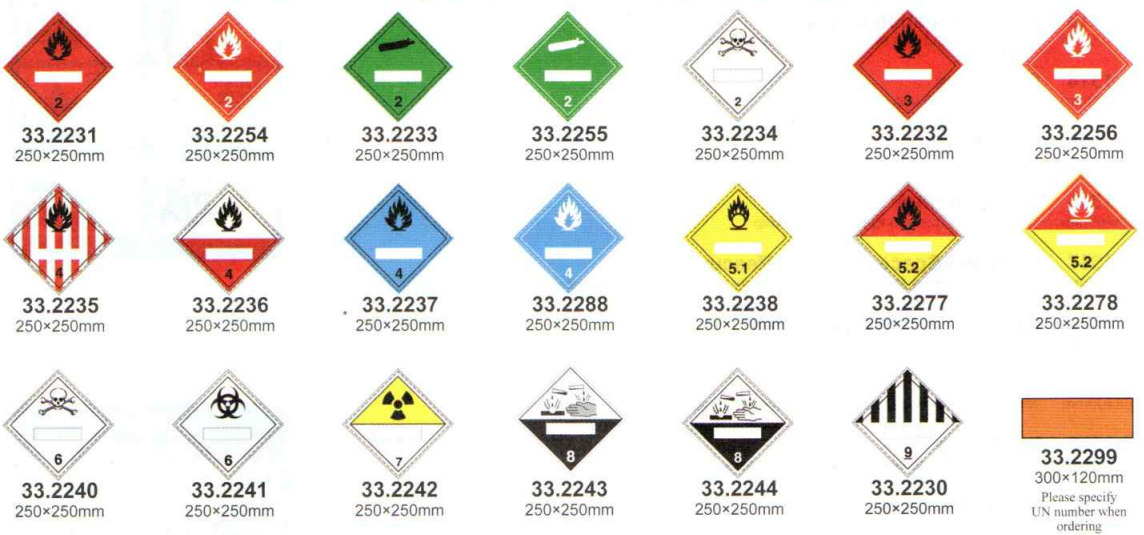
33.2203 250×250mm | 33.2222 250×250mm | 33.2223 250×250mm | 33.2224 250×250mm | 33.2225 250×250mm | 33.2226 250×250mm | 33.2227 250×250mm | 33.2228 250×250mm | 33.2229 250×250mm

33.2248 250×250mm | 33.2249 250×250mm | 33.2251 250×250mm | 33.2252 250×250mm | 33.2207 250×250mm | 33.2294 250×250mm | 33.2208 250×250mm | 33.2295 250×250mm | 33.2209 250×250mm

33.2202 250×250mm | 33.2296 250×250mm | 33.2210 250×250mm | 33.2211 250×250mm | 33.2212 250×250mm | 33.2297 250×250mm | 33.2213 250×250mm | 33.2275 250×250mm | 33.2276 250×250mm

33.2215 250×250mm | 33.2216 250×250mm | 33.2217 250×250mm | 33.2218 250×250mm | 33.2219 250×250mm | 33.2253 250×250mm | 33.2220 250×250mm | 33.2298 250×250mm | 33.2221 250×250mm

Hazard Warning Diamonds with Panel for UN Numbers



33.2231 250×250mm | 33.2254 250×250mm | 33.2233 250×250mm | 33.2255 250×250mm | 33.2234 250×250mm | 33.2232 250×250mm | 33.2256 250×250mm

33.2235 250×250mm | 33.2236 250×250mm | 33.2237 250×250mm | 33.2288 250×250mm | 33.2238 250×250mm | 33.2277 250×250mm | 33.2278 250×250mm

33.2240 250×250mm | 33.2241 250×250mm | 33.2242 250×250mm | 33.2243 250×250mm | 33.2244 250×250mm | 33.2230 250×250mm | 33.2299 300×120mm Please specify UN number when ordering

Marking of Packages



33.2289 250×250mm | 33.2290 250×250mm | 33.2291 150×200mm | 33.2292 150×200mm



33.2300 150×200mm | 33.2301 150×200mm | 33.2293 300×300mm | 33.2279 250×250mm | 33.2201 300×250mm

Hazardous Substance Symbols



33.2280 100×100mm | 33.2281 100×100mm | 33.2282 100×100mm | 33.2284 100×100mm

33.2285 100×100mm | 33.2286 100×100mm | 33.2287 100×100mm

Training, Safety and Environmental Posters

33.1501 **Lifeboat Launching**
300×400mm procedures for launching open/semi - enclosed lifeboats.

33.1502 **Liferaft Launching**
300×400mm procedures for launching inflatable liferafts.

33.1503 **Liferafts Inflatable**
300×400mm "vital actions" after launching.

33.1504 **Lifeboat Launching Fully Enclosed**
300×400mm procedures for launching a fully enclosed lifeboat.

33.1505 **Lifeboat Launching in a Dangerous Atmosphere**
300×400mm procedures for launching an enclosed lifeboat in a dangerous atmosphere.

33.1506 **Enclosed Space Entry**
300×400mm safety procedures for entering enclosed spaces.

33.1507 **Enclosed Space Entry Safety Signs**
300×400mm safety signs used to identify hazardous spaces.

33.1508 **Oil Spill Prevention**
300×400mm procedures to reduce the likelihood of oil spills.

33.1509 **Electric Shock, Drowning, Serious Inj W.H.O**
300×400mm "vital actions" on discovery of an electric shock, drowning or serious injury casualty.

33.1510 **Wheel House Poster (Two Sheets)**
400×300mm as required by IMO Res. A. 601(15) (Pen included)

33.1511 **Wheel House - Pilot Card**
400×300mm as required by IMO Res. A. 601(15) (Pen included)

33.1512 **Emergency Muster List**
400×300mm as required by IMO Chap. III Reg. 8. (Pen included)

33.1513 **Accommodation Ladders**
300×400mm safe rigging and use of accommodation ladders.

33.1514 **Gangways**
300×400mm safe rigging and use of gangways.

33.1515 **Man Overboard**
300×400mm "vital actions" on discovery of a man overboard.

33.1516 **Abandon Ship**
300×400mm "vital actions" preparing to abandon ship

33.1517 **Enclosed Space and Tank Rescue**
300×400mm safety procedures for recovering a casualty from a hazardous atmosphere.

33.1520 **Lifeboat Launching Free Fall**
300×400mm procedures for launching a free fall lifeboat.

33.1521 **Towing**
300×400mm recommended procedures for safe towing operations.

33.1522 **Bunkering**
300×400mm safety procedures before, during and after bunkering.

33.1523 **Oil Spill Actions**
300×400mm recommended procedures to minimize the effect of an oil spill.

33.1524 **Hot Work**
300×400mm recommended safety preparation for hot work.

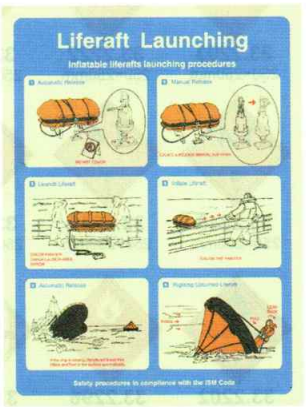
33.1525 **Working Aloft or Outboard**
300×400mm be aware of the risks when working outboard and aloft.

33.1526 **Pilot - Boarding Arrangement**
400×300mm in accordance with IMO requirements and IMPA recommendations.

33.1527 **Fire Extinguisher Types**
300×400mm popular types of fire extinguishers and types of fire which they are suited to.

33.1528 **Personal Protective Equipment**
300×400mm choosing the correct equipment for your safety.

33.1529 **Garbage Disposal Plan**
400×300mm MARPOL 73/78 Annex V



33.1502



33.1508



33.1524

Training, Safety and Environmental Posters



33.1530



33.1537



33.1542

33.1530 **Craneage Safety**
300×400mm Craneage hand signals and safe working practices.

33.1531 **Fire & Explosion Actions**
300×400mm "vital actions" following a fire or explosion.

33.1532 **Gas Bottle Safety**
300×400mm safe handling, storage and working practices.

33.1533 **Welding & Flamecutting**
300×400mm safety procedures during welding operations.

33.1534 **Light, Shape & Sound Signals**
300×400mm international communication signals.

33.1535 **Engine & Machinery Room Safety**
300×400mm procedures for safe working practice.

33.1536 **IMO Safety Signs**
300×400mm IMO safety signs and their various meanings.

33.1537 **Drugs Warning Notice**
200×300mm advises owners will assist in prosecuting users and traffickers.

33.1538 **Drugs Warning Notice**
150×200mm advises owners will assist in prosecuting users and traffickers.

33.1539 **Drugs & Alcohol Warning Notice**
200×300mm advises prohibition of drugs & alcohol and warns owners will prosecute users and traffickers.

33.1540 **Drugs & Alcohol Warning Notice**
150×200mm advises prohibition of drugs & alcohol and warns owners will prosecute users and traffickers.

33.1541 **Drugs & Trafficking Warning**
200×300mm advises of the consequences of drug use and trafficking.

33.1542 **Garbage Don't Throw Overboard**
300×400mm complies with MARPOL Annex V.

33.1543 **Oil Discharge Prohibited**
300×200mm (CFR151,15 153.203 & 155,450) extract from CFRs regarding oil pollution.

33.1544 **Food Hygiene**
300×400mm recommended procedures for health and safety in pantries, galleys and freezers.

33.1545 **Liferafts Davit Launched**
300×400mm procedures for davit launched inflatable liferafts.

33.1546 **Evacuation Chutes & Slides**
300×400mm abandon ship procedures using vertical chutes or angled slides.

33.1547 **Self Contained Breathing Apparatus**
300×400mm safety procedures for using apparatus in hazardous conditions.

33.1548 **Hazard Diamonds**
300×400mm for the carriage of dangerous goods.

33.1549 **Hazardous Substance Symbols**
300×400mm

33.1550 **Hazchem Sign Guide**
200×300mm

33.1557 **IMO Fire Control Symbols**
300×400mm to IMO resolution A.654(16)

33.1558 **SOLAS Poster Life Saving Signals**
300×400mm international search and rescue communication signals based on SOLAS requirements.

33.1559 **SOLAS CARD (double sided)**
150×200mm international search and rescue communication signals based on SOLAS requirements.

33.1564 **Mooring**
300×400mm procedures for mooring/unmooring

33.1565 **Williamson Turn**
400×300mm as required by IMO Res. A. 601(15) (Pen included)

33.1566 **Pipe Identification**
300×400mm in accordance with ISO 14726:2008

Training, Safety and Environmental Posters

33.1567 IMO Fire Control Symbols - ISO 17631:2002(E).
300×400mm IMO fire control symbols in accordance with ISO 17631:2002(E).

33.1568 Know Your Signs
300×400mm meanings, colours and examples of graphics used for signage.

33.1569 Electric Shock & Serious Injury CoSTRA
300×400mm Basic life support (COSTRA)

33.1570 Drowning Hypothermia CoSTRA
300×400mm Basic life support (COSTRA)

33.1571 Precautions Against Piracy (ISPS)
300×400mm SOLAS Chapter X 1 - 2

33.1572 Control of Noise
300×400mm reference IMO code of noise levels on board ships (exceptions can apply).

33.1573 Fast Rescue Boat Operation
300×400mm SOLAS chapter III / MSC circular 1161



33.1573

33.1574 Ro-Ro Vessels
300×400mm Vehicle deck safety operations

33.1576 Port Security
300×400mm

33.1577 Helicopter Operations
300×400mm winching

33.1578 Helicopter Operations
300×400mm landing on.

33.1579 International Signalling Flags
300×400mm single letter signals

33.1580 Dedicated rescue boat operation
300×400mm SOLAS chapter III

33.1581 Vessel Induction & Familiarisation
300×400mm a requirement of the STCW95 convention.

33.1582 Hand wash technique
300×400mm

33.1583 Radio Distress Transmitting Procedure inc. Interco Procedure
300×400mm

33.1585 Immersion, Survival or Anti-exposure Suits
300×400mm SOLAS 74 Chapter III (as amended) and LSA code



33.1585

33.1587 Slips, Trips and Falls
400×300mm

Think Safety Posters

33.1700 300×400mm Eye Protection
33.1701 300×400mm Fire Prevention
33.1702 300×400mm Housekeeping
33.1703 300×400mm Hazardous Materials
33.1704 300×400mm Lift Correctly
33.1705 300×400mm Slips and Falls
33.1706 300×400mm Follow Correct Procedures
33.1707 300×400mm Seek Medical Attention
33.1708 300×400mm Confined Spaces
33.1709 300×400mm Personal Protective Equipment (PPE)
33.1710 300×400mm Electrical Protection
33.1711 300×400mm Noise Protection

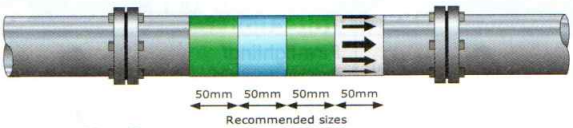


33.1700

For on-going new poster titles, contact IMPA

N.B. Unlawful copies of ISM posters endanger crew and passenger safety.

Pipe Identification Tape, in accordance with ISO 14726



Installation

Pipelines should be marked at least once in each room; at each penetration point in bulkheads and decks, close to each valve and within a distance of 3 - 5m along the length of the pipeline. Local conditions may require more marking due to pipe bends or the close proximity of pipes for different services.

Prior to application, pipes should be dust and oil free. The tape should overlap by at least 20mm on the 'blind side' of the pipe, however on pipes with an external circumference of over 200mm the tape only needs to cover half the circumference of the pipe.

Waste Media	Ref. Nos.
Black water	33.2140 - 33.2141 - 33.2140
Waste oil/Used oil	33.2140 - 33.2142 - 33.2140
Bilge water	33.2140 - 33.2143 - 33.2140
Exhaust gas	33.2140 - 33.2144 - 33.2140
Grey water	33.2140 - 33.2150 - 33.2140
Sewage - contaminated	33.2140 - 33.2151 - 33.2140

Fresh Water	Ref. Nos.
Fresh water, sanitary	33.2141 - 33.2142 - 33.2141
Potable water	33.2141 - 33.2143 - 33.2141
Distillate	33.2141 - 33.2144 - 33.2141
Gas turbine wash water	33.2141 - 33.2146 - 33.2141
Feed water	33.2141 - 33.2147 - 33.2141
Cooling fresh water	33.2141 - 33.2149 - 33.2141
Chilled water	33.2141 - 33.2150 - 33.2141
Condensate	33.2141 - 33.2151 - 33.2141

Sea Water	Ref. Nos.
Decontamination water	33.2143 - 33.2141 - 33.2143
Sea water, sanitary	33.2143 - 33.2142 - 33.2143
Ballast water	33.2143 - 33.2149 - 33.2143
Cooling sea water	33.2143 - 33.2151 - 33.2143

Fuel	Ref. Nos.
HFO (Heavy fuel oil)	33.2142 - 33.2140 - 33.2142
Aviation fuel	33.2142 - 33.2141 - 33.2142
Biological fuel	33.2142 - 33.2149 - 33.2142
Gas turbine fuel	33.2142 - 33.2150 - 33.2142
MDO (Marine diesel fuel)	33.2142 - 33.2151 - 33.2142

Non - flammable gases	Ref. Nos.
Oxygen	33.2144 - 33.2141 - 33.2144
Inert gas	33.2144 - 33.2142 - 33.2144
Nitrogen	33.2144 - 33.2143 - 33.2144
Refrigerant	33.2144 - 33.2145 - 33.2144
Compressed air - low pressure	33.2144 - 33.2146 - 33.2144
Compressed air - high pressure	33.2144 - 33.2148 - 33.2144
Control air/Regulating air	33.2144 - 33.2149 - 33.2144
Breathing air*	33.2144 - 33.2150 - 33.2144
Breathing gas*	33.2144 - 33.2151 - 33.2144

Oil other than fuel	Ref. Nos.
Thermal fluid	33.2146 - 33.2141 - 33.2146
Lub. oil for gas turbines	33.2146 - 33.2143 - 33.2146
Hydraulic fluid	33.2146 - 33.2144 - 33.2146
Lubrication oil for steam turbines	33.2146 - 33.2147 - 33.2146
Lubrication oil for gears	33.2146 - 33.2149 - 33.2146
Lub. oil for int. combustion engines	33.2146 - 33.2151 - 33.2146

Steam	Ref. Nos.
Steam for heating	33.2147 - 33.2140 - 33.2147
Exhaust steam	33.2147 - 33.2150 - 33.2147
Supply steam	33.2147 - 33.2151 - 33.2147

Air in ventilation systems	Ref. Nos.
Discharge air	33.2150 - 33.2140 - 33.2150
Mech. supply air - cold	33.2150 - 33.2141 - 33.2150
Natural exhaust air	33.2150 - 33.2142 - 33.2150
Atmospheric air	33.2150 - 33.2143 - 33.2150
Mech. exhaust air	33.2150 - 33.2144 - 33.2150
Decontaminated supply air	33.2150 - 33.2145 - 33.2150
Mech. recirculated air	33.2150 - 33.2146 - 33.2150
Mech. supply air - warm	33.2150 - 33.2147 - 33.2150
Smoke clearance	33.2150 - 33.2148 - 33.2150
Conditioned supply air	33.2150 - 33.2149 - 33.2150
Natural supply air	33.2150 - 33.2151 - 33.2150

Fire fighting/fire protection	Ref. Nos.
Fire - fighting water	33.2148 - 33.2143 - 33.2148
Fire - fighting gas	33.2148 - 33.2144 - 33.2148
Sprinkler water	33.2148 - 33.2146 - 33.2148
Spray water	33.2148 - 33.2149 - 33.2148
Fire - fighting powder	33.2148 - 33.2150 - 33.2148
Fire - fighting foam	33.2148 - 33.2151 - 33.2148

Flammable gases	Ref. Nos.
Hydrogen	33.2151 - 33.2141 - 33.2151
Acetylene	33.2151 - 33.2144 - 33.2151
Liquid gas	33.2151 - 33.2149 - 33.2151

Air and sounding pipes	Ref. Nos.
Waste media	33.2145 - 33.2140 - 33.2145
Fresh water	33.2145 - 33.2141 - 33.2145
Fuel	33.2145 - 33.2142 - 33.2145
Sea water	33.2145 - 33.2143 - 33.2145
Non - flammable gases	33.2145 - 33.2144 - 33.2145
Oil other than fuels	33.2145 - 33.2146 - 33.2145
Steam	33.2145 - 33.2147 - 33.2145
Fire fighting	33.2145 - 33.2148 - 33.2145
Acids & Alkalis	33.2145 - 33.2149 - 33.2145
Ventilation system	33.2145 - 33.2150 - 33.2145
Flammable gases	33.2145 - 33.2151 - 33.2145

Flow arrows	Ref. Nos.
Flow arrows	33.2130

All pipe tapes on this page are offered as self adhesive rolls 50mm wide by 30m long.

Black		33.2140	Orange		33.2146
Blue		33.2141	Silver		33.2147
Brown		33.2142	Red		33.2148
Green		33.2143	Violet		33.2149
Grey		33.2144	White		33.2150
Maroon		33.2145	Yellow-ochre		33.2151

Pipe Identification Tape - Multiple Colour Rolls

All pipe tapes on this page are offered as self adhesive rolls, 100 mm × 25 m long.

Waste Media		Code
Black water		33.2100
Waste oil		33.2109
Bilge water		33.2110
Exhaust gas		33.2122
Grey water		33.2123
Sewage contaminated		33.2124

Sea Water		Code
Decontaminatiion water		33.2125
Sea water, sanitary		33.2126
Ballast water		33.2127
Cooling sea water		33.2128

Fresh Water		Code
Fresh water		33.2129
Fresh water, sanitary		33.2131
Potable water		33.2132
Distillate		33.2133
Gas-turbine wash water		33.2134
Feed water		33.2135
Cooling fresh water		33.2136
Chilled water		33.2137
Condensate		33.2138

Non-flammable Gases		Code
Non-flammable gases		33.2139
Oxygen		33.2152
Inert gas		33.2153
Nitrogen		33.2154
Refrigerant		33.2155
Compressed air-low pressure		33.2156
Compessed air-high pressure		33.2157
Control air/ regulating air		33.2158
Breathing air		33.2159
Breathing gas		33.2160

Steam		Code
Steam for heating process		33.2161
Driving steam		33.2162
Exhaust steam		33.2163
Supply steam		33.2164

Air and Sounding Pipes		Code
Waste Media		33.2165
Fresh water		33.2166
Fuel		33.2167
Sea Water		33.2168
Non-flammable gases		33.2169
Fuel oil		33.2170
Steam		33.2171
Fire fighting		33.2172
Acids, Alkalis		33.2173
Ventilation system		33.2174
Flammable gases		33.2175

Oils other than Fuels		Code
Oils other than fuels		33.2176
Thermal fluid		33.2177
Lubrication oil for gas turbines		33.2178
Hydraulic fluid		33.2179
Lubrication oil for steam turbine		33.2180
Lubrication oil for gears		33.2181
Lubrication oil for internal combustion engine		33.2182

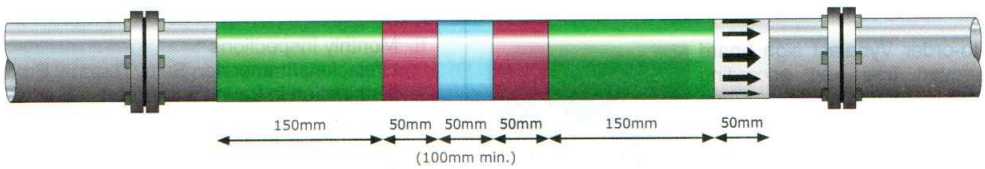
Fuel		Code
Heavy fuel oil (HFO)		33.2183
Aviation fuel		33.2184
Biological fuel		33.2185
Gas-turbine fuel		33.2186
Marine diesel oil (MDO)		33.2187

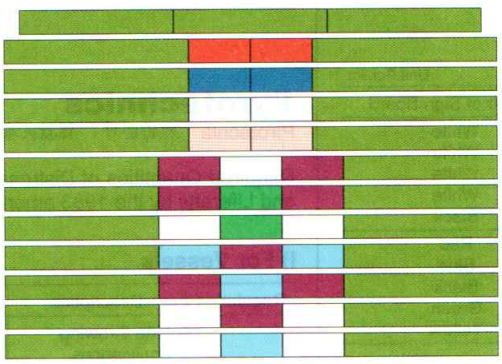
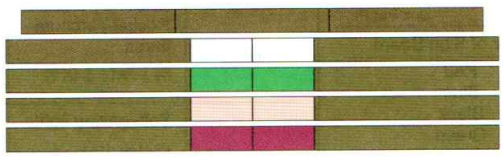
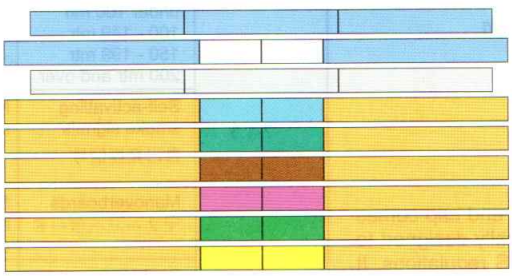
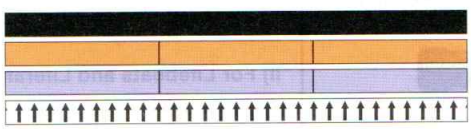
Fire Fighting/Fire Protection		Code
Fire-fighting/ fire protection		33.2188
Fire-fighting gas		33.2189
Sprinkler water		33.2190
Spray water		33.2191
Fire-fighting powder		33.2192
Fire-fighting foam		33.2193

Air in Ventilation Systems		Code
Discharge air		33.2194
Mechanical supply air, cold		33.2195
Natural exhaust air		33.2196
Atmospheric air		33.2197
Mechanical exhaust air		33.2198
Decontaminated supply air		33.2199
Mechanicall recirculated air		33.4901
Mechanicall supply air, warm		33.4902
Smoke clearance		33.4903
Conditioned supply air		33.4904
Natural supply air		33.4905

Flammable Gases		Code
Flammable gases		33.4906
Hydrogen		33.4907
Acetylene		33.4908
Liquid gas		33.4909

Pipe Identification Tape, in accordance with BS 1710



		Use tapes in this sequence:
Water		
Sea, river or untreated		33.2101 33.2101 33.2101
Fire mains		33.2101 33.2111 33.2111 33.2101
Drinking		33.2101 33.2113 33.2113 33.2101
Cooling (primary)		33.2101 33.2117 33.2117 33.2101
Hydraulic power		33.2101 33.2116 33.2116 33.2101
Boiler feed		33.2101 33.2114 33.2117 33.2114 33.2101
Condensate		33.2101 33.2114 33.2115 33.2114 33.2101
Chilled		33.2101 33.2117 33.2115 33.2117 33.2101
Heating over 100°C		33.2101 33.2118 33.2114 33.2118 33.2101
Heating under 100°C		33.2101 33.2114 33.2118 33.2114 33.2101
Hot		33.2101 33.2117 33.2114 33.2117 33.2101
Cold		33.2101 33.2117 33.2118 33.2117 33.2101
Oils		
Furnace		33.2103 - 33.2103 33.2103
Diesel		33.2103 33.2117 33.2117 33.2103
Lubricating		33.2103 33.2115 33.2115 33.2103
Hydraulic power		33.2103 33.2116 33.2116 33.2103
Transformer		33.2103 33.2114 33.2114 33.2103
Gases		
Compressed air		33.2106 33.2106 33.2106
Vacuum		33.2106 33.2117 33.2117 33.2106
Steam		33.2102 33.2102 33.2102
Refrigerant 12		33.2104 33.2118 33.2118 33.2104
Refrigerant 22		33.2104 33.2119 33.2119 33.2104
Refrigerant 502		33.2104 33.2120 33.2120 33.2104
Anhydrous ammonia		33.2104 33.2121 33.2121 33.2104
Other refrigerants		33.2104 33.2115 33.2115 33.2104
Natural gas		33.2104 33.2112 33.2112 33.2104
Others		
Drainage		33.2107 33.2107 33.2107
Elec. conduits and vent. ducts		33.2108 33.2108 33.2108
Acids and alkalis		33.2105 33.2105 33.2105
Flow direction arrows		33.2130

150mm Tape	Reference
Green	33.2101
Silver/Grey	33.2102
Brown	33.2103
Yellow ochre	33.2104
Violet	33.2105
Light blue	33.2106
Black	33.2107
Orange	33.2108

50mm Tape	Reference
Red	33.2111
Primrose	33.2112
Auxiliary blue	33.2113
Crimson	33.2114
Emerald green	33.2115
Salmon pink	33.2116
White	33.2117
Blue	33.2118

50mm Tape	Reference
Sea green	33.2119
Golden brown	33.2120
Dark mauve	33.2121
Flow arrows	33.2130

All pipe tapes on this page are offered as self adhesive rolls 30m long.

Vynalast Engraved Text Signs

Señales de Texto Grabado Vynalast
バイナラスト彫刻文字サイン　Vynalast 刻字标牌

A make-to-order Vynalast sign board with engraved free text according to customer's requirements. When ordering provide text content and sign dimensions (vertical x horizontal in mm). The amount of text and sign size will determine the font size.



Vinalast Engraved Text Signs

Unit Per Pc.

CODE	Colour of Text	Colour of Sign Board
33 89 01	Red	White
02	Blue	White
03	Black	White
04	Green	White
05	Yellow	Black
33 89 11	White	Red
12	White	Blue
13	White	Black
14	White	Green
15	Black	Yellow

Vynalast Photoluminescent Engraved Text Signs

Unit Per Pc.

CODE	Colour of Text	Colour of Sign Board
33 89 21	White	Red
22	White	Blue
23	White	Black
24	White	Green
25	Black	Yellow

How to order: 33 - 89 - XX
TEXT CONTENT, DIMENSIONS of BOARD in mm

33

Fire Plan Holders

Portadocumentos de Extinción
消火計画書ホルダー　消防計劃書袋

This UPVC holder with weatherproof screw end cap comes complete with fixings and has been specifically designed to comply with the requirements of the SOLAS regulations. It has a length of 1 m and OD of 110 mm enabling Fire Plans up to size A0 to be accommodated without the need to fold the plan.

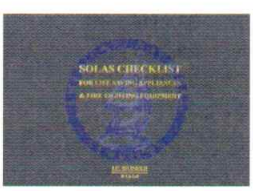


33 26 13	Fire Plan Holder 110 mm dia x 1 mtr length	Pc.

SOLAS Check List

Lisa de Inspección de SOLAS
SOLAS 点検表　SOLAS 檢查表

As required by SOLAS Chapter III Regulation 20.7 and 36.1 (96/98 amendments), all vessels constructed before, on or after 1 July 1998, should carry SOLAS Check List to provide a record of monthly inspections of all lifesaving appliances.



Contents

I. Weekly Inspections
Lifeboats/Rescue Boats/Liferafts/General Alarm

II. Monthly Inspections
Lifejackets/Immersion Suits/Thermal Protective Aids / Illumination in Launching Area/Lifeboats/Rescue Boats/ Liferafts/EPIRBs, SARTs, & Radios/Pyrotechnics/ Lifebuoys & Attachments

33 26 33	SOLAS check list	Vol.

Pyrotechnics

Pirotecnia　救難信号　拯救灾难信号

Required Quantities of Distress Flares for Vessels, Lifeboats and Liferafts by the 1983 amendment to SOLAS 1974.

I) For Vessels

Regulation	Description	Required Quantity
17 & 49	Line throwing applicances 救命索引発射器	Includes no less than 4 projectiles, each capable of carrying the line at least 230 mtr.
6 - 3	Rocket parchute flares 落下傘付き信号	No less than 12 pcs must be stowed on or near the navigation bridge
7-1.3	Self-igniting lights 自己点火灯	No less than one half of the total number of lifebuoys
	Ship's length under 100 mtr 100 - 149 mtr 150 - 199 mtr 200 mtr and over	Quantity 4 pcs. 5 pcs. 6 pcs. 7 pcs.
	Self-activatiing smoke signals 自己発煙信号	No less than two of the total numbers of lifebuoys
	Manoverboards マノーバーボード	Substitute for above self-activating smoke signals, combined with self-igniting light
	Rocket star signals 火せん	6 pcs

II) For Lifeboats and Liferafts

Regulation	Description	Required Quantity
38 - 5.1 and 41 - 8	Rocket parachute flares 落下傘付き信号	4 pcs.
	Hand flares 手用信号炎	6 pcs.
	Buoyant smoke signals 発煙浮信号	2 pcs.

Major Pyrotechnics Comparison Table

A full range of distress signals are available from several manufacturers as listed below, under the SOLAS '83 regulations which conform to maritime approval authorities throughout the world.
When ordering, please specify the following points:

1. CODE number..... 33 03 01
2. Description..... Line throwing apparatus
3. Name of Mfr..... PainsWessex
4. Brand..... Linethrower 250
5. Classification ..... M.E.D
6. Quantity ..... Set

Description	PainsWessex (U.K.)	Comet (U.K.)	Hansson PyroTech AB (Sweden)	Koryo Pyrotechnics (South Korea)	Koa (Japan)	Kokusai (Japan)
Approval classification society	All major classification	All major classification	MED/U.S.C.G. B.V./D.N.V.	KR HELLAS	H.K.	H.K./MED/Z.C.
CODE (Unit)	**33 03 01** (Set)	**33 13 51** (Set)	**33 13 01** (Set)	**33 13 02** (Set)	**33 03 51** (Set) KM-2S **33 13 47** (Set) KM-5E	**33 03 74** (Set)
Line throwing apparatus 救命索発射器	Linethrower 250 No. 9502000	Linethrower 250 No. 9160400	IKAROS line thrower No. 346100	Line-throwing appliance K-19	Line-throwing appliance	Line-throwing appliance RL-2
CODE (Unit)	**33 03 11** (Pc.)	**33 13 61** (Pc.)	**33 13 11** (Pc.)	**33 13 12** (Pc.)	**33 03 54** (6's) **33 03 55** (4's) **33 03 56** (2's)	**33 03 76** (2's) **33 03 77** (4's) **33 03 78** (6's)
Rocket parachute flares 落下傘付き信号	Para red rocket MK8A No. 9506720	Parachute rocket red No. 9163100	IKAROS parachute rocket red No. 340100	Rocket parachute flare K-31	Rocket parachute flare KM-55	Rocket parachute flare KP-16
CODE (Unit)	**33 03 14** (Pc.)	**33 13 64** (Pc.)	**33 13 14** (Pc.)	**33 13 15** (6's)	**33 03 58** (4's) **33 03 59** (6's)	**33 03 79** (4's) **33 03 80** (6's)
Hand flares 手用信号炎	Red hand flare MK8 No. 9529000	Red handflare No. 9162800	IKAROs hand flare red No. 341500	Red hand flare K-33	Hand flare KM35	Red hand flare KF-8
CODE (Unit)	-	-	-	-	**33 03 60** (2's) **33 03 61** (4's) **33 03 62** (6's)	**33 03 82** (2's) **33 03 83** (4's) **33 03 84** (6's)
Rocker star signals 火せん	-	-	-	-	Rocket star signal KM-25	Rocket star KR-10
CODE (Unit)	**33 03 21** (Set)	**33 13 71** (Set)	**33 13 21** (Set)	**33 13 22** (Pc.)	-	-
Manoverboards マノーバーボード	Manoverboard MK9 No. 9537800	Light and smoke signal No. 9181600	Man Overboard light smoke signal No. 345105	Light-smoke signal K-52		
CODE (Unit)	**33 03 23** (Set) **33 03 24** (Pc.)	**33 13 73** (Set)	**33 13 23** (Set)	**33 13 24** (Pc.)	**33 03 64** (Pc.)	**33 03 89** (Pc.)
Self-activating smoke signals 自己発煙信号	Buoysmoke MK9 No. 9538350	15 minute smoke signal No. 9181700	MOB compact light and smoke signal No. 345305	Self-activating smoke signal K-34	Self-activating smoke signal KM83	Self-activating smoke signal KS-6
CODE (Unit)	-	-	-	**33 13 29** (Pc.)	**33 03 70** (Pc.)	**33 03 86** (Set) **33 03 87** (Pc.)
Self-igniting lights 自己点火灯	-	-	-	Self-igniting light K-36	Self-igniting light KM79S	Self-igniting light KL-7
CODE (Unit)	**33 03 31** (Pc.)	**33 13 81** (Pc.)	**33 13 31** (Pc.)	**33 13 32** (Pc.)	**33 03 66** (2's)	**33 03 91** (Pc.)
Buoyant smoke signals 発煙浮信号	Lifesmoke MK9 No. 9537000	Smoke signal orange No. 9192000	Buoyant smoke orange No. 342130	Buoyant smoke signal K-45	Buoyant smoke signal KM46S	Buoyant smoke signal KB-8

Line Throwing Apparatuses

Lanzacabos 救命索発射器 抛绳器



Self-contained rocket-powered line-throwing unit designed for ship-to-ship and ship-to-shore operations as well as for the rescue of people in distress at sea.

One line throwing apparatus is required to be equipped, which includes not less than 4 projectiles each capable of carrying the line at leastf 230 mtr in calm weather.

Line Throwing Apparatus Complete

CODE	Brand	Model	Unit
33 03 01	PainsWessex Linethrower 250, comprising body + Line (9500700) and rocket (9500800)	9502000	Pc.
33 03 09	PainsWessex Linethrower 250, with 4 unit complete	950200×4	Set
33 13 51	Comet Linethrower 250, comprising body + Line (9160500) and rocket (9162700)	9160400	Pc.
33 13 56	Comet Linethrower 250, with 4 unit complete	9160400×4	Set
33 03 51	Koa Kako, with 4 projectiles (1 body + 4 line + 4 rockets)	KM-2S	Set
33 13 47	Koa Kako, with 4 projectiles Electric ignition type (1 body + 4 line + 4 rockets)	KM-5E	Set
33 03 74	Kokusai, with 4 projectiles (1 body + 4 line + 4 rockets)	RL-2	Set
33 13 01	Ikaros by Hansson Pyrotech 1 body + 1 line + 1 rocket	346100	Pc.
33 13 09	Ikaros by Hansson Pyrotech 4 unit complete	346100×4	Set
33 13 02	Koryo Pyrotechnics with 4 projectiles	K-19	Set

Spare Kits for Linethrower

CODE	Description	Model	Unit
For **PainsWessex** Linethrower 250			
33 03 12	Linethrower 250 body + line	9500700	Set
33 03 13	Linethrower rocket	9500800	Pc.
For **Comet** Linethrower 250			
33 13 52	Linethrower 250 body + line	9160500	Set
33 13 53	Linethrower rocket	9162700	Pc.
For **Hansson Pyrotech** Linethrower 346100			
33 13 54	Ikaros Linethrower body + line	346000	Set
33 13 55	Linethrower rocket	346200	Pc.
For **Koa Kako** Line Throwing Apparatus			
33 03 52	Spare 4 rockets & 5 cartridges for KM2S		Set
33 13 48	Spare 4 rockets & 1 ignitor for KM5E		Set
For **Kokusai** Line Throwing Apparatus			
33 13 57	Spare 4 rockets for RL-2		Set

Rocket Parachute Flares

Cohetes con Paracaídas 落下傘付信号 降落伞烟雾信号

For use in day and night long range distress signal situations.



1) Colour of light — Red
2) Duration of burn time — 40 seconds minimum
3) Light intensity — 30,000 candela minimum
4) Height — 300 mtr
5) Ignition — Base pull-wire igniter
6) Temperature operating range — -30°C to 65°C
7) Temperature storage — -30°C to 75°C
8) Weight — 270 grm

CODE	Model	Brand	Unit
33 03 11	MK8A (9506720)	PainsWessex	Pc.
33 03 54 **55** **56**	KM55	Koa (HK)	6's/set 4's/set 2's/set
33 03 76 **77** **78**	KP-16	Kokusai	2's/set 4's/set 6's/set
33 13 11	340100	Hansson PyoTech AB	Pc.
33 13 12	K-31	Koryo Pyrotechnics	"
33 13 61	9163100	Comet	"

Hand Flares

Bengalas de Mano 手用信号炎 红火号



For use in day and night. Short range distress signal used to pinpoint position.

1) Colour of light — Red
2) Duration of burn time — 60 seconds minimum
3) Light intensity — 15,000 candela minimum
4) Ignition — Top pull-wire igniter
5) Temperature operating range — -30°C to 65°C
6) Temperature storage range — -30°C to 75°C
7) Weight — 160 grm

CODE	Model	Brand	Unit
33 03 14	MK8 (9529000)	PainsWessex	Pc.
33 03 58 **59**	KM35	Koa (HK)	4's/set 6's/set
33 03 79 **80**	KF-8	Kokusai	4's/set 6's/set
33 13 14	IKAROS 341500	Hansson PyroTech AB	Pc.
33 13 15	K-33	Koryo Pyrotechnics	6's/set
33 13 64	9162800	Comet	Pc.

Rocket Star Signals

Señales de Cohete Estrella 火せん 紅星信号



Complementary distress signal to the parachute rocket.

CODE	Model	Brand	Unit
33 03 60 **61** **62**	KM-25	Koa	2's/set 4's/set 6's/set
33 03 82 **83** **84**	KR-10	Kokusai	2's/set 4's/set 6's/set

Manoverboards

Manoverboards (Hombre al Aqua)
マノーバーボード 人员落水信号

Combined light and smoke lifebuoy marker. Day and night signal which is attached to a lifebuoy (not supplied) and used in an emergency to mark position of a manoverboard.



1) Colour of smoke	Dense orange smoke
2) Duration of burn time	15 minutes
3) Light intensity and duration	Minimum 2 candela for 2 hours
4) Ignition	Pull-wire igniter
5) Temperature operation range	-1°C to 30°C
6) Temperature storage range	-30°C to 75°C
7) Weight	3.5 kg

CODE	Model	Brand	Bracket	Unit
33 03 21	MK9 (9537800)	PainsWessex	with	Set
33 13 21	345105	Hansson PyroTech AB	with	Set
33 13 22	K-52	Koryo Pyrotechnics	without	Pc.
33 13 71	9181600	Comet	with	Set

Lifebuoy Self-activating Smoke Signals

Boya Salvavidas con Señales de Humo y Activación Automática
自己発煙信号　組合烟灯

A daylight smoke marker attached to the lifebuoy by means of a lanyard. Identical to manoverboard, but without the lighting system.



1) Colour of smoke	Dense orange smoke
2) Duration of burn time	15 minutes
3) Light intensity and duration	Minimum 2 candela for 2 hours
4) Ignition	Pull-wire igniter
5) Temperature operation range	-1°C to 30°C
6) Temperature storage range	-30°C to 75°C
7) Weight	3.5 kg

CODE	Model	Brand	Bracket	Unit
33 03 23 24	Buoysmoke MK9 (9368350)	PainsWessex	with without	Set Pc.
33 03 64	KM-83	Koa		Pc.
33 03 89	KS-6	Kokusai		Pc.
33 13 23	345305	Hansson PyroTech AB	with	Set
33 13 24	K-34	Koryo Pyrotechics	wihtout	Pc.
33 13 73	9181700	Comet	with	Set

Lifebuoy Self-igniting Lights

Luz Flotante para Aro Salvavidas　自己点火灯　救生自燃烟灯

For use with all externally mounted lifebuoys. All lights provide the 2 cd output called for by IMO and meet the SOLAS' 83 amendments requirement of 2 hours duration.



L160　L161　L90 LED

CODE	Model	Brand	Unit
33 03 29	Lifebuoy light L160 (Lithium battery)	Daniamant	Pc.
33 03 30	Lifebuoy light L161 Intrinsically safe (Zone 0, 1, 2)		Pc.
33 13 78	Lifebuoy light L90 LED with battery, 63-400A		Pc.
33 13 79	Lifebuoy light L90 LED without battery, 63-401A		Pc.
33 13 80	Bracket for lifebuoy light L90, 63-4003		Pc.
33 03 70	KM79S HK/MED approved	Koa	Pc.
33 03 75	KM80E Intrinsically safe	Koa	Pc.
33 03 86 87	KL-7 with bracket KL-7 without bracket	Kokusai	Set Pc.
33 13 29	K-36	Koryo Pyrotechnics	Pc.

Buoyant Smoke Signals

Señales de Humo　発煙浮信号　漂浮烟雾信号



For use in day distress signal situations and to mark the position during a rescue operation.

1) Colour of light	Dense orange smoke
2) Duration of burn time	3 minutes minimum
3) Ignition	Pull-wire igniter with a 2 second safety delay
4) Temperature operation range	-1°C to 30°C
5) Temperature storage range	-30°C to 75°C
6) Weight	370 grm

CODE	Model	Brand	Unit
33 03 31	MK9 (9537000)	PainsWessex	Pc.
33 03 66	KM46S	Koa (HK)	2's/Set
33 03 91	KB-8	Kokusai	Pc.
33 13 31	342130	Hansson PyroTech AB	"
33 13 32	K-45	Koryo Pyrotechnics	"
33 13 81	9192000	Comet	"

Ship's Lifeboat and Liferaft Distress Kits

Equipo de Salvavidas para Botes
救命艇・救命いかだ用救難信号セット
救生艇和救生筏用救生信号箱



Designed to be carried on a ship's lifeboats and liferafts. Consists of 4 pcs of rocket parachute flares, 6 pcs of hand flares and 2 pcs of buoyant smoke signals are contained in a watertight bottle.

Unit Per Set

CODE	Brand	CODE	Brand
33 03 36	PainsWessex	**33 13 36**	Hansson PyroTech AB
71	Koa	**86**	Comet
96	Kokusai		

Ship's Bridge Distress Kits

Equipo de Señales para Puente
本船用救難信号セット　驾驶台遇难信号



Designed to be carried on a ship's bridge. Kits consists of 12 pcs of rocket parachute flares contained in a watertight bottle.

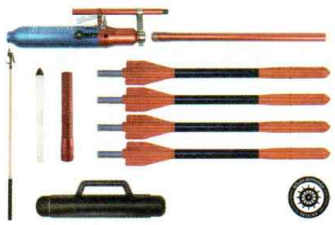
Unit Per Set

CODE	Brand	CODE	Brand
33 03 37	PainsWessex	**33 13 37**	Hansson PyoTech AB
33 03 98	Kokusai	**33 13 87**	Comet

Pneumatic Line Thrower
PLT® Rescue 230

Lanzador Neumático de Cable Salvavidas
圧縮空気救命索発射機　气动抛绳器

The PLT® Rescue 230 meets the IMO SOLAS regulation 74/96. There is no expiry-date which means it will stay on board for the lifetime of your vessel. A stand-by tool for rescue purposes. The training projectile allows easy live training and line transfer at no cost. Launching unit with air cylinder holds sufficient air for 4 - 6 launches before refilling from a high pressure compressor (200 – 300 bars) or a diving cylinder. Holds Type approval, CCS approval, USCG approval and MED B&D certificate from DNV. NATO no.1095-25-142-3704.



Technical Data		Contents
Range	: Min. 230 mtr	4 Rescue projectiles
Line strength	: Min. 2,000 N	1 Training projectile
Recoil	: Max. 5,400 N	1 Loading device
Flight time	: 4 sec.	1 Users manual, video/CD

33 13 45	Line thrower, pneumatic, PLT® Rescue 230	Set

Name of Mfr.: Restech Norway AS

Line Throwing Appliance Electric Ignition Type

Lanzador de Cable Salvavidas con Chispa Eléctrica
電気点火式救命索発射器　电动抛绳器



Designed for portable, compact, safe and ease of operation, and projects a line to a normal range 230 mtr in calm weather condition, conforms to LSA code and IMO Resolution M.S.C. 81 (70).

It provides a new ignition system which can be fired by a self-contained electric ignition mechanism. The line-throwing device can be used from ship to ship or ship to sea shore and also is suitable for rescue operation at sea and on land. Effective period of rockets and igniter: 3 years and 6 months. The spares (Rockets, igniter and liners) are available on request.

Composition
1 Plastic casing with an igniter
4 Rockets
4 Lines
1 Container for rocket and lines

33 13 47	Line throwing appliance, electric ignition type, Koa Kako KM5E	Set
48	Spre 4 rockets & 1 ignitor for KM5E	Set

Portable Oxygen Apparatus

Aparatos Portátiles de Oxígeno
自動人工蘇生器　便携式人工呼吸器



Installation required by the Medical First Aid Guide (MFAG) for use in accidents involving noxious gases. These units may be used as a resuscitator, aspirator and oxygen inhaler. Oxygen capacity for resuscitator: 50 % – 40 minutes (for adult) per 2 ltr cylinder. Cylinders are of a 2 ltr capacity. 1 or 2 cylinder units are available.

Oxygen Consumption for Inhaler

Flow/Hour	1 Cylinder	2 Cylinders
0.5 ltr	8 H 30'	17H 00'
1.0 "	4 H 20'	8H 40'
2.0 "	2 H 10'	4H 20'
3.0 "	1 H 25'	2H 50'
4.0 "	1 H 00'	2H 00'
5.0 "	50'	1H 40'

Unit Per Set

CODE	Capacity	Gross Weight
33 04 01	2 ltr × 1 cylinder, complete set	14 kg
02	Spare cylinder, 2 ltr	-
33 04 03	2 ltr × 2 cylinders, complete set	15.5 kg

Self-contained Breathing Apparatus

Equipos de Respiracón Autonomós
自蔵式呼吸器　空气呼吸器



Required by the Medical First Aid Guide (MFAG) for use in accidents involving dangerous gases where a portable oxygen apparatus is not available. A self-contained breathing apparatus is also required by 1983 SOLAS amendments Chapter III Regulation 17. Suitable for fire fighting, rescue work, inspection and maintenance of equipment and other related activities, especially on board a ship.

Unit Per Set

CODE	33 04 16	33 04 21	33 04 25	33 04 23	33 04 27
Model	KS-8C	FireHAWK M7 Air Mask	AirGofix Com	PSS 3000 with FPS 7000	PAS Lite
Effective Duration	30 min.	30 min.	45 min.	45 min.	30 min.
Cylinder Volume	8 ltr	8.4 ltr	6.8 ltr	6.8 ltr	6.0 ltr
Pressure	14.7 MPa	316 kgf/cm²	300 bar	300 bar Carbon Composite	200 bar Steel
Air Capacity	1,200 ltr	1,260 ltr	1,860 ltr	1,860 ltr	1,200 Ltr
Total Weight	15.6 kg	10.0 kg	10.5 kg	10.3 kg	13.0 kg
Approvals		NFPA 1981 and 1982 – 2007 edition, NIOSH 42 CFR, Part 84 CBRN certified	EN 137:2006, type 2 requirements (incl. flame engulfment test) Directive 94/9/EC [ATEX] BVS 05 H 027 I M1 II 1G IIC T6 -30°C<Ta<+ 60°C II 1D	SOLAS, MED B & D Certified, EN 137:2006 Type 2	SOLAS, MED B & D Certified, EN 137: 2006 Type 2

(to be continued)

Unit Per Set

CODE	33 04 16	33 04 21	33 04 25	33 04 23	33 04 27
Part No.	-	Request Assemble-To-Order Matrix	10086572 + D4080801 + 39B2368UL	3358906 + R56200 + 3366787	3357774 + R54450 + 3366788 Grey
Name of Mfr.	Air Water Safety Service	MSA The Safety Company		Draeger	

Air Capacity = Cylinder volume × Charging pressure
= 8 Ltr × 150 kgf/cm²
= 6 Ltr × 200 Bar = 1,200 Litre = 3-mins

Air Filled Spare Cylinders





Unit Per Pc.

CODE	33 04 17	33 04 22	33 04 26	33 04 24	33 04 18
For Model	KS-8C	FireHAWK M7 Air Mask	AirGofix Com	PSS3000	PAS Lite
Cylinder Volume	8 ltr	8.4 ltr	6.8 ltr	6.8 ltr	6.0 later
Pressure	14.7 MPa	150 kgf/cm²	300 bar	300 bar	200 bar
Part No.	-	10128111-SP	10175092	3366787	3366788

Communication Systems

for SCBA

Sistema de Comunicación para SCBA
自蔵式呼吸具用コミュニケーションシステム
SCBA 用通訊系統



By simultaneous use of a SCBA and a radio, communication is getting difficult in a noisiness area.

Communication system exist of a combined microphone – speaker, wired to a radio connector with a PTT(Push to Talk) knob, connected to the full face mask by a radio-exhalation valve adapter. Or to be used without full face mask.

Loud and clear communication is possible, even in combination with a full face mask. Other option is to use it in a gastight suit.

Connection with a wide range of brand and types of radios is possible.



Positive Pressure Version



Normal Pressure Version

CODE	Description	Manufacturer	Part No.
33 04 28	Draeger FPS-COM 5000 with FPS 7000 Mask (without radio connection and earphone)**	Draeger	R62700
33 04 29	Radio-exhalation valve, positive pressure version	MSA	D2055720
33 04 30	Radio-exhalation valve, normal pressure version		D2055761

** Options for Push-To-Talk radio connetor available upon request

Emergency Escape Breathing Devices

Equipos de Respiracón en Caso de Evacuación de Emergencia
非常脱出用呼吸具　救生呼吸器



Required by SOLAS 1974 in regulation 13 revised in 2000, all ships shall carry at least two Emergency Escape Breathing Devices (E.E.B.D.) within accommodation spaces for providing respiratory protection in toxic and oxygen deficient atmospheres. On all ships, within the machinery spaces, E.E.B.D. shall be situated ready for use at easily visible places, which can be reached quickly and easily at any time in the event of fire. The location of E.E.B.D. shall take into account the layout of the machinery space and the number of persons normally working in the spaces. The E.E.B.D. should have at least a duration of service of 10 minutes and should include a hood or full face piece to protect the eyes, nose and mouth during escape, complying with the Fire Safety Systems (F.S.S.) Code. Hoods and face pieces should be considered flame resistant and include a clear window for viewing. An unactivated E.E.B.D. should be capable of being carried hands-free.

Specifications

Mfr.	MSA The Safety Company	Interspiro (Survitec)	Draeger		Scott Safety
Duration of Service	15 min.	15 min.	10 min.	15 min.	15 min.
Model	S-Cap Air	Spiroscape	Saver CF-10	Saver CF-15	ELSA 15-B
Part No.	10032181 (with filled cylinder)	731491 (with filled cylinder)	3363824 (Air flow: Hood 35-37 ltr/min.)	3363826 (Air flow: Hood 35-37 ltr/min.)	1047372 (with filled cylinder)
Approval	EN 1146	EU: 89/686/EEC/ PPE 2014/90/EU, (EU)2022/ 1157, EN 1146 ISO23269-1 US: NIOSH 42 CFR Part 84	EN1146:2005, ISO 23269-1:2008, ISO 23269-4:2011, SOLAS Chapter II-2, Marine Equipment Directive MED module B & D.		EC Type examination (BSI/A.1/3.41/ 71236), Product Quality Assurance (BSI/MED/ PC/90907), EN1146:2005, ISO23269-1:2008, ISO SOLAS 74/2014 Reg. II-2/13 FSS code3 IMO Res.MSC. 98(73) IMO MSC/Circ.849

CODE	Description		Unit
Emergency Escape Breathing Device w/Air Cylinder			
33 04 35 38	Duration of Service "	10 min. 15 min	Set "
Spare Cylinder for E.E.B.D.			
33 04 36 39	Duration of Service "	10 min. 15 min	Pc. "

Emergency Escape Breathing Devices

Single Use Type

Respirador de Escape de Emergencia del Tipo de Uso
使い切りタイプ非常脱出用呼吸器　使用型紧急逃生呼吸器

The M-20.2 is a self-contained, closed-circuit breathing apparatus for single use which do not require to refill the oxygen. The compressed oxygen delivery system activates

automatically when the device is removed from the clear case. The demand regulator allows the user to inhale immediately from the device when donned and provides up to 100 liters of oxygen flow during high work rates.



The M-20.2 can be either belt-worn or stored and is used in multiple markets to protect the user during escape from toxic, or oxygen-deficient atmospheres.

Specification

Oxygen Delivery	Automatic on, demand regulated
Performance Duration	10 minutes - NIOSH Approved 15 minutes - CE Marked
Donning Time	Less than 10 seconds
Service Life	15 years
Storage Temperature	-12.2 to + 65°C
Approvals	MED, CE/EN13794, NIOSH, NK, HK
Weight (kg)	1.4
Dimensions (mm)	69 x 167 x 155

33 04 43	Emergency Escape Breathing Device, Single Use Type	Set

Airline Trolley

Lineas Aéreas Universales
ユニバーサル・エアーライン
萬能軟管（氣體用）



Uninterrupted air supply is provided by the trolley-mounted cylinder(s) to the wearer via a hose reel. As the air-trolley can be easily re-located and therefore positioned in a safe zone which is in close proximity to working area, the user need only wear a lightweight harness during operation. This allows the wearer a greater freedom of movement, and less stress and fatigue than they would be subjected to if wearing a conventional self contained breathing apparatus unit.

The air-trolley is able to accommodate up to four compressed air cylinders of up to 12 litres in capacity and is constructed from an anti-static powder coated steel material. The trolley hose reel connector is protected with a cover to minimize inadvertent damage being caused. The system incorporates a safety pressure relief valve and the pressure reducer is shrouded in a protective plate for additional safety.

Application: Chemical tank cleaning, toxic spillages or certain tasks when working on offshore installations

Dräger PAS AirPack 1
Trolley, Reducer Hose Reel & Hose

Unit Per Set

CODE	**33 04 41**
Model	33 52 228
Input Pressure Cylinder	200 or 300 bar
Input Pressure Airline	6 – 10 bar
Normal 1st Stage Output Pressure	8 bar
1st Stage Output Flow	>600 ltr/min
Whistle Sound Level	>90 dBA
Standard Length of air Hose	50 meters (with options of extension hose of 50 mtr)
Size, excluding cylinder (H×W×D)	1,019 × 465 × 60 mm
Weight	40.5 kg

Name of Mfr. : Draeger

Breathing Air Quality Tester

Probador de la calidad del aire de respiración
呼吸器用空気品質検査器　呼吸空气质量测试仪



Used to determine the quality of respiratory air in high-pressure compressor or a compressed air cylinder. The application of the test system ensures the reliable testing in accordance with the purification standard EN 12021. This quick check guarantees a reliable measuring result and provides information regarding the level of contamination within five minutes. In compliance to IMO MSC Circular.1/Circ.1432 on Revised guidelines for maintenance and inspection of fire protection systems and appliance for air quality of breathing apparatus air recharging systems.

Unit Per Set

CODE	**33 04 46**
Model	Aerotest Simultant HP
Pressure Reducer Inlet Max. Pressure Pressure Gauge Outlet Over Pressure Value Adapter (Inlet & Outlet)	 External threads G5/8 – 300 bar (hand-tightened connection) 300 bar 0 – 400 bar 9 mm plug-in connector for measuring device Set to 10 bar Internal threads G 5/8 – 200&300 bar for pressure reducer
Measuring Device Flow	 0.2 L/min and 4.0 L/min
Size L × W × H mm	350 × 300 × 85
Weight kg	Approx. 3.5

Name of Mfr.: Draeger

Dräger Detection Tube holder included

Dräger Tubes	Standard Range of Measurement	Order Code
Description	(20 Deg C, 1,013 hPa)	
Carbon Dioxide 100/a-P	100-3,000 ppm	6728521
Carbon Monoxide 5/a-P	5-150 ppm	6728511
Water Vapour 20/a-P	20-250 mg H_2O/m^3	8103061
Oil Impactor	Oil mist	8103560
Adapter for the Oil-Impactor		8103557

Breathing Air Compressors

Equipos Respiracón de Emergencia
エアー・コンプレッサー　呼吸空气压缩机



Used to fill the air cylinders of breathing apparatuses.

Unit Per Set

CODE	**33 04 67**	**33 04 68**	**33 04 69**
Model	ICON LSE 100 ET	SMART 125 EM	SMART 235 ET
Charging Rate	100 ltr/min. (6m³/h, 3.5 cfm)	125 ltr/min. (7.5 m³/h, 4.4 cfm)	235 ltr/min. (14.1 m³/h, 8.3 cfm)
Filling Time Cylinder 10 ltr-0-200 bar	20 mn.	16 min.	8 min. 30 sec.

(to be continued)

Unit Per Set

CODE	33 04 67	33 04 68	33 04 69
Working Pressure	232 bar - 3,300 psi		
Rpm Pumping Unit	2,800	1,500	1,200
Power	3 kW	3 kW	4 kW
Full Load Amps	6.7A (400V 50/60 Hz)	18A (230V 50/60 Hz)	15A (230V 50/60 Hz) 8.7A(400V 50/60Hz)
Noise	94 dB	95 dB	94 dB
Breathing Air	DIN3188EN 12021CGA E		
Switch Board	Built-in	Option	Option
Filling Valve	1	2	2
Dimensions L×H×W	24"×13.7"×15.4"	36.4"×18.1"×27.6"	39.4"×18.1"×27.6"
Weight	38 kg	93 kg	95 kg

Name of Mfr.: Aerotecnica Coltri S.r.l.



Unit Per Set

CODE	33 04 65
Model	JUNIOR II-E
Charging Rate	100 ltr/min.
Operating Pressure Max.	330 bar
Purification System	P21
Number of Stages	3
Speed	2,300 rpm
Drive and Motor Power	Three-phase 220/440V 50/60Hz 2.2 kW
Dimensions	L69 × W39 × H44 cm
Net Weight approx.	46 kg
Name of Mfr.	Bauer Kompressoren GmbH

Oxygen Indicators

Indicadores de Oxígeno
酸素濃度計　便携式測氧仪



For measuring concentrations of oxygen within the rate of 0 to 25% by volume. Dependable instrument for preventing a threat in areas with an oxygen shortage.

Also for preventing accidents of fire or explosion caused by oxygen leakage.

Unit Per Set

CODE	33 05 06
Model	OX-08
Gas Detected	Oxygen in air
Detection principle	Galvanic cell
Detection Range	0 - 40.0 vol%. (0.1 vol%.)
Alarm Set Point	Low : 19.5 vol%. High : 23.5 vol%. Over : 40.0 vol%.
Trouble Alarm	Sensor disconnection, low battery, calibration range error, system error
Alarm Types	Gas alarm: Flashing light, intermittent buzzer and flashing gas value, pulsing vibration

(to be continued)

Unit Per Set

CODE	33 05 06
Display	Digital display
Power Source	Alkaline dry cells (2-AA) 2 pcs
Continuous Operation	Maximum 20,000 hours
Safety Design	Intrinsically safe (ExiaIICT4GA)
Approval	JML (Japanese Ministry of Labor)
Special Functions	Manual backlight for LCD / Peak hold
Dimensions & Weight	Approx. 69 (W) × 150 (H) × 53 (D) mm / Approx. 330 grm
Standard Accessories	Hand Strap
Name of mfr.	Riken Keiki

Unit Per Set

CODE	33 05 16
Model	XP-3380II
Range	0-25%
Sampling Method	Extracive
Alarm Set Value	Factory preset at 18% O_2
Readout	LCD digital (with backlight)
Power Source	4 x AA alkaline dry cell batteries or Rechargeable 4 x AAA batteries
Size W×H×D mm	91 × 164 × 44
Weight	460 grm
Approved	ATEX: Ex II 1G Ex ia IIC T4 Ga*1 IECEx: Ex ia IIC T4 Ga*1 CE (ATEX, RoHS and RE directives)
Name of Mfr.	New Cosmos Electric

Unit Per Set

CODE	33 05 19	33 05 17	33 05 18
Model	XO-326IIsC	XO-326IIsA	XO-326IIsB
Detection Range (Service Range)	0 – 25% vol.% O_2 (25.1- 40% vol.%)		
Sampling Method	Diffusion Type		
Sensor Cable	10 mtr	5 mtr	1 mtr
Alarm Preset	1st stage : 19.5 vol% 2nd stage : 18.0 vol%		
Protection	IP20 or equivalent		
Readout	Liquid crystal diode digital meter		
Continuous Use	Approx. 15,000 hours		
Power Source	2 x AA alkaline batteries		
Size W×H×D mm	66×200×29	66×170×29	66×120×29
Weight	410 grm	340 grm	265 grm
Approved	Ex ia II CT3 X(Explosion Proof) H.K.		
Name of Mfr.	New Cosmos Electric		

Unit Per Set

CODE	33 05 04	33 05 05
Model	TIP-OXF	TIP-OXP
Measuring Gas	Oxygen	
Sensing Principle	Galvanic cell method	
Gas Collection Method	Diffusion type (Direct Sensing) with remote cable	Suction type by built-in pump with sampling tube
Measuring Range	0 – 25%O_2	
Accuracy	Within ± 0.7%O_2	

(to be continued)

Unit Per Set

CODE	33 05 04	33 05 05
Response	90% response within 20 sec.	
Display	Digital display by LCD panel, Power lamp, Alarm lamp, Peak hold mode lamp	
Alarm Level	Twouser – adjustable alarm level AL1 : 18% O_2 at Oxygen decrease mode AL2: 8% O_2 at Oxygen increase mode	
Alarm Display	Alarm lamp and buzzer	
Power Source	Manganese dry cell (R20P) x 2 pcs	
Dimensions	W:163 × H:137 × D:67 mm	
Weight	1.6 kg (with sensor and 5 m cable)	1.5 kg (without sampling tube)
Safety Approval	Intrinsically safe: i3aG4	
Ability Approval	Type approved by NK *HK examination available on request	
Accessories	Leather case, Sensor with remote cable (5 m～max 20 m)	Air Filter, Leather case, Sampling tube (5 m～max 20 m)
Name of Mfr.	Toka Seiki Co., Ltd.	

Multi-Toxic Gas Monitor

Monitoer de Múlutiples Gases Tóxicos

酸欠事故防止用ガス検知器　多功能有毒气体检测仪

GX-3R / GX-3R Pro

A four to five gas personal monitor with advanced features including large LCD which can display 4-5 gas concentrations, current time, and battery indicator, temperature and peak reading simultaneously. Compact, lightweight tough design to withstand 7m drop.



* Simultaneously and read-time detection of 4 gases LEL, O_2 (Oxygen), H_2S (Hydrogen Sulfide) and CO (Carbon Monoxide).

  GX-3 Pro you can add one more gas detection from SO_2 and CO_2 as option.
* Rechargeable Lithium-ion battery pack.
* Continuous operation for up to 40 hours.
* Data logging standard.
* STEL (Short Term Exposure Limit) and TWA (Time Weighted Average) readout.

Unit Per Set

CODE	33 05 20	33 05 09
Model	GX-3R	GX-3R Pro
Detection Principle and range	Combustible gases: 0-100%LEL (1%LEL) O_2: 0-40 VOL% (0.1 VOL%) H_2S: 0-100.0 ppm (0.5 ppm) CO: 0-500 ppm (1 ppm)	Combustible gases: 0-100%LEL (1%LEL) O_2: 0-40 VOL% (0.1 VOL%) H_2S: 0-100.0 ppm (0.5 ppm) CO: 0-500 ppm (1 ppm) < Option > SO_2: 0-20.00 ppm (0.05 ppm) CO_2: 0-5.00 vol% (0.01 vol%) 0-10,000 ppm (20 ppm) NO_2:0-20.00 ppm (0.05 ppm)
Communication	-	Bluetooth 4.2
Detection Method	Diffusion Type	

(to be continued)

Unit Per Set

CODE	33 05 20	33 05 09
Display	LCD Digital, backlight, operation status, clock, battery level, temperature, peak reading, calibration notification	
Preset Alarms	Combustible gases: 1st 10%LEL, 2nd 50%LEL, Over 100%LEL O_2: Low 18.0 VOL%, High 25.0 VOL%, Over 40.0 VOL% H_2S: 1st 1.0 ppm, 2nd 10.0 ppm, TWA 1.0 ppm, STEL 5.0 ppm, Over 200.0 ppm CO: 1st 25.0 ppm, 2nd 50.0 ppm, TWA 25.0 ppm, STEL 200 ppm, Over 2,000 ppm	
Buzzer volume	Approx. 95 dB (30 cm)	
Display of Alarm	Gas alarms: Flashing LEDs, intermittent buzzer, flashing gas value, vibration Trouble alarms: Flashing LEDs, intermittent buzzer, display of error message	
Temperature/ Humidity range	-40°C+60°C (no sudden changes) 0~95%RH (non-condensation)	
Power Source	Lithium-ion rechargeable battery	Lithium-ion rechargeable battery or A4 battery × 2
Protection Level	Equivalent to IP66/68 (2 m, 1 h)	
Explosion-proof Class	[ATEX] II1G Ex ia IIC T4 Ga [IECEx] Ex ia IIC T4 Ga [Japan Ex] Ex ia IIC T4 Ga	[ATEX] II1G Ex da ia IIC T4 Ga / IM1 Ex da ia I Ma (With combustible gas sensor) II1G Ex ia IIC T4 Ga / IM1 Ex ia I Ma (No combustible gas sensor) [IECEx] Ex da ia IIC T4 Ga / Ex da ia I Ma (With combustible gas sensor) Ex ia IIC T4 Ga / Ex ia I Ma (No combustible gas sensor) [Japan Ex] Ex ia IIC T4 Ga
Dimensions	Approx. 65(H) × 58(W) × 26(D) mm	Approx. 65(H) × 73(W) × 34(D) mm
Weight	Approx. 100 grm	Approx. 140 grm
Name of Mfr	Riken Keiki Co., Ltd.	

SC-8000

Reliable portable toxic gas detector with waterproof protection. It will operate correctly in any challenging situation to protect workers with real time detection with ppm range.



Unit Per Set

CODE	33 05 59
Model	SC-8000
Sampling method	Sample draw
Principle of detection range	
Power source	Lithium-ion battery, Alkaline AA 3 pcs
Battery life	Lithium-ion battery : 25 hours Alkaline AA : 18 hours
Operating temperature	-10°C ~ 40°C
Ingress Protection	IP 67
Dimensions	154 (W) x 81(H) x 164 (D) mm
Weight	1.1 kg
Name of Mfr	Riken Keiki Co., Ltd.

Combination Gas Detectors

Detectores de Gases Combinados

多目的ガス知器　四合一气体检测仪



Designed for detecting oxygen, combustible gas and toxic gas in the atmosphere. Providing full-function capability in a personal monitoring device.

Portable Type

Unit Per Set

CODE	33 05 21
Model	GX-8000
Detection Principle and range	Combustible gases (CH_4, i-C_4H_{10}, H_2, others): Thermal conductivity: 0-100 VOL% (1 VOL%) Catalytic combustion: 0-100%LEL (1%LEL) O_2: Galvanic cell 0-40 VOL% (0.1%) H_2S: Electro-chemical cell 0-100.0 ppm (0.5ppm) CO: Electro-chemical cell 0-500 ppm (1 ppm)
Sampling Method	Sample draw, minimum 0.75 l/min
Display	Digital LCD with auto backlight Digital display (7 segments) and digital bargraph (25 segments)
Gas Alarm	Combustible gases: Thermal conductivity: N/A Catalytic combustion: 1st 10%LEL, 2nd 50%LEL O_2: Low 19.5 VOL%, High 23.5 VOL% H_2S: 1st 5.0 ppm, 2nd 30.0 ppm, TWA 10.0 ppm, STEL 15.0 ppm CO: 1st 25.0 ppm, 2nd 50.0 ppm, TWA 25.0 ppm, STEL 200 ppm,
Types of Alarm	Gas alarm: latching, 2 alarms Failure alarms : Flow failure, sensor failure, battery failure, circuit failure, calibration failure
Display of Alarm	LED: LED's flash Buzzer: Buzzer sounds alternating between a low and high pitch Visual indication: Indication value flashes. Alarm message displays and flashes.
Power Source	Lithium-ion battery, standard (3 hours for a full charge) AA Alkaline battery (3 pcs), option
Continuous Operation	Lithium-ion battery: more than 12 hours AA Alkaline battery: more than 6 hours
Ingress Proof Rating	Equivalent to IP67
Explosion Proof	Intrinsically safe Exia II CT4
Approvals	IECEx , ATEX, TIIS, MED, HK, CE mark, Complying to IEC60079-29-1
Additional Features	Indication to show energizing (pilot indicator and pump driving indicator), "Activating confirmation beep and LED's flash (every one min)" Pump stop function, Bump test function, IrDA communication, Data logger, Password protection
Dimensions	Approx. 154 (W) × 81 (H) × 130(D) mm
Weight	Approx. 1.1 kg
Standard Accessories	AC powered charger (Input: AC100V-AC240V, 50/60Hz, Output: DC12V, 1.25A) Gas sampling probe Gas sampling hose (Spiral 1 mtr) Lithium-ion battery unit BUL-8000 Neck/shoulder strap Instruction manual
Name of Mfr	Riken Keiki Co., Ltd.

Pocket Type

GX-Force

Solid and reliable Multi Gas Detector designed to offer extensive gas detection capabilities even in challenging environments.



Unit Per Set

CODE	33 05 27
Model	GX-Force
Target Gas	CH_4, CO, H_2S, i-C_4H10, O_2
Sampling method	Suction type
Principle of detection	New Ceramic catalytic Method, Potentiostatic Electrolysis Method
Detection range	0-100% LEL (HC/CH_4) 0.0-25.0 VOL% (O_2) 0-500 ppm (CO) 0.0-30.0 ppm (H_2S)
Type of alarm	Gas alarm / fault alarm
Explosion protected construction	Flameproof enclosures + Intrinsic safety
IP rating	IP67
Approvals	Japan Ex, ATEX, IECEx, JIS
CE marking	EMC / ATEX / RoHS
Power source	Lithium-ion rechargeable battery unit
Continuous operation	Approx. 30 hours
Dimensions	Approx. 64 (W) × 173 (H) × 47 (D) mm
Weight	Approx. 300 g
Operating Temperature	-40°C - 60°C
Name of Mfr	Riken Keiki Co., Ltd.

GX-2012GT

It can monitor the standard gas safety hazards for gas/ pipeline operations, (LEL combustibles, oxygen content and Carbon Monoxide), and it has a high-sensitivity ppm CH_4 leak tracker mode which reads down to 10 ppm.

Unit Per Set

CODE	33 05 28				
Gas Detected	Combustible gases (Methane as standard)	% Volume Methane	PPM Methane	Oxygen (O_2)	Carbon monoxide (CO)
Detection principle	Catalytic combustion	Thermal conduc-tivity	MOS/ Catalytic	Galvanic cell	
Detection Range	0-100% LEL	0-100% Vol	0-5,000 ppm	0-40% Vol	0-500 ppm
Sampling Method	Internal sample pump. Flow rate nominal 0.5 LPM, includes hydrophobic filter				
Display	Digital LCD with 7 segments, auto backlight during alarm				
Preset Alarm (User Adjustable)	1st alarm 10% LEL 2nd alarm 50% LEL Over alarm 100% LEL	No alarms for % Vol CH_4	Increas-ing tone/ light pulse as concen-tration increases	Low alarm 19.5% High alarm 23.5% Over alarm 40.0%	1st 25 ppm 2nd 50 ppm TWA 25 ppm STEL 200 ppm Over 500 ppm
Alarm Types	Leak tracker mode: Escalating audible / visual alarm, changes with gas level (audible can be turned off) Gas alarms: 1st and 2nd, STEL, TWA (user adjustable) and OVER Trouble alarms: Sensor connection, low battery, low flow, circuit trouble and calibration error				
Alarm Methods	Gas alarms: Flashing lights, two tone buzzer, and vibration Trouble alarms: Flashing lights, trouble displayed, intermittent buzzer, and vibration				
Response Time	Within 30 seconds (T90)				
Continuous Operation	Alkaline battery: 15 hours Li-Ion battery: 10 hours				
Power Source	Li-Ion battery pack, or 3 "AA" alkaline battery pack; interchangeable				
Safety Rating	ATEX Ex II 1G Ex ia IIC T4 / IECEx II 1G Ex ia IIC T4 / TIIS / MED / HK / CE				

(to be continued)

Unit Per Set

CODE	33 05 28
Size & Weight	Approx. 173 (H) × 71 (W) × 43 (D) mm, 360 grm (include 3 "AA" alkaline batteries)
Standard Accessories	Belt clip / Rubber nozzles / Wrist strap / Manual / Alkaline battery pack
Name of Mfr.	Riken Keiki Co., Ltd.

Unit Per Set

CODE	33 05 81
Model	XP-3318II
Detection Method	Oxygen (O_2) : Galvanic cell Combustible gas and Vapors (specify gas detected) : Catalytic combustion
Measuring Range	Oxygen : 0-25.0 VOL% Combustible gas : 0-100% LEL
Accuracy	Oxygen : ±0.3 VOL% (Complies to JIS T8201) Combustible gas : ±5% of full scale
Alarm Preset Point	Oxygen : 18.0 VOL% Combustible gas : 20% LEL
Alarm Method	Gas alarm: Beeping with flashing red light and AL icon on the LCD. Error alarm: Beeping with flashing yellow light and error message on the LCD
Sampling Method	Extractive
Power Source	4 × AA alkaline dry batteries or Rechargeable 4 x AA batteries
Approval	ATEX: Ex II 1G Ex ia da IIC T4 Ga*1 IECEx: Ex ia da IIC T4 Ga*1 CE (ATEX, RoHS and RE directives)
Dimensions	W:91 × H:164 × D:44 mm
Weight	460 grm
Accessories	Gas sampling tube (1mtr), Shoulder strap, Drain filter, Filter element, 4 × AA alkaline dry batteries (or 4 × AA rechargeable batteries), Screen protector film × 3
Name of Mfr	New Cosmos Electric

Multi Gas Detectors

GasAlertQuattro

Detectores de gases múltiples
マルチガス検知器　多气体探测器



A four-gas detector combines a comprehensive range of features with simple one-button operation, suited to a wide range of industrial applications including confined space entry. The graphic LCD displays easy to identify icons that indicate operational information, such as bump test and calibration status for simplified onsite auditing. Interchangeable power options with extended battery runtimes for longer shifts. Full function self-test of sensor(s), battery status, circuit integrity and audible / visual alarms on start up and continuous testing on sensor(s). Multi-language support in English, French, German, Spanish and Portuguese.

Sensor Specifications

Gas	Measuring Range	Resolution
Hydrogen sulfide (H_2S)	0-200 ppm	0.1 ppm
Carbon monoxide (CO)	0-1,000 ppm	1 ppm
Oxygen (O_2)	0-30.0%	0.1%
Combustible gases (%LEL)	0-100% LEL	1%
	0-5.0% v/v	0.1%

Unit Per Pc.

CODE	33 05 85
Model	GasAlertQuattro
Tests	Sensor integrity
Alarms	Visual (six, red LEDs), vibrating, audible (95 dB) Low, High, STEL (Threshold Limit Value), TWA (Time Weighted Value), OL (Over Limit)
Pump	Compatible with the Sampler motorized sampling pump
Battery Life	AA alkaline: 14 hrs Rechargeable: more than 18 hrs
Certifications and Approvals	Class II, Div. 1, Gr. A, B, C, D ATEX : CE Ex II 1 G Ga Ex ia II C T4 IECEx : ga Ex ia II C T4 BR-Exia II C T4, MED [0098xx]
Warranty	Full two year warranty including all sensors
Size	13.0 × 8.1 × 4.7 cm
Weight	316 grm (with rechargeable battery pack)

Name of Mfr. : BW Technologies

Combination Gas Detectors

Detectores de Gas Combinados
多目的検知器　多功能探测器

Designed for detecting, combustible gas in the atmosphere. Providing full-function capability in a personal monitoring device.

MSA ALTAIR 5X/ALTAIR 5X-IR



The rugged, multi-featured MSA ALTAIR 5X Gas Detector provides maximum safety and make it easy to use in even the most demanding situations. It features large buttons for easy use, and its polycarbonate housing protects the detector for drops of up to 10 feet. The detector also boasts the exclusive MotionAlert™, which lets others know if the user has become immobile, and InstantAlert™, a manual alarm that alerts others if a dangerous situation has arisen, while the large buttons and bright display makes operation possible even when the user is wearing gloves.

Approvals:

USA/NRTL [Intrinsic Safety, Non-Mining]/Canada/CSA [Intrinsic Safety, Combustible Performance, Non-Mining]/ Australia [Intrinsic Safety, Industrial Mining–TestSafe]/ European Union ATEX–FTZU [Intrinsic Safety, Industrial and Mining]/IECEx [Intrinsic Safety, Industrial and Mining-Test Safe]/Wheelmark 213.050 Complying with SOLAS 74/78 Chapter II-2/4 and VI/3, as amended IMO Resolution MSC.98 (73) - (FSS-code) 15.

- Rugged detector tests levels of LEL.
- Rapid bump test gives results in under 15 seconds .
- Versatile MSA Link™ allows user to transmit data to a computer.
- Durable XCell sensor last longer than 3 years.
- Exclusive end-of-sensor warning cautions user when unit's sensor needs to be changed.
- Polycarbonate housing is both dust-tight and water-tight.

MSA ALTAIR 4X



The ALTAIR 4X Multigas Detector surpasses industry standards in several crucial areas. Its four-year sensor life is 60% longer than the industry average, while its 24-hour run time exceeds the industry average by 71%. This versatile portable detector is a perfect match for industries ranging from firefighting to welding, and its digital sensor output makes it less likely to suffer from RF interference. The unit features exclusive MotionAlert™, which lets others know if the user has become immobile, and InstantAlert™, a manual alarm that alerts others of potentially dangerous situations. This rugged unit is designed to withstand a drop of up to 20 feet and uses less than half as much calibration gas as the industry average.

Approvals:

USA: ETL Class I, Div. 1, Groups A,B,C&D , Tamb=-40°C to +54°C, ETL Class II, Div.1, Groups E,F&G, Class III, Div. 1, Tamb=-40°C to +54°C; T4 / CANADA : CSA Class I, Div. 1, Groups A,B,C&D, CAN/CSA C22.2 152; 12.13.01-2000, ETL Class II, Div.1, Groups E,F&G, Class III, Div. 1, Tamb=-40°C to +54°C; T4 / Australia/New Zealand TestSafe Australia/ European Union ATEX – FTZU [Intrinsic Safety, Industrial and Mining]/Wheelmark 213.048: Complying with SOLAS 74/78 Chapter II-2/4 and VI/3, as amended IMO Resolution MSC.98(73)-(FSS-code) 15.

- Dependable multigas detector tests for LEL.
- Economical construction saves users more than 50% on calibration gas, replacement sensor and maintenance.
- Unit uses 50% less calibration gas per minute than the average detectors within the industry.
- Large buttons and high-contrast screen make operation easy in low-light conditions.
- Ribbed rubber housing provides secure grip and high durability.
- Unit features 95+ db alarm and ultra-bright LEDs.
- Exclusive end-of-sensor warning cautions user when unit's sensor needs to be changed.

Unit Per Pc.

CODE	33 05 96	33 05 97	33 05 98
Model	ALTAIR 5X	ALTAIR 5X-IR	ALTAIR 4X
Measurement of Combustible	0 ...100 %LEL	0 ...100 %LEL and/or 0 ... 100 Vol% [Methane]	0 ...100 %LEL or 0... 5 Vol% [Methane]
Measuring Principle Combustible	Catalytic Combustion	Catalytic Combustion and/or IR light wavelength absorption	Catalytic Combustion
Resolution Combustible	1 %LEL	1 %LEL and/or 1 Vol% Methane	1 %LEL
T90 Combustible	[time needed to reach 90% of final reading and to recover] < 10 seconds		
Measuring Method	Integral pump		Diffusion, or, by an external to connect electrical pump

(to be continued)

Dimensions Weight	H 170.0 mm W 88.7 mm D 45.5 mm < 450 Grams	H 170.0 mm W 89.4 mm D 48.8 mm < 520 Grams	H 112 mm W 76 mm D 35 mm < 210 Grams
Display	Colour	Colour	-
	or Monochrome, showing actual measuring value, time, battery status, check mark*, Motion sensor* and Sensor End-Of-Life Indicator*		
Housing	Armoured Rubber		
Alarms	Optica - two super bright LED's with 320° view Akoustic - 95 dB Typical, Vibration		
Alarm Thresholds	Adjustable Low and High		
Safety LED	Indicator flashes every 15 seconds to show the user that the instrument is functioning normally		
Operation Signal	Sounds every 30 second and the alarm LED's flashes simultaneously		
Bump Check Mark	24 hour check mark for confidence in good working of sensors		
End-Of-Life	Indication for preventive replacement of sensor, to avoid unnecessary and unexpected break down of the instrument		
Motion Alert	Man-Down Alarm / Automatic alarm when wearer doesn't move anymore		
Instant Alert	Man-In-Trouble Alarm / Manually activated Alarm, when wearer can't move anymore		
Data Logging	Standard, 1,000 events		Standard, 500 events
Energy Supply	Rechargeable Lithium Ion Battery		Rechargeable Lithium Polymer Battery
Operation time	>18 hours at 25°C	>14 hours at 25°C	>24 hours at 25°C
Charging time	< 6 hours		< 4 hours
Temperature range	0°C ... +40°C - 20°C ... +50°C - 40°C ... +50°C [short period] +10°C ... +35°C [during charging of battery] +18°C ... +30°C [during storage of instrument]		-10°C...+50°C - 20°C...+50°C [short period] +10°C... +35°C [during charging of battery] +18°C..+30°C [during storage of instrument]
Humidity range	15 % – 90 % relative, non-condensing 5 % – 95 % relative, intermittent		
Ingress Protection	IP65, Certified by 3rd party		IP67, Certified by 3rd party
Warranty	4 years on sensor, rechargeable battery-pack, case and electronics	4 years on sensor, 1 year on IR sensor, rechargeable battery-pack, case and electronics	4 years on sensor, rechargeable battery-pack, case and electronics

* When applicable
Name of Mfr.: MSA The Safety Company

Personal Multi Gas Detection Devices

Dispositivos Personales de Detección de Gases Múltiples
パーソナル可燃性ガス検知器　个人可燃气体探测器

Designed to be a compact, robust, easy to use instrument for either flammable gas detection, or flammable and oxygen detection.

With a large LCD display, loud acoustic and bright optical

alarm with vibrating battery option, the X-am 2500 gives clear warning of a hazardous atmosphere and is, therefore, suitable for a wide range of personal monitoring and confined space entry tasks.



With EEx iad IIC T4 and IP67 approval, the X-am 2500 is suitable for the most demanding of environments.

3 years Warranty.

Unit Per Set

CODE	33 05 82
Model	X-am 2500
Measuring Range	Ex-measurement: 0 to 100% LEL, resolution 1%-LEL 0 to 5 VOL.-% CH_4, resolution 0.1 VOL.-% Oxygen measurement: 0 to 25 VOL.-%, resolution 0.1 VOL.-%
Display	LCD, backlight
Alarm	Optic, acoustic and vibrating alarm, 2 adjustable alarm thresholds for LEL range and oxygen measurement. Ex-measurement: Default A1: 10%-LEL Default A2: 20%-LEL Oxygen measurement: Default A1: 19 VOL.-% Default A2: 23 VOL.-%
Sound Volume of Horn	>90 dB(A), at 30 cm distance
Power Supply	NiMH battery (rechargeable), Alkaline
Operation Time	>12 hours
Charging Time	<4 hours
Ingress Protection	IP67
Intrinsic Safety	EEx iad IIC T4
Approvals	Europe: CE mark, IM 2 EEx iad I; II2G EEx iad IIC T4/T3 USA: UL Class 1 Group A,B,C,D; Div. 1 Temp code T4/T3 Canada: CSA Class 1 Group A,B,C,D; Div. 1 Temp code T4/T3 Shipping: Steering Wheel Certification
Response Time	t50 < 7 seconds (methane)
Dimension	48 × 130 × 44 mm (W × H × D)
Weight	220 - 250 grm

Name of Mfr.: Draeger

Multi-Gas Detector

Draeger X-am® 5000

Detector Multigas
多種ガス対応検知器　多气体检测器



This 1- to 5- gas detector reliably measures combustible gases and vapors as well as O_2 and harmful concentrations of toxic gases, organic vapors, Odorant and Amine. It is easy to exchange, upgrade or calibrate the sensors to other gases. The X-am 5000 provides dependable warnings in the event of explosive atmospheres thanks to the high level of sensitivity of the innovative catalytic Ex sensor. The optional external pump, which operates with a hose up to 30 (98 feet) meters long, makes it possible to use the detector for pre-entry measurements into confined spaces such as tanks, shafts, etc. Consisting of basic instrument with an integrated data logger and manufacturer's and calibration certificates.

Unit Per Set

CODE	33 06 74
Model	X-am 5000
Item No.	83 20 000
Ingress Protection	IP 67
Data Logger	Can be read out via Infrared > 1,000 hours with 5 gases and a recording interval of 1 value per minute
Dimensions (W × H × D)	48 × 130 × 44 mm
Weight	250 grm
Approvals	
ATEX	I M1 Ex ia I Ma, II 1G Ex ia IIC T3 Ga, I M2 Ex d ia I Mb, II 2G Ex d ia IIC T4 / T3 Gb
Performance approval to:	EN 50104 (2002) + A1 (2004): O_2 EN 45544: CO & H_2S EN 60079-29-1:2007: Methane to nonane EN 50271:2010: Software and documentation
CSA	Class I, Div. 1 Group A, B, C, D T.-Code T4/T3
IECEx	Ex ia I, Ex ia IIC T3, Ex d ia I, Ex d ia IIC T4/T3
CE-mark	Electromagnetic compatibility Directive 2004 / 108 / EG; EN 50270:2006
MED	Marine Equipment Directive 96 / 98 / EC
Sensors	4 sensors preferred from the separate list of sensors. NOTE: Contact Draeger for the available Catalytic Ex sensor and Electrochemical sensors.

Name of Mfr. : Draeger

Multi-Gas Detection Device

Draeger X-am® 5600

Dispositivo de Detección de Gases Múltiples
多種ガス対応検知器　多气体检测器



The smallest gas detection instrument for the measurement of up to 6 gases. This detector reliably detects explosive, combustible and harmful concentrations of O_2, Cl_2, CO, CO_2, H_2, H_2S, HCN, NH_3, NO, NO_2, PH_3, SO_2, O_3, Amine, Odorant, $COCl_2$ and organic vapors. Draeger infrared sensors for detection of CH_4 in inert or oxygen depleted condition and can generally be used for up to eight years. This advanced technology reduces the cost of ownership considerably because less replacement sensors are needed. In addition, a sensor calibration is only necessary every 12 months which reduces maintenance costs. An optional external pump which can be operated with hoses up to 30 m or 98 ft. in length is the perfect solution for pre-entry measurements in tanks or pipelines. The small and reliable gas detector is suitable for use in areas classified as zone 0, which are areas where explosive atmospheres are always to be expected.

Consisting of basic instrument with an integrated data logger, support CD, manufacturer's and calibration certificates.

Unit Per Set

CODE	33 06 75
Model	X-am 5600
Item No.	83 21 050
Ingress Protection	IP 67
Data Logger	Can be read out via Infrared > 1,000 hours with 6 gases and a recording interval of 1 value per minute
Dimensions (W x H x D)	47 x 130 x 44 mm
Weight	250 grm
Approvals	
ATEX	I M1 Ex ia I Ma, II 1G Ex ia IIC T4/T3 Ga
Measurement Performance Certificate	EN 50104 (2002) + A1 (2004): O_2 EN 45544: CO, CO_2 & H_2S EN 60079-29-1:2007: Methane, Propane, Nonane EN 50271:2001: Software and documentation
IEC	Ex ia I Ma Ex ia IIC T4/T3 Ga for MQG 01**
MED	Marine Equipment Directive 96/98/EC
CSA C US	Div.1, Class I, Groups A,B,C,D T4/T3 A/Ex ia IIC T4/T3 /Ga
Sensors	4 sensors preferred from the separate list of sensors NOTE: Contact Draeger for the available Inflared Ex sensor and Electrochemical sensors.

Name of Mfr. : Draeger

Multi-Gas Detectors

X-am® 8000

DetectoresMultigas　マルチガス検知器　多种气体探测器



Measures up to seven toxic as well as flammable gases, vapours and oxygen all at once—either in pump or diffusion mode. Innovative signaling design and handy assistant functions ensure complete safety throughout the process. It can be connected with hoses of up to 45 mtr in length. An optional Bluetooth® module in the X-am 8000 enables measured values to be transferred automatically to the CSE Connect app. You can also use the app to create measurement reports. In case of an alarm, the X-am 8000 alerts you with colourful alarm LEDs, a loud horn (100 dB (A) at a distance of 30 cm), and clearly palpable vibration.

Specification:

* Dimensions (H x W x D): 179 x 77 x 42 mm.
* Weight: Approx. 495 grm depending on sensor configuration, without strap and pump.
* Ingress protection class: IP67.
* Energy supply: Lithium-ion battery, rechargeable, inductive charging.

Approvals:

ATEX/IECEx: I M1, II 1G / Ex da ia I Ma, Ex da ia IIC T4 Ga
EAC : PO Ex da ia I Ma X / Ex da ia IIC T4 Ga X

cCSAus (Please contact Draeger regarding availability.):
Class I, Zone 0, AEx da ia IIC T4 Ga / Class II, Div 1, Gr. E, F, G T4 / C22.2 No. 152, ANSI-ISA 12.13.01:2000
CE labeling
MED/DNV (Please contact Draeger regarding availability.)

Selectable device options when ordering;

* Integrated pump with pump adapter
* Bluetooth® module
* RFID transponder

Please contact your local supplier more about sensors and accessories of your necessary jobs.

33 05 83	Multi Gas Detector, Draeger X-am 8000	Set

Name of Mfr. Draeger

Single-Gas Detectors

Pac® 8500

Detector de Gas　シングルガス検知器　单一气体检测仪



A reliable and precise instrument even under the toughest conditions. The device can be equipped with a hydrogen-compensated CO sensor or a dual sensor. This gives you the option of measuring two gases at once: either H_2S with CO or O_2 with CO, and detect of even low concentrations – and all in one and the same handy device. You can take vol.% measurements of oxygen and ppm measurements of carbon monoxide simultaneously using just one sensor. The Pac 8500 also provides a data and event logger for logging concentrations. Data can be loaded on a PC via an interface and processed further there.

The shock-proof, chemical-resistant housing meets the requirements specified in the IP68 standard rating. In case of an alarm, it sets off an audible, visual and perceptible vibrating alarm. All of the versions of the Pac 8500 are equipped with extremely durable DraegerSensors® and a powerful battery. Please contact your local supplier more about sensors and accessories of your necessary jobs.

Unit Per Set

CODE	33 05 84		
Model	Pac 8500		
Measuring Range	H_2S/CO 0–100 ppm H_2S 0-2,000 ppm CO	O_2/CO 0–25 Vol.% O_2 0–2,000 ppm CO	CO-H_2CP 0–2,000 ppm
Alarm Thresholds A1/A2	5/10 ppm H_2S 30/60 ppm CO	19/23 Vol.% O_2 30/60 ppm CO	30/60 ppm
Battery Service Life	1 year (O_2 sensors min. 10 months)		
Approval	cCSAus, IECEx, ATEX, CE		
Dimension (W×H×D)	64 × 84 × 20 mm		
Weight	106 grm		

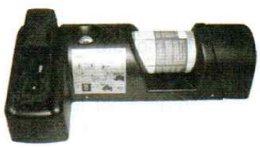
Name of Mfr.: Draeger

Bumptest and Calibration Station for Gas Detectors

Puesto de Prueba Funcional y Calibración de Detectores de Gases
ガス検知器用機能及び較正試験装置
气体探测器用冲撞及校正测试装置

An automated test system provides simple and intelligent testing and calibration of multigas detectors, driven by the most advanced technology available in any portable gas detector. The gas provided by the Bump Test Station flows through the dust and water filter to the sensor(s) confirming correct functionality of the gas detector ensuring compliance with country-specific requirements and regulations, standards, recommendations, etc. Once any gas detector is placed in this system, it can be tested, calibrated automatically.


MSA


Draeger

MSA GALAXY GX2 Automated Test System

Unit Per Set

Galaxy GX2 with EU plug for	No-Charging		Charging	
	CODE	Part No.	CODE	Part No.
ALTAIR, ALTAIR Pro, ALTAIR 2X	-	-	**33 06 06**	10128653
ALTAIR 4X	**33 06 04**	10128651	**33 06 15**	10128639
ALTAIR 5X, 5X-IR, 5X-PID	**33 06 05**	10128637	**33 06 36**	10128635

Name of Mfr.: MSA The Safety Company

Calibration Gas

* Type Model RP with RFID Tag.
* 58 Liter - 500 psig/34.5 Bar.
* Approval: EN12205, U.S. DOT-39 and Canadian TC-39M.
* Content: 1.45 Vol% Methane, 15.0 Vol% Oxygen, 60 ppm Carbon Monoxide, 20 ppm Hydrogen Sulfide.
* Balance: Nitrogen.

Unit Per Pc.

CODE	Description	Part No.	
		USA	Europe
33 06 39	Calibration gas, model RP, with RFID tag, 58 ltr for MSA Altair gas detector	10045035	10053022

Name of Mfr.: MSA The Safety Company

Draeger Bump Test Station X-am 1/2/5x00

Unit Per Pc.

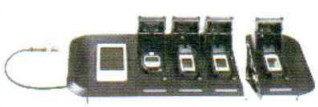
CODE	Description	Item No.
33 06 60	Bump test station, Draeger X-am 1/2/5x00, without gas cylinder	8319131
33 06 67	Bump test station, Draeger X-am 1/2/5x00, including test gas cylinder 58 ltr	8319130

Note: Gas and concentration are freely selectable.
Name of Mfr.: Draeger

Calibration and Bump Testing

Draeger X-dock® 5300/6300/6600

Aparato de Prueba Funcional y Calibración
較正及びバンプテスト装置　校正及通气测试装置



The X-dock 5300 includes a master station including a module for a gas detection instrument from the X-am 1/2/5x00 or Pac family. It is immediately ready to use.

The X-dock 6300 and 6600 versions can be configured freely. They consist of a master station and can be expanded with up to 10 modules for X-am 1/2/5x00 and/or Pac gas detection instruments.

Insert the device, close the lid and remove it when the indicator goes "green" – a test with the X-dock is just that simple. It immediately detects all sensor combinations. Furthermore, the X-dock automatically tests and adjusts when all required test gases are connected.

The X-dock stores all of the relevant data and reads the collected information from the gas detection instruments for subsequent evaluations. All Draeger test gas cylinders are already stored in the database – entering the part number will automatically fill in the fields required for the gas configuration.

<X-dock Master Technical Data>

Protection Class	IP20
Power Supply (power up to 3 modules)	Via 24V (8321849) power supply or car adapter
Approvals	CE marking
Weight	1,500 grm
Dimensions	120 × 130 × 250 mm

Name of Mfr.: Draeger

Ready-to-use Versions

Unit Per Set

CODE	Type	Contents	Item No.
33 06 68	X-dock 5300 X-am 125	X-dock Master including X-am 125 module and power supply. 3 test gas connections. Limited to one module.	8321880
33 06 69	X-dock 5300 Pac	X-dock Master with Pac module and power supply. 3 test gas connections. Limited to one module.	8321881

Master Versions

Unit Per Pc.

CODE	Type	Contents	Item No.
33 06 70	X-dock 6300 Master	3 test gas connections. Can be expanded to 10 X-am 125 modules	8321900
33 06 71	X-dock 6600 Master	6 test gas connections. Can be expanded to 10 X-am 125 modules	8321901

Modular Versions

Unit Per Pc.

CODE	Type	Contents	Item No.
33 06 72	X-dock Module X-am 125	-	8321890
33 06 73	X-dock Module X-am 125+	allows charging X-am 125 devices	8321891

External Pump for Multi-gas Detectors

Draeger X-am® Pump

Bomba externa para detectores de gases múltiples
多種ガス検知器用外付けポンプ　多气体探测器外置泵



An external pump for the portable gas detectors Draeger X-am® 2500, 5000, and 5600 – designed for clearance measurement, for example in tanks and shafts. The X-am pump can reach the ambient atmosphere in inaccessible places – up to a distance of 45 m, e.g. in channels, shafts, or tank systems. The pump has an explosion protection approval for Ex zone 0.

The battery capacity lasts for three workweeks at 8 measurements per day (i.e. up to 20 hours of continuous operation).

Unit Per Set

CODE	**33 06 76**
Model	X-am pump
Item No.	83 27 100
Max. Hose Length	45 mtr NOTE: The sampling hose sold sepalately.

(to be continued)

Air Flow Volume	0.4 ltr/min.
IP Protection Class	IP67
Dimensions	67 × 175 × 38 mm (Without X-am)
Weight	200 grm
Approvals	c_CSA_us, ATEX/IECEx (Zone 0 T4 and M1), DNV, CE label

Name of Mfr.: Draeger

Combustible Gas Detectors

Detectores de Gases Combustibles
可燃性ガス検知器　可燃性瓦斯检测器

Required to be provided on board by SOLAS regulation 1983 amendments Chapter II, Part C, Regulation 53 and 62. For measuring and testing any area where combustible gases or vapors may have accumulated.



Portable Type

Unit Per Set

CODE	33 05 37			
Model	RX-8500			
Target Gas	Methane (CH_4)	Oxygen (O_2)	Carbon Monoxide (CO)	Carbon Dioxide (CO_2)
Detection principle	Non-Dispersive Infrared Ray	Galvanic Cell	Electro Chemical	Non-Dispersive Infrared Ray
Detection Range (Increments)	0-100% LEL (0.5 LEL) / 5-100.0 VOL % (0.5 VOL %)	0-40.0 VOL % (0.1 VOL %)	0-1,000 ppm (1 ppm)	0.01 VOL % (0-2 VOL %) 0.05 VOL % (2-5 VOL %)
Sampling Method	Minimum 0.75 L/min			
Operating temp & Humidity	-20 ~ +50°C, below 95% RH (Non-condensing)			
Power Source	Lithium-ion battery (3 hours for a full charge) as standard AA Alkaline batteries x 3 pcs (as option)			
Sizes W x H x D	154 x 81 x 163 mm			
Weight	1.2 kg			
Approvals	IECEx, ATEX, MED			
Explosion Proof	Intrinsically safety (II 1G EX ia IIC T4 Ga) <ATEX/IECEx>			
Name of Mfr.	Riken Keiki			

Unit Per Set

CODE	33 05 80			
Model	RX-8700			
Target Gas	Combustible Gas (HC)	Oxygen (O2)	Hydrogen Sulfide (H2S)	
Detection principle	Non-Dispersive Infrared Ray	Galvanic Cell	Electrochemical	
Detection Range (Increments)	0-100% LEL (0.5 LEL) / 2-100.0 VOL % (0.5 VOL %)	0-25.0 VOL % <25.1-40.0 VOL%> (0.1 VOL %)	(Low) 0-30.0 ppm (0.5 ppm)	(High) 0-1,000 ppm (1 ppm)
Sampling Method	Minimum 0.75 L/min			

(to be continued)

Operating temp & Humidity	-20 ~ +50°C, below 95% RH (Non-condensing)
Power Source	Lithium-ion battery (3 hours for a full charge) as standard AA Alkaline batteries x 3 pcs (as option)
Sizes W x H x D	154 x 81 x 163 mm
Weight	1.2 kg
Approvals	IECEx, ATEX, MED
Explosion Proof	Intrinsically safety (II 1G EX ia IIC T4 Ga) <ATEX/IECEx>
Name of Mfr.	Riken Keiki

Unit Per Set

CODE	33 06 00
Model	GP-1000
Target Gas	Hydroocarbons
Detection principle	Catalytic combustion
Sampling Method	Sample draw
Opening Temperature	-20 ~ +50°C
Power Source	Alkaline battery 4-AA size
Explosion Proof	Japan Ex: Ex Ia IIC T4, ATEX: II 1G Ex Ia IIB T4 Ga, IECEx: EX Ia IIB T4 Ga
Battery life	20 hours
Sizes W x H x D	W80 x H124 x D36
Weight (kg)	Approx. 0.26 (without batteries)
Name of Mfr.	Riken Keiki

Unit Per Set

CODE	33 05 57	33 05 58
Model	P-508	P-510H
Measurable Gas	General combustible gas	
Principle	Catalytic combustion method	
Gas Sampling	Suction type by built in pump	
Measuring Range	0-20/0-100% LEL	
Accuracy	Within ±5% of full scale	
Response	90% response Within 30 sec.	
Display	Analogue meter	
Alarm Level	20% LEL (Adjustable)	
Alarm Display	Buzzer	
Power Source	Manganese dry cell (R20P) × 2 pcs	Alkali dry cell (LR14) × 2 pcs
Dimensions	W:163 × H:137 × D:67 mm	
Weight (without sampling tube)	1.5 kg	1.6 kg
Safety Approval	id2G4	id3aG4 (Hydrogen explosion-proof)
Ability Approval	Explosion proof approved by NK *HK examination available on request	
Accessories	Sampling rod with W.S.filter, Leather case, Sampling tube (5 m～max 20 m)	
Name of Mfr.	Toka Seiki Co., Ltd.	

Halogen Refrigerant Leak Detectors

Detectores Halógenos de Fugas de Refrigerante
ハロゲンガス検知器　卤素制冷剂检漏仪



A hand held detector able to detect all halogen refrigerants(CFC, HCFC, HFC and HFO) enabling you to find leaks in your refrigeration system. Seven-segment visual leak size indicator, audible alarm, cordless, and supplied in carrying case and spare sensing tip.

CODE	33 05 35
Model	Unirx-1A
Detection mode	Microprocessor controlled circuit with advanced digital signal processing.
Sensitivity	Better than 5 ppm
Sensor	Corona Sensor
Display	LED
Power Supply	3 V DC
Batteries	2 × C cell alkaline (LR-14/AM-2)
Battery Life	30 hrs normal operation
Size	229 × 57 ×57 mm
Weight	560 grm
Approval	UL classified and CE approved
Name of Mfr.	Wilhelmsen Ships Service Co., Ltd.

Portable Toxic Gas Meters

Medidores portatiles de gases toxiicos
有毒ガス検知器　有毒气体检测器

A portable toxic gas meter with the following features.

- Peak hold function enable to memorize maximum density.
- Alarm is two-staged type (AL1 and AL2).
- Auto-zero function can calibrate automatically at the time of power-on.
- Long-life sensor (2 years, 1 year warranty).



Measurable Gas

Model	TIP-HS	TIP-HY
Measurable Gas	H_2S (Hydrogen sulfide)	H_2 (Hydrogen gas)
Measuring range (ppm) Low/High range	0-20/0-100	0-400/0-2,000
Resolution (ppm)	0.1	2
Alarm Level (ppm) AL1/AL2	5/25	100/500

Unit Per Set

CODE	33 05 55	33 05 56
Model	TIP-HS	TIP-HY
Measuring Gas	Hydrogen sulfide	Hydrogen gas
Sensing Principle	Potentiostatic electrolysis method	

(to be continued)

Gas Collection Method	Suction type by built in pump
Accuracy	Within ± 10% in full scale
Response	90% response within 60 sec.
Display	Digital display by LCD panel, Power lamp, Alarm lamp, Peak hold mode lamp
Alarm Level	Two staged type (AL1/AL2: adjustable)
Alarm Display	Alarm lamp and buzzer
Power Source	Manganese dry cell (R20P) × 2 pcs
Dimensions	W:163 × H:137 × D:67 mm
Weight	1.3 kg (without sampling tube)
Safety Approval	Intrinsically safe: i3aG4
Ability Approval	Explosion proof approved by NK
Accessories	Air Filter, Leather case, Sampling tube (5 m～max 20 m)
Name of Mfr.	Toka Seiki Co., Ltd.

Portable Gas Leak Detector

Detector de Fugas de Gas Portátil
ポータブルガス漏れ検知器
便携式气体检漏仪



Handy type of highly sensitive lightweight gas leak detector for Toxic, Combustible and CFC Freon gases. It uses a hot-wire semiconductor sensor (MOS) to detect a range of target gases from the list of 40 gases.

Unit Per Set.

CODE	33 06 79
Model	SP-220 TYPE SC
Sampling method	Suction Type
Principle of detection range	Hot Wire Type Semi-Conductor Method
Detection Range	Depend on target gas
Type of alarm	Gas alarm/Fault alarm Display: Lamp blinking/intermittent buzzer sounding
Ingress proof rating	IP55
CE marking	EMC/RoHS
Power source	AA alkaline battery × 2
Continuous operation	12 hours (normal temp. w/o alarms)
Dimensions	Approx. 43 (W) × 200 (H) × 39 (D) mm
Weight	Approx. 215 g (w/o batteries)
Operating Temperature range	-20°C ~ +55°C
Operating Humidity range	95% RH or less (Non-condensing)
Target Gases	PH_3, C_3H_6O, AsH_3, NH_3, i-C_4H_{10}, IPA, CO, C_2H_5OH, C_2H_4, VCM, CH_3CL, C_8H_{10}, EO, SiH_4, CH_3Br, H_2, C_2HCL_3, C_7H_8, EDC, SO_2, C_3H_8, r-134a, r-22, r-32, n-C_6H_{14}, C_6H_6, HCHO, CH_4, CH_3OH, MEK, H_2S, B_2H_6, GeH_4, HBr, HCL, r-407c, H_2Se, r-410a, r404a, $CH_2C_2F_4$
Name of Manufacture	Riken Keiki

Tube Type Gas Detectors

Detectores de Gases tipo Tubo
ガラス管式検知器　MSA 气体抽样泵（活塞式）

Measured value can be read-off directly and immediately via colour indication. It consists of sampler pump and tubes. A wide variety of tubes are available, applicable to the gas being tested. The most common tubes are discussed below.



KWIK-DRAW™



Draeger



Kitagawa



Uniphos

33 05 40	Tube type gas detector, Kwik-Draw™ Model Kwik-Draw Deluxe	Pc.
33 05 53	Tube type gas detector, Kwik-Draw™ Model Gas Tester II H	Pc.
33 05 54	Tube type gas detector, Kwik-Draw™ Model Gas Tester I	Pc.
33 05 60	Tube type gas detector, Draeger Model Accuro	Pc.
33 16 51	Tube type gas detector, Kitagawa Model AP-20	Pc.
33 16 72	Tube type gas detector, Uniphos Model ASP-40	Pc.

Tubes for Gas Detectors

Tubos para Detectores de Gas　ガス検知器用チューブ　气体检测仪用管

All tubes are sold 10 tubes each per pkt.

For KWIK-DRAW™ tube gas detector

Unit Per Pkt

CODE	Substance Measured	Applicable	Range of Measurement	Part No.
33 16 06	Acetic Acid	Acetic-Acid-1	1 - 80 ppm	D5086821
33 05 48	Acetone	Acetone-100	100 - 10000 ppm	D5086829
33 16 07	Alcohol	Ethanol-100	Ethanol: 100 - 6000 ppm	D5086818
33 05 42	Ammonia	NH3-2	2-600 ppm	D5085845
33 16 08	Benzene	Benzene-0.25	0.25 - 10 ppm	D5086852
33 16 09	Benzene	C6H6-1	1 - 25 ppm	D5086835
33 05 43	Carbon Dioxide	CO2-100	100-3000 ppm	D5086814
33 16 02	Carbon Dioxide	CO2-0.1%	0.1 - 7%	D5085817
23	Carbon Disulfide	CS2-2	2 - 300 ppm	D5085834
33 05 45	Carbon Monoxide	CO-5	2-1000 ppm	D5085836
33 05 46	Chlorine	Cl2-0.2	0.2 - 30 ppm	D5085801
33 16 22	Chlorobromomethane	Trichloroethane-5	8 - 180 ppm	D5086834
24	Gasoline	Gasoline-30	30 - 6000 ppm	D5085898
10	Hexane	Hexane-20	20 - 3200 ppm	D5086832
19	Hydrogen Chloride	HCL-1	1 - 50 ppm	D5085846
33 16 18	Hydrogen Cyanide	HCN-2	2 - 50 ppm	D5085824
20	Hydrogen Fluoride	HF-1	1 - 50 ppm	D5086830
33 05 44	Hydrogen Sulfide	H2S-1	1 - 200 ppm	D5085826
33 16 03	Hydrogen Sulfide	H2S-100	100 - 4000 ppm	D5085827
33 38 09	Hydrogen Sulfide	H2S -0.2%	0.2 - 7%	D7000003
33 16 11	Mercaptans	Ethyl-Mercaptan-0.5	0.5 - 100 ppm	D5086815
12	Methyl Bromide	Methyl-Bromide-2	1 - 140 ppm	D5086845
05	Natural Gas	Erdgas	Warning Marks	D5086846
33 05 41	Nitrogen Dioxide	NO2-0.5	0.5-50 ppm	D5085805
33 16 85	Organic Compounds	Qualitest	Qualitative	D5085810
33 38 10	Oxygen	Oxygen-3%	3 - 24%	D7086864
33 16 04	Petroleum Hydrocarbons	Petroleum Hydrocarbon-10	10 – 2500 ppm	D7086876
13	Phenol	Phenol-1	1 - 25 ppm	D5086838
21	Phosgene	Phosgene-0.1	0.1 - 20 ppm	D5085854
14	Phosphine	PH_3-0.1	0.1 - 100 ppm	D5085830
33 16 25	Propane	Propane-200	200 - 4000 ppm	D5086831
33 05 47	Sulfur Dioxide	SO_2-1	0.5 - 30 ppm	D5085803
33 16 15	Styrene	Styrene-10	10 - 300 ppm	D5086819
33 05 50	Toluene	Tol-5	5 - 1000 ppm	D5085828
49	Trichloroethylene	Tri-5	5 - 250 ppm	D5085842
33 16 16	Vinyl Chloride	VC-1	1 - 70 ppm	D5085837
17	Xylene	Tol-5	5 - 2500 ppm	D5085828

(to be continued)

For Draeger tube gas detector

Sold 10 pieces per packet.

Unit Per Pkt

CODE	Substance Measured	Range of Measurement	Part No.
33 05 61	Hydrocarbon 0.1%/c	0.1 to 1.3 Vol.-%	8103571
62	Ammonia 5/a	5 to 70 ppm	CH 20501
63	Carbon Dioxide 0.1%/a	0.5 to 6 Vol.-%	CH 23501
64	Carbon Dioxide 1%/a	1 to 20 Vol.-%	CH 25101
65	Carbon Monoxide 0.3%/b	0.3 to 7 Vol.-%	CH 29901
33 05 66	Natural Gas Test	Qualitative	CH 20001
67	Sulphur Dioxide 1/a	1 to 25 ppm	CH 31701
68	Carbon Monoxide 5/c	100 to 700 ppm	CH 25601
70	Carbon Dioxide 100/a	100 to 3,000 ppm	8101811
71	Carbon Dioxide 0.5%/a	0.5 to 10 Vol.-%	CH 31401

Other test tubes from Draeger

Sold 10 pieces per packet.

Unit Per Pkt

CODE	Substance Measured	Range of Measurement	Part No.
33 16 26	Acetic Acid 5/a	5 to 80 ppm	6722101
27	Methanol 20/a	20 to 5000 ppm	8103801
28	Benzene 0.25/a	0.25 to 10 ppm	8103691
29	Benzene 5/b	5 to 50 ppm	6728071
30	Benzene 2/a (5)	2 to 60 ppm	8101231
33 1631	Carbon Dioxide 0.1/a	0.5 to 6 Vol% / 0.1 to 1.2Vol%	CH23501
32	Carbon Monoxide 5/c	100 to 700 ppm / 5 to 150 ppm	CH25601
33	Hexane 10/a	10 to 200 ppm / 300 to 2500 ppm	8103681
35	Hydrogen Sulphide 1/d	1 to 20 ppm / 10 to 200 ppm	8101831
36	Hydrogen Sulphide 100/a	100 to 2000 ppm	CH29101
33 16 37	Mercaptan 0.1/a	0.1 to 2.5 ppm / 3 to 15 ppm	8103281
38	Mercaptan 0.5/a	0.5 to 5 ppm	6728981
39	Methyl Acrylate 5/a	5 to 200 ppm	6728161
40	Methyl Bromide 0.1/a	0.1 to 2.5 ppm	8103281
41	Oxygen 5%/C	5 to 23 Vol.%	8103261
33 16 42	Petroleum Hydrocarbon 100/a	100 to 2500 ppm	6730201
43	Phenol1/b	1 to 20 ppm	8101641
44	Phosphine 0.1/c	0.5 to 3 ppm / 0.1 to 1.0 ppm	8103711
45	Styrene 10/b	10 to 250 ppm	6733141
46	Sulphuric Acid 1/a (9)	1 to 5 mg/m3	6728781
33 16 47	Sulphur Dioxide 0.5/a	1 to 25 ppm / 0.5 to 5 ppm	6728491
48	Vinyl Chloride 0.5/b	0.5 to 5 ppm / 5 to 30 ppm	8101721
49	Toluene 5/b	5 to 80 ppm / 50 to 300 ppm	8101661
50	Xylene 10/a	10 to 400 ppm	6733161
33 38 19	Ethanol 100/a	100 to 3000 ppm	8103761
20	Ammonia 5/a	5 to 70 ppm / 50 to 600 ppm	CH20501

For Kitagawa tube gas detector

Unit Per Pkt

CODE	Substance Measured	Range of Measurement	Part No.	Part No.
33 16 52	Acetylene	50 to 1,000 ppm	101S	10
33 39 97	Ammonia	0.5 to 10 %	105SA	10
33 16 53	Ammonia	50 to 900 ppm	105SB	10
33 39 98	Ammonia	1 to 200 ppm	105SE	10
99	Ammonia	0.2 to 20 ppm	105SD	10
33 38 13	Benzene	0.2 to 15 ppm	118SD	10
12	Benzene	2 to 50 ppm	118SC	10
16	Carbon Dioxide	0.05 to 1.0%	126SB	10
33 16 54	Carbon Dioxide	0.1 to 2.6%	126SA	10
33 38 17	Carbon Dioxide	1 to 20%	126SH	10
33 16 55	Carbon Disulphide	30 to 500 ppm	141SA	2×5
33 38 11	Carbon Monoxide	1 to 50 ppm	106SC	10
33 16 56	Carbon Monoxide	20 to 1,000 ppm	106SA	10
57	Chlorine	0.5 to 10.0 ppm	109SB	10
58	Chloroform (Trichloromethane)	70 to 500 ppm	152S	2x5
33 16 59	Ethylene Oxide	0.01 to 1.8%	122SA	10
60	Hydrogen Chloride	2 to 20 ppm	173SB	2x5
61	Hydrogen Cyanide	2 to 100 ppm	112SB	10
62	Hydrogen Fluoride	0.5 to 30 ppm	156S	10
63	Hydrogen Selenide	5 to 600 ppm	167S	10
33 38 14	Hydrogen Sulphide	1 to 30 ppm	120SD	10
33 16 64	Hydrogen Sulphide	3 to 150 ppm	120SB	10
33 38 15	Hydrogen Sulphide	50 to 1000 ppm	120SF	10
33 16 65	Methyl Alcohol (Methanol)	0.05 to 6.0%	119SA	10
66	Methyl Amine	1 to 20 ppm	227S	10
33 16 67	Nitric Acid Vapour	2 to 20 ppm	233S	10
68	Nitrogen Oxide and Dioxide	NO:10to300 ppm NO_2:1to40 ppm	174A	5
69	Phosgene (Carbonyl Chloride)	0.5 to 20 ppm	146S	10
70	Sulphur Dioxide	1 to 60 ppm	103SD	10
71	Toluene (Methyl Benzene)	10 to 500 ppm	124SA	10
33 38 18	Vinyl Chloride	0.05 to 1.0%	132SA	10

33 Safety Equipment

For Uniphos tube gas detector

Unit Per Pkt

CODE	Substance Measured	Range of Measurement	Part No.	Q'ty/ Pkt
33 38 04	Acetic Acid	2.5 - 50 ppm	SAA-2	10
05	Aceton	50 - 4,000 ppm	SAC-5	10
08	Acetylene	100 – 5,000 ppm	SAL-5	10
33 16 81	Ammonia	2.5 to 200 ppm	SAM-3	10
78	Benzene	0.1 to 75 ppm	SBE-2M	10
33 16 73	Carbon Dioxide	150 to 10,000 ppm	SCD-5	10
97	Carbon Disulfide	1.25 - 100 ppm	SCS-2	10
76	Carbon Monoxide	2 to 100 ppm	SCO-3	10
96	Chloroform	10 - 100 ppm	SCF-3	10
33 38 06	Ethanol	0.05 - 5%	SET-7	10
33 38 07	Ethylene Oxide	0.1 - 10 ppm	SEO-1	10
33 16 98	Gasoline	0.03 - 0.6%	SGA-6L	10
93	Hydrogen Chloride	0.25 - 75 ppm	SHC-1	10
92	Hydrogen Cyanide	0.25 - 100 ppm	SHN-2	10
94	Hydrogen Fluoride	0.5 - 60 ppm	SHF-2	10
33 16 75	Hydrogen Sulphide	0.25 to 8%	SHS-7	10
74	Mercaptans	0.5 to 40 ppm	SEM-2M	10
33 38 03	Methyl Bromide	0.5 - 80 ppm	SMB-2M	10
01	Nitric Acid	1 - 20 ppm	SNA-2M	10
33 16 83	Nitrogen Dioxide	0.5 to 30 ppm	SND-2	10
33 16 86	Nitrogen Oxides	0.5 - 15 ppm	SNO-2M	10
77	Oxygen	3 to 24%	SOX-9M	5
87	Phenol	1 - 25 ppm	SPE-2M	10
95	Phosgene	0.1 - 10 ppm	SPG-1	10
88	Phosphine	0.05 - 20 ppm	SPH-1	10
33 16 89	Styrene	2.5 - 500 ppm	SST-4L	10
99	Sulfuric Acid	0.5 - 5mg/m^3	SSA-1L	10
79	Sulphur Dioxide	0.25 to 20 ppm	SSD-1	10
80	Toluene	5 to 600 ppm	STO-4M	10
90	Vinyl Chloride	1 - 20 ppm	SVC-2M	10
33 16 91	Xylene	25 - 2,000 ppm	SXY-4	10

Tube Type Gas Detectors

All-in-one Automatic Tube Pump

Detectores de Gases tipo Tubo

チューブ式検知器　　MSA 气体抽样泵（活塞式）



The automatic tube pump is the first all-in-one solution designed for measurements with all Dräger short-term tubes and for sampling tubes and systems. Ease of operation and a high degree of reliability compliment the measurement and sampling of gases, vapours and aerosols.

Specification

Short-term Measurements	Using Dräger short-term tubes Number of strokes: adjustable, 1 to 199 strokes Stroke volume: 100 mL
Sample Taking	Flow rate range: 0.1 to 2.0 L/min Resolution: 0.1 to 1.0 L/min: 0.1 L/min ±5% Resolution: 1.0 to 2.0 L/min: 0.2 L/min ±5% Sampling time: adjustable, up to 12 hours, depending on flow rate Resolution in steps of 15 minutes (default) or 1 minute
Display	Two Parts: Segment and matrix
Use of Extension Hose	Up to 30 mtr (98 ft.)
Power Supply	Rechargeable Battery NiMH, T4: 7.2 V, 1,500 mAh (charging time < 4 hours) Alkaline Battery Pack, T4: 6 AA cells, (see battery pack label for approved battery types)
Battery Capacity at 25°C (77°F)	Dräger short-term tubes: >1,000 strokes Sample taking: up to 12 hours, depending on adjusted flow rate
Approvals	ATEX: Ex ia IIC T4 Ga Ex ia I Ma I M 1 / II 1G MED UL: Class I, Div. 1, Group A, B, C, D Class II, Div. 1, Group F, G 5°C ≤ Ta ≤ + 40°C Temp. Code T4 Ex ia UL: Class I, Div. 1, Group A, B, C, D Class II, Div. 1, Group F, G 5°C ≤ Ta ≤ + 40°C Temp. Code T4 Ex ia IECEx: Ex ia IIC T4 Ga CE-mark: according to 2004/108 EC and 94/9/EC
Dimensions (H × W × D)	Approx. 175 × 230 × 108 mm (7" × 9" × 4.25")
Weight (w/o battery pack)	Approx. 1.6 kg (3.5 lbs)

Name of Mfr. Draeger

CODE	Description	No.	Unit
33 05 72	Automatic Draeger Tube Pump, Model X-act 5000, without power supply	3707674	Pc.
73	Rechargeable battery NiMH, T4	4523520	Pc.
76	Charging accessories, 110 – 240 VAC	4523545	Set
77	Extension hose, Dräger accuro & Dräger X-act 5000, 10 m, incl. adapter for tubes, adapter for hose	6400078	Set
78	Extension hose, Dräger accuro & Dräger X-act 5000, 15 m, incl. adapter for tubes, adapter for hose	6400079	Set
79	Extension hose, for Dräger X-act 5000 only 30 m, incl. adapter for tubes, adapter for hose	6401175	Set

Volatile Organic Compounds Detectors

Detectores de compuestos orgánicos volátiles
揮発性有機物質検知器　挥发性有机物质探测器



Designed to replace all range of gas tubes, it is a revolutionary handheld PID instrument for rapid, accurate detection of volatile organic compounds (VOCs) with exceptional resistance to humidity and contamination. Fastest response time of just 2 seconds and is as quick to clear down. It is simple and, enables one handed operation. Its rugged design and protective, removable rubber boot withstand the harshest environments. Inexpensive consumables and parts, and 5 years warranty when instrument is registered online.

Unit Per Set

CODE	33 05 99
Model	MiniRAE 3000+
Range	Detect up to 480 VOC
Maximum Reading	15,000 ppm or 20,000 mg/m3 (gas dependent)
Accuracy	± 5% display reading ± one digit
Intrinsically Safe Approvals	US and Canada: CSA, Classified as Intrinsically Safe for use in Class I, Division 1 Groups A, B, C, D Europe: ATEX II 2G EEx ia IIC T4
Battery Life	• Rechargeable, external field-replaceable Lithium-Ion battery pack • Alkaline battery adapter • Runtime 16 hours of operation (12 hours with alkaline battery adapter)
Calibration	Standard calibration 100 ppm isobutylene Custom calibration capability
Alarm	95dB at 12" (30 cm) buzzer and flashing red LED to indicate exceeded preset limits. • High: 3 beeps and flashes per second • Low: 2 beeps and flashes per second • STEL and TWA: 1 beep and flash per second • Alarms latching with manual override or automatic reset • Additional diagnostic alarm and display message for low battery and pump stall Pre-programmed with over 480 gases*
Protection	• IP-67 unit off and without flexible probe • IP-65 unit running
Weight & Dimensions	10" L × 3.0" W × 2.5" H (255 × 76 × 64 mm) Instrument weight 26 oz (738 g)

Name of Mfr.: Atlas Marine Services Pte Ltd.

Carbon Monoxide Gas Alarm

Detector de gas de monóxido de carbono
一酸化炭素感知器　一氧化碳探测器



A device for detecting the "Silent Killer", Carbon Monoxide, which is released when fuels are burnt inefficiently. Raising loud 85 db alarm and flashing RED LED light to alert when detecting the CO in the room. This alarm can be mounted on the ceiling or on a wall near the ceiling. Battery operated, five year lifetime, and chirp sounds and indicator light notify you the end of battery lifetime. This alarm comes with calibrated test gas kit to enable the unit to be inclusively tested on installation and annually over the expected life. Certified to BS EN 50291. Battery included. Hard wire version is also available.

Unit Per Set

CODE	33 10 12
Alarm Sound	85 dB
Alarm Light	LED × 3
Size	112 mm diam × 40 mm thick
Weight	130 grm

Name of Mfr.: Gas Safe Europe Ltd.

CO Alarm Test Gas Kit

Equipo de gas de prueba para alarmas de monóxido de carbono
一酸化炭素感知器テストキット　一氧化碳探测器测试套件



A calibrated test gas kit for sensor inclusively testing Carbon Monoxide (CO) alarms manufacturered to BS EN 50291(Europe) and UL 2034(USA). Low cost, safe and easy to use, this test kit ensures CO alarm sensors are still sensing CO. Sensors have a limited and underminable life and can be effected by airborne pollutants such a cigarette smoke, cooking fumes etc. Each kit contains a patented enclosure shroud which holds the test gas at the required level for a fixed time to facilitate a field sensor test. It contains sufficient test gas to carry out 11 tests per can.

33 10 13	CO alarm test kit, 11 tests/can, 400ml	Can

Name of Mfr.: Gas Safe Europe Ltd.

Test Gas for Gas Detector

Comprobador de Gases para Detector de Gases
ガス検知器用テストガス　气体探测器的测试用气体

For testing the accuracy of gas detectors. There are various type of test gases according to the type of gas, manufacturer of the gas detectors.

When ordering, please specify the following points.

How to order: 33 - 05 -
Test gas for gas detector, TYPE of GAS DETECTOR, MFR'S NAME, MODEL NAME, COMPOSITION of GAS, GAS DENSITY

Example of Combustible Gases and Toxic Gases

Combustible Gases

Gases		Molecular Formula (Chemical Formula)	Explosion Range (Vol%)
Acetone	アセトン	C_3H_6O	2.1～13.0
Acetylene	アセチレン	C_2H_2	1.5～100
Butyl Acetate	酢酸ブチル	$C_6H_{12}O_2$	1.2～7.5
Butylene	ブチレン	C_4H_8	1.7～9.0
City Gas	都市ガス	-	5～
Ethanol	エタノール	C_2H_5OH	3.3～19
Ethyl Acetate	酢酸エチル	$C_4H_8O_2$	2.0～11.5
Ethylene	エチレン	C_2H_4	2.7～34
Gasoline	ガソリン	-	1.4～7.6
Hydrogen	水素	H_2	4.0～75.6
i-Butane	ｉ－ブタン	C_4H_{10}	1.8～8.0
Kerosene	灯油	-	0.8～
Liquefied Propane Gas	ＬＰＧ	-	2～12
Methane	メタン	CH_4	5.0～15.0
Methanol	メタノール	CH_3OH	5.5～44
Methyl Ethyl Ketone	メチルエチルケトン	$CH_3COC_2H_5$	1.8～11.5
n-Butane	ｎ－ブタン	C_4H_{10}	1.5～7.8
n-Pentane	ｎ－パンタン	C_5H_{12}	1.4～7.8
O-Xylene	Ｏ－キシレン	$C_6H_4(CH_3)_2$	1.0～6.0
Propane	プロパン	C_3H_8	2.1～9.5
Propylene	プロピレン	C_3H_6	2.0～11.7
Toluene	トルエン	$C_6H_5CH_3$	1.2～7.0

Toxic Gases

Gases		Molecular Formula (Chemical Formula)	Explosion Range (Vol%)
Acetaldehyde	アセトアルデヒド	CH_3CHO	4.0～57
Acrylonitrile	アクリロニトリル	CH_2CHCN	2.8～28
Ammonia	アンモニア	NH_3	15～28
Arsine	アルシン	AsH_3	0.8～98
Benzene	ベンゼン	C_6H_6	1.2～8.0
Butadiene	ブタジエン	C_4H_6	2.0～11.5
Carbon Monoxide	一酸化炭素	CO	12.5～74
Chlorine	塩素	Cl_2	-
Diborane	ジボラン	B_2H_6	0.8～88
Ethylene Oxide	酸化エチレン	CH_2CH_2O	3.0～100
Germane	ゲルマン	GeH_4	0.5～50
Hydrogen Chloride	塩化水素	HCl	-
Hydrogen Cyanide	シアン化水素	HCN	5.4～46.6
Hydrogen Sulfide	硫化水素	H_2S	4.8～45.5
Methyl Bromide	臭化メチル	CH_3Br	10.0～15.0
n-Hexane	n－ヘキサン	C_6H_{14}	1.2～7.5
Phosgene	ホスゲン	$COCl_2$	-
Phosphine	ホスフィン	PH_3	1.3～9.8
Silane	シラン	SiH_4	0.8～98
Sulfar Dioxide	二酸化硫黄	SO_2	-
Vinylchloride	塩化ビニル	CH_2CHCl	3.8～29.3

Span Gases

Gas Patrón　スパンガス　気体气瓶

Span Gas for all types of gas detectors and analyzer. To help comply with standards, various types of calibration gas cylinders are available for your usage.

The most important accessory to any gas detector is a calibration kit, which provides the means to determine if the instrument is working properly. When using gas detection equipment, it is necessary to calibrate the equipment on a regular basis to guarantee accurate results. According to some regulations and standards, one must test the gas detector prior to each use with a suitable test gas.



Can Specifications

Type	34 L	58 L	110 L
Height × Diam	280×74mm	360×88mm	360×88mm
Weight in kg	0.7	0.8	0.8
Material	Aluminium Alloy		
Filling Pressure	500 PSI	500 PSI	1,000 PSI
Usable Gas	34 ltr	58 ltr	110 ltr
Connection	5/8" - 18 UNF (C-10)		
FillingTolerance	5-49 PPM ±10%, 50-500 PPM ±5% > 500 PPM ±2%		
Transportation	UN 1956 Class 2		
Mixture	Flammable, non reactive and reactive gases		

Type of Mixture Gases

A span gas comes in aluminum alloy cylinder. Please specify kind of gas with capacity of cylinder you request selecting from standard ranges in the following table. If other Mixtures are required, please specify Gas Type and Concentration.

Unit Per Can

CODE	Description of Gas	Capacity of Cylinder
85 15 12 13 14	0.75% Vol (50%LEL) Iso-Butane (C_4H_{10}) Balance Air	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 16 17 18	8% Iso-Butane (C_4H_{10}) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 20 21 22	99.5% Pure Butane (C_4H_{10})	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 24 25 26	50 PPM Carbon Monoxide (CO) Balance Air	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 28 29 30	100 PPM Carbon Monoxide (CO) Balance Air	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 32 33 34	250 PPM Carbon Monoxide Balance Air (CO)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 36 37 38	5% Carbon Dioxide (CO_2) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 79 80 85 16 00	10% Carbon Dioxide (CO_2) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 17 44 45 59	15% Carbon Dioxide (CO_2) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 40 41 42	25 PPM Hydrogen Sulphide (H_2S) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 44 45 46	50 PPM Hydrogen Sulphide (H_2S) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 48 49 50	2.5% Vol (50%LEL) Methane (CH_4) Balance Air	in 34 ltr can in 58 ltr can in 110 ltr can
85 17 60	1.0% Vol (20%LEL) Methane (CH_4) Balance Air	in 110 ltr can
85 17 81	800 PPM Methane (CH_4) Balance Air	in 110 ltr can
85 17 82	10% Vol (50%LEL) Methane (CH_4) Balance Nitrogen	in 110 ltr can
85 17 83	50% Vol (50%LEL) Methane (CH_4) Balance Nitrogen	in 110 ltr can
85 15 52 53 54	99.95% Pure Methane (CH_4)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 56 57 58	99.995% Pure Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 60 61 62	2.1% Oxygen (O_2) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 64 65 66	5.5% Oxygen (O_2) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 17 84	8% Oxygen (O_2) Balance Nitrogen (N_2)	in 110 ltr can
85 17 85	10% Oxygen (O_2) Balance Nitrogen (N_2)	in 110 ltr can
85 17 86	20.9% Oxygen (O_2) Balance Nitrogen (N_2)	in 110 ltr can
85 15 68 69 70	0.7% Vol (50%LEL) Pentane (C_5H_{12}) Balance Air	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 72 73 74	1.1% Vol (50%LEL) Propane (C_3H_8) Balance Air	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 75	1.1% Propane (C_3H_8), 20 PPM Hydrogen Sulphide (H_2S) Balance Nitrogen	in 58 ltr can
85 17 87	50% Pure Propane (C_3H_8), Balance Nitrogen	in 110 ltr can

(to be continued)

Unit Per Can

CODE	Description of Gas	Capacity of Cylinder
85 15 76 **77** **78**	99.95% Pure Propane (C_3H_8)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 07	100 PPM Isobutylene Balance Air	in 110 ltr can
85 15 08	216 PPM Ethanol Balance Nitrogen 0.038% BRAC Equivalent for Alcohol Meter Test Gas	in 110 ltr can
85 15 09	2% Vol (50% LEL) Hydrogen Balance Air	in 110 ltr can
85 17 88	50 PPM Ammonia (NH_3) Balance Nitrogen	in 58 ltr can
85 17 89	5 PPM Chlorine (Cl_2) Balance Nitrogen	in 58 ltr can
85 17 90	5 PPM Nitrogen Dioxide (NO_2) Balance Nitrogen	in 58 ltr can

4 Gas Mixtures

Very reactive gas mixture only available in 34, 58, 100 ltr cylinders.

Unit Per Can

CODE	Description of Gas	Capacity of Cylinder
85 15 81 **82** **83**	2.5% Methane (CH_4), 50PPM Carbon Monoxide (CO), 25 PPM Hydrogen Sulphide (H_2S), 12% Oxygen (O_2) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 84 **85** **86**	2.5% Methane (CH_4), 100 PPM Carbon Monoxide (CO), 25 PPM Hydrogen Sulphide (H_2S), 20.9% Oxygen (O_2) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 87 **88** **89**	2.5% Methane (CH_4), 100 PPM Carbon Monoxide (CO), 40 PPM Hydrogen Sulphide (H_2S), 15% Oxygen (O_2) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 90 **91** **92**	2.5% Methane (CH_4), 100 PPM Carbon Monoxide (CO), 25 PPM Hydrogen Sulphide (H_2S), 18% Oxygen (O_2) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 17 91 **85 15 10**	0.9% (50%LEL) Isobutane, 50 PPM Carbon Monoxide, 25 PPM Hydrogen Sulphide, 12% Oxygen Balance Nitrogen	in 34 ltr can in 58 ltr can
85 17 92 **93** **94**	25% LEL Pentane (C_5H_{12}) 100 PPM Carbon Monoxide, 25 PPM Hydrogen Sulphide, 18% Oxygen Balance NItrogen	in 34 ltr can in 58 ltr can in 110 ltr can

Name of Mfr.: Atlas Marine Services Pte. Ltd.

Regulators and Accessories

Reguladores y Accesorios

調整器並びにアクセサリー　調整器及附件

Fixed Flow Regulators for 34 ltr, 58 ltr, and 110 ltr

Available for portable detectors with no pump or hand pump, also ideal for fixed head detectors. Flow rate 0.3 litres/minute, 0.5 litres/minute or 1.0 litres/minute.



Unit Per Pc.

CODE	Flow Rate	CODE	Flow Rate
85 15 93 **94**	0.3 ltr/min 0.5 ltr/min	**85 15 95**	1.0 ltr/min

Demand Flow Regulators for 34 ltr, 58 ltr and 110 ltr



Special Designed for gas detectors with built-in electric sample pump. Important gas is supplied at "Sample pump" normal working flow rate, hence ensures testing and calibration are similar to true operation conditions.

85 15 96	Regulator, demand flow, for 34 ltr, 58 ltr and 110 ltr	Pc.

Gas Sample Bags with Clip Valve

Sample Bags are available too for use with fixed equipment or pumped instrument.



85 15 99	Gas sample bag with clip valve	Pc.

Mixtures Gases from Fastcalgas

Unit Per Btl.

CODE	Gas Description	Fastcalgas No.	Cylinder Size Ltr
Ammonia (NH_3)			
85 17 01	25 ppm NH_3/Air	FCG22000	58
Butane (C_4H_{10})			
85 17 02	0.9% (50% LEL) C_4H_{10}/Air	FCG23000	103
03	0.9% (50% LEL) C_4H_{10}/N_2	FCG23005	103
04	8% C_4H_{10}/N_2	FCG23010	34
05	8% C_4H_{10}/N_2	FCG23015	16
06	8% C_4H_{10}, 13.8% CO_2/N_2	FCG23020	34
07	8% C_4H_{10}, 13.8% CO_2/N_2	FCG23025	16
Iso-Butane (C_4H_{10})			
85 17 08	0.9% (50% LEL) i-C_4H_{10}/Air	FCG24000	34
09	0.9% (50% LEL) i-C_4H_{10}/Air	FCG24010	103
10	10% i-C_4H_{10}/N_2	FCG24005	34
11	10% i-C_4H_{10}/N_2	FCG24060	18
Carbon Dioxie (CO_2)			
85 17 12	1% CO_2/Air	FCG25000	103
13	15% CO_2/Air	FCG25005	103
14	15% CO_2/N_2	FCG25010	103
Carbon Monoxide (CO)			
85 17 15	50 ppm CO/Air	FCG26000	103
16	60 ppm CO/Air	FCG26005	103
17	100 ppm CO/N_2	FCG26010	34
Ehtanol (C_2H_5OH)			
85 17 18	191 ppm C_2H_5OH/N_2	FCG33000	34
Hydrogen Sulphide (H_2S)			
85 17 19	10 ppm H_2S/N_2	FCG27000	58
20	25 ppm H_2S/N_2	FCG27005	58
21	40 ppm H_2S/N_2	FCG27010	58
22	50 ppm H_2S/N_2	FCG27015	58
Nitrogen (N_2)			
85 17 23	Nitrogen (99.99% v/v)	FCG28000	34
24	Nitrogen (99.99% v/v)	FCG28010	103
Oxygen (O_2)			
85 17 25	2% O_2/N_2	FCG29000	103
26	5% O_2/N_2	FCG29005	103
27	10% O_2/N_2	FCG29010	103

(to be continued)

Unit Per Btl.

CODE	Gas Description	Fastcalgas No.	Cylinder Size Ltr
Methane (CH_4)			
85 17 28	2% (40% LEL) CH_4/Air	FCG30000	34
29	2% (40% LEL) CH_4/Air	FCG30110	103
30	2.5% (50% LEL) CH_4/Air	FCG30005	34
31	2.5% (50% LEL) CH_4/Air	FCG30125	103
32	1.45% CH_4, 15% O_2/N_2	FCG30010	103
33	2.5% CH_4, 17% O_2/N_2	FCG30015	34
34	2.5% CH_4, 17% O_2/N_2	FCG30135	103
35	50% CH_4/N_2	FCG30020	34
Pentane (C_5H_{12})			
85 17 36	0.75% (50% LEL) C_5H_{12}/Air	FCG31000	103
37	0.75% C_5H_{12}, 15% O_2/N_2	FCG31005	34
38	0.75% C_5H_{12}, 15% O_2/N_2	FCG31010	103
Propane (C_3H_8)			
85 17 39	0.55% (25% LEL) C_3H_8/Air	FCG32000	103
40	1.1% (50% LEL) C_3H_8/Air	FCG32005	103
Zero Air			
85 17 41	20.8% O_2/N_2	FCG29015	103
Regulators			
85 17 42	For use with 34 ltr steel cylinder	FCG00713	-
43	For use with 34 ltr, 58 ltr Aluminium cylinder and 103 ltr steel cylinder	FCG00715	-

4 Gas Mixtures for Calibration from Fastcalgas

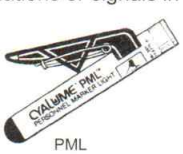
Unit Per Btl.

CODE	Composed of				Fastcalgas No.	Cylinder Size Ltr
	Methane (CH4)	Hydrogen Sulfide (H2S)	Carbon Monoxide (CO)	Oxygen Nitrogen (O2/N2)		
85 17 46	1.45%	10 ppm	-	15%	FCG21000	58
47	1.45%	10 ppm	300 ppm	15%	FCG21005	58
48	1.45%	20 ppm	60 ppm	15%	FCG21020	58
49	2.2%	25 ppm	100 ppm	18%	FCG21045	34
50	2.2%	40 ppm	100 ppm	15%	FCG21055	34
51	2.5%	10 ppm	50 ppm	18%	FCG21010	58
52	2.5%	15 ppm	100 ppm	18%	FCG21015	58
53	2.5%	25 ppm	50 ppm	12%	FCG21030	58
54	2.5%	25 ppm	50 ppm	20.9%	FCG21035	58
55	2.5%	25 ppm	100 ppm	18%	FCG21050	58
56	2.5%	40 ppm	100 ppm	15%	FCG21060	34
57	Iso-butane ($I\text{-}C_4H_{10}$) 0.9%	25 ppm	50 ppm	12%	FCG21025	34
58	Propane (C_3H_8) 1.1%	25 ppm	100 ppm	19%	FCG21040	58

Cyalume Lights

Luces de Cyalume　サイアリューム　佩戴亮光信号

Compact, windproof, waterproof lights. The personal marker light PML is designed for use with life jackets, life vests and other similar flotation devices. Light sticks are used for illuminations or signals in case of an emergency.



PML



Stick

Unit Per Pc.

CODE	33 06 01	33 06 02	33 06 03
Type	PML Personal Marker Light	Stick Regular	Stick Hi-intensity
Duration	8 hours	8-10 hours	4-6 hours

Safety Handlamps, Primary Cell Powered

Linterna del Tipo Antiexplosivo Alimentado Poe Pikas Primarias
一時電池式防爆安全手提げ灯　主単元格的公式安全手提灯



For use in a wide range of potentially explosive gases, vapours, mists and dusts, the lamp has a highly impressive light output of up to 269 lumens and battery duration up to 45 hours.

Constructed from an anti-static, exceptionally robust and highly durable thermoplastic material, it is well able to withstand the effects of heavy industrial use. The lamp has an Ingress Protection rating of IP66.

The Wolflite Primary Cell Safety Handlamp H-4DCALED meets all relevant provisions of the 2014/34/EU Explosive Atmospheres (ATEX Equipment) Directive

Unit Per Pc.

CODE	33 06 07
Model	H-4DCALED
Beam Type	Spot
Output	269 lumens (maximum at source)
Power Source	LR20/R20 primary cells, to IEC 60086
Volts	4 × 1.5 volt
Light Duration	Up to 45 Hours
Dimension	132 × 140 × 188 mm
Weight (Incl. Cells)	1.5 kg (including batteries)
Approval Code	II 2GD Ex ib IIC T4 Gb Ex ib IIIB T135°C Db IP66 –10°C ≤ Ta ≤ 40°C
Type of Protection	"eb" increased safety, "ib" intrinsic safety, "tb" protection by enclosure
Area of Classification (Gases)	Zones 1 and 2, Gas Groups IIA, IIB and IIC
Temp. Classification (Gases)	T4
Area of Classification (Dusts)	Zones 21 and 22
Max. Surface Temp. (Dust)	135°C
Certificates	ATEX BAS00ATEX2176 UKEX BAS21UKEX0359 IECEx BAS 16.007
Name of Mfr	The Wolf Safety Lamp Company Ltd

Rechargeable Safety Handlamps



Lámparas de Mano Seguridad Recargable
充電式防爆安全手提げ灯　充電式安全手提燈

The H-251ALED Rechargeable Handlamp is ideal for use as a general-purpose safety lamp for inspection and work tasks.

With a maximum light output of up to 210 lumens, the rechargeable battery duration is up to 18 hours, and offers a convenient and cost-effective solution for Ex applications where a handlamp is frequently required for long periods. The hand lamp body and lens ring is moulded in a highly

resilient thermoplastic material able to withstand the drop and impact expected from heavy industrial use, even at sub-zero temperatures. Additionally, the material is anti-static, ensuring there is no risk of a dangerous build up of static charges.

The lamp enclosure is sealed to IP66, preventing the ingress of dust and sealing against water in all conditions except submersion.

Unit Per Pc.

CODE	33 06 08
Model	H-251ALED
Beam Type	Spot with fringe light
Output	210 lumens (maximum at source)
Power Source	Rechargeable battery, Sealed Lead Acid
Volts	4 volt
Light Duration	Up to 18 hours
Dimension	130 × 140 × 185 mm
Weight (Incl. Cells)	1.84 kg
Approval Code	II 2GD Ex ib IIC T4 Gb (-10°C ≤ Ta ≤ +40°C) Ex ib IIIB T170°C Db*
Type of Protection	"ib" intrinsic safety
Area of Classification (Gases)	Zones 1 and 2 Gas Groups IIA, IIB, IIC
Temp. Classification (Gases)	T4
Area of Classification (Dusts)	Zones 21 and 22
Max. Surface Temp. (Dust)	170°C
Certificates	BAS00ATEX2176 BAS21UKEX0359 IECEx BAS 16.0076
Name of Mfr	The Wolf Safety Lamp Company Ltd

Battery Chargers

for Safety Handlamp

Cargador de la Batería oara Linterna
防爆安全手提げ灯用充電器
用于防爆安全手持灯的充电器



For use with the H-251A LED safety handlamp, the battery is charged internally via charging studs on the base of the handlamp. The handlamp is simply slotted into the charger and secured in place with the latch plate.

With the handlamps being held by the chargers whilst charging, the handlamps are always ready for use. It can be used at mains voltage of 230 volts or 110 volts, selectable by a voltage changeover switch.

The state of the battery charge is indicated by two coloured light emitting diodes, sequenced to show main and full charge. All chargers may be used free standing or can be bench or wall mounted.

Unit Per Pc.

CODE	33 06 09	33 06 10
Model	C-251HV	C-251HVE
Type of Plug	UK 3 Pin	Euro 2 Pin
Apparatus Standard	EN60 335	
Insulation Class	II	
Enclosure	Polypropylene	
Input Voltage	120/ 230V AC	
Recharge Time	8 - 10 hours	
Ingress Protection	IP20	
Weight	0.75 kg	
Name of Mfr.	The Wolf Safety Lamp Company Ltd.	

Electric Safety Lamps

Lámparas de Seguridad Eléctrica　電気安全灯　安全灯



An electric safety lamp (Hand Lantern) of an approved type with minimum light duration 12 hours. Included for use with an emergency fire fighting outfit. Available in a dry battery type, white LED. This model shall be for use in explosive gas atmospheres.

Unit Per Pc.

CODE	33 06 11
Type	1.5V Alkaline AA x 3 pcs
Bulb	White LED
Weight	About 270 g

Safety Cap Lamps

Lámparas de Seguridad para Cascos
キャップランプ　安全头灯



Hands-free safety light, providing brilliant illumination of the work site, to be used in confined space and where explosive gas is a potential danger, such as on oil tankers, chemical tankers, LNG tankers, etc.

The headlight can be easily attached to the helmet by means of bracket and headpiece clip. Lead acid power rechargeable battery is provided with belt loops.

Specifications

Headpiece & Cable	
Nom. Voltage of Bulb	4.5 volt
Burning Time	11 hours
Main Bulb Rating	200 lumens
Weight of Headpiece	195 grm

33 06 18	Safety cap lamp with rechargeable battery	Set

Safety LED Headtorches

Linternas de cabeza LED de seguridad
LED 型ヘッドトーチ　LED 型头灯



The ATEX LED headtorch is the ideal compact headtorch for hands free lighting, particularly where access is difficult, requiring climbing or crawling and is CE marked to the ATEX directive, UKEX and IECEx certified for safe use in Zones 0, 1 and 2 potentially explosive gas and Zones 21 and 22 dust atmospheres. The approval code also covers all group II (industrial) gas apparatus groups, for potentially explosive gases up to T4 temperature class.

Unit Per Set

CODE	33 06 20
Model	HT-400Z0
Light Output	Up to 75 lumens
Approved Code (Industrial)	II 1G Ex ia IIC T4 Ga IP67 II 2D Ex ib IIIB T125°C Db
Type of Protection	"ia/ib" intrinsic safety
Area of Classification (Gas)	Zones 0,1 & 2, Gas Groups IIA, IIB, IIC
Max Surface Temp. (Gas)	T4
Ambient Temperature	-20°C to +40°C

(to be continued)

Unit Per Set

CODE	33 06 20
Area of Classification (Dust)	Zones 21 and 22
Max Surface Temp. (Dust)	125°C
Certificate	Baseefa10ATEX0067 IECEx BAS 10.0023 BAS21UKEX0436
Power Source	3 x LR03 Alkaline AAA cells
Light Duration	Up to 8.5 hours
Ingress Protection	IP67
Weight (incl cells)	0.090 kg

Name of Mfr.: Wolf Safety Lamp Company

Rechargeable Safety LED Head Lamps

Linternas Frontales LED de Seguridad Recargables
充電式安全 LED ヘッドランプ　可充电安全 LED 头灯



Wearable, hands-free light sources designed for use in safety works. Rechargeable with USB in 2.5 hours charge time. Available functions in high spot, medium spot, low spot, high flood, low flood, and flash. IPX4 rated water-resistant design.

Unit Per Set

CODE	33 06 78
Model	Vision #200521
Lamp	Advanced LED Technology
Power Source	Lithium Polymer Batteries
Light Duration	6 to 100 hours depends on mode
Ingress Protection	IPX4
Approved Code (Industrial)	UL Protection Methods UL 121201 9TH Ed CSA C22.2 NO. 213-17 3RD Ed Class I, II, III Div 2 Groups A-G T4
Dimensions L x W x H (mm)	61 x 36 x 46
Weight (incl batteries)	0.1 kg

Name of Mfr.: KBS Innovations

Rechargeable Safety Handlamps

Linterna Recargable Antiexplosiva
充電式防爆安全手提げ灯　充電式防爆電筒



The tough, durable casing protects the advanced electronics given a product that will perform in the most demanding environments. A dual power switch allows you to obtain the ideal combination of beam power and usage time (from 8 up to 24 hours). On the emergency lamp model an emergency lighting function switches the lamp on when a power failure occurs. For this the lamp should be inserted into charging holder.

Unit Per Pc.

CODE	33 06 55	33 06 56
Model	IL-640 NiMH	IL-640 EM NiMH
Beam Type	Spot	
Light source	4 high luminous Cree LED's, Lifetime: L70 > 50,000h	
Light Output	High power: 600 lumen Low power: 160 lumen	
Power Source	6V rechargeable NiMH battery	
Operating Temperature	-20 deg C to +40 deg C	
Apparatus Standard	EN50014, EN50019, EN50020, EN50281-1-1	
Enclosure	High impact polyamide	
Ingress Protection	IP67	
Dimensions	Approx. 215(L) × 120(W) × 125 mm(H)	
Weight w/battery	1.4 kg	
Name of Mfr.	Atexor Oy Ltd.	

(to be continued)

Battery Chargers

for Rechargeable Safety Handlamp

Cargador de Batería de Lámparas de Mano Seguridad Recargable
充電式防爆安全手提げ灯用バッテリーチャージャー
充电式安全手提燈用充電器

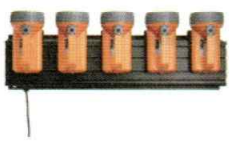
For use with the IL-640 series rechargeable safety lamps in several patterns of charging slots : for single lamp, for 3 lamps and for 5 lamps.



Single



For 3 lamps



For 5 lamps

Unit Per Pc.

CODE	33 06 57	33 06 58	33 06 59
Model	ILC-VAC	CR-C3	CR-C5
Mounting	Wall mounted vertical or horizontal	Wall mounted horizontal	
Enclosure	High impact PC/ Aluminium	Anodised aluminium	
Input Voltage	85 ...264V AC, 47...63 Hz	100...240VAC 50-60Hz 2.4A (+ Outlet)	
Recharge Time	6 hours		
Ingress Protection	IP44		
Certification	See Remark (a)	e17*72/245 *2006/2 8*0093*02	e17*72/245 *2006/2 8*0093*02
Dimensions	153×138×88mm	510×230×110mm	850×230×110mm
Weight	860 grm	3.8 kg	5.6 kg
Name of Mfr.	Atexor Oy Ltd.		

Remark:

(a) EMC Directive 89/93/EEC

Mains adaptor: EEC-EMC Directive 93/42: EN55022, EN61000-3-2, EN61000-3-3, EN50081-1, EN50081-2, EN50082-1, EN55024

Low Voltage Directive: 72/23/EEC, IEC60950, EN60950
Amendment Directive: E93/68/EEC, IEC60950, EN60950
Mains adaptor approvals: UL/cUL, CE, TUV

High Powered LED Rechargeable Safety Handlamps

Lámparas de Mano Seguridad Recargable de LED de Alta Potencia
強力発光ダイオード型充電式防爆安全手提げ灯
強力 LED 充電式安全手提燈

A first handlamp that uses high power LED (Light Emitting Diode) technology for explosive environments. Instead of an ordinary bulb, the lamp uses a high power LED with a service life of capacity 50,000 hours. The lamp is equipped with an environmentally friendly NiMH battery whose continuous operating time is more than seven hours. The shock resistant cover is manufactured completely of antistatic plastic and aluminium and its enclosure class is IP 65. On the emergency lamp model an emergency lighting function switches the lamp on when a power failure occurs. The lamp must be stored and charged in an exclusive charging holder. Fully compliant with the Cenelec requirements for standards EN60079-0, EN60079-11 and EN60079-28 as well as with ATEX classification II 2G Ex op is IIC T4 Gb & II 2D Ex op is IIIC T135°C Db.



ML-808 ATEX /
ML-808 ATEX EM



MICA MLC Charger

Unit Per Pc.

CODE	33 06 61	33 06 62
Model	ML-800 ATEX	ML-800 ATEX EM
Beam Type	Spot Beam	
Light Source	1 high luminous Cree LED, Lifetime: 50,000hrs Light output : over 100/25 lumen	
Power Source	6V rechargeable NiMH battery	
Operating Time	Full Power : 4 hrs 30 min Low Power: 15 hours	
Approval Code	II 2G Ex op is IIC T4 Gb II 2D Ex op is IIIC T135°C Db	
Area of Operation	Gas: Zones 1 and 2 Dust: Zones 21 and 22	
Temp. Classification	Gas: T4, Dust: 135°C	
Ingress Protection	IP65	
Certification	ATEX: VTT 13 ATEX 024 issue 1	
Enclosure	Dissipative (antistatic) polypropylene + aluminium, impact resistant	
Dimensions	120 × 63 × 54 mm	
Weight with Battery	400 grm	
Name of Mfr.	Atexor Oy Ltd.	

Battery Chargers

for High Powered LED Rechargeable Safety Handlamp

Cargador de Batería de Lámparas de Mano Seguridad Recargable de LED de Alta Potencia
強力発光ダイオード型充電式防爆安全手提げ灯用バッテリーチャジャー
強力 LED 充電式安全手提燈用充電器

For use with the ML-808 series high powered LED rechargeable safety handlamps in several patterns of charging slots: for fast charging, for 6 lamps.



MLC Fast Charger



CR-6-MLC

Unit Per Pc.

CODE	33 06 63	33 06 64
Model	MLC Charger + IL2 Adapter	CR-6-MLC
Mounting	Wall mounted vertical or horizontal	Wall mounted horizontal
Enclosure	High impact Nylon/ Aluminium	Anodised aluminium
Input Voltage	85...264VAC, 47...63Hz	100...240VAC 50-60Hz 2.4A
Recharge Time	2h 30 min	
EMC Certification	Directives 72/245/EEC, 95/54/EC Cert No. e17*72/245*2006/ 28*0108*02	Directives 89/336/EEC, 72/245/EEC, 95/54/EC Cert No. e17*/72/245*2006/ 28*0108*02
Dimensions	142 × 83 × 72 mm	490 × 210 × 63 mm
Weight	270 grm	3.2 kg
Name of Mfr.	Atexor Oy Ltd.	

Rechargeable LED Hand Lamps

for Hazardous Areas

Linterna LED recargable
充電式 LED ハンドランプ　充电式 LED 手电筒

A rechargeable LED hand lamp for hazardous areas, certified for use in Zone 0 areas. Available three patterns of model: Rechargeable safety hand lamp, rechargeable emergency lamp and rechargeable safety hand lamp with blinking mode.



Unit Per Pc.

CODE	33 06 65	33 06 66
Model	IL-800 Zone 0	IL-800 EM Zone 0
Type	Hand lamp	Emergency lamp
Beam Type	Narrow and wide	
Light Source	3 high luminous led's Cree LED's Light output 200/80 lumen Lifetime : 50,000 hr	
Power Source	6V rechargeable NiMH battery	
Light Duration	High power output: 6 hours Low power output: 12 hours	
Ingress Protection	IP67	
Certification	ATEX : TUV 10 ATEX 7878 IECEx : IECEx TUR 11.0008	
Type of Protection	II 1G Ex ia IIC T4 Ga II 2D Ex tb IIIC 100°C IP67 Db	
Area of classification G (Gas)	Zones 0, 1 and 2 Gas groups IIA, IIB, IIC	
Area of Classification (Dust)	Zones 21 and 22 Dust groups IIIA, IIIB, IIIC	
Temp. Classification	Gas: T4 Dust 100°C	
Enclosure	Antistatic impact resistant polypropylene	
Weight with Battery	1.1 kg	
Dimensions	215 mm(L)×120 mm(W)×125 mm(H)	

Name of Mfr. : Atexor Oy Ltd.

Rechargeable LED Hand Lamps

Linternas Frontales LED de Seguridad Recargables
充電式 LED ハンドランプ　可充电 LED 手灯



Use the latest and most advanced technology to deliver excellent performance, robustness, reliability and versatility in the harshest environments and is CE marked to the ATEX directive and IECEx certified, for safe use in Zones 1 and 2 potentially explosive gas and Zones 21 and 22 dust atmospheres. A Zone 0 version is also available.

Unit Per Pc.

CODE	33 06 12	33 06 13
Model	XT-50 Standard	XT-70 Performance
Beam Type	Spot	Spot / Food
Approval Code	I M2 2GD Ex ib IMB Ex ib IIIB T185°C Db IP67	
Type of Protection	"ib" intrinsic safety	
Area of Classification (Gases)	Zones 1 and 2, Gas groups IIA, IIB and IIC	
Temp Classification (Gases)	T4	
Area of Classification (Dust)	Zones 21 and 22 Dust Groups IIIA and IIIB	
Max. Surface Temp. (Dust)	185°C	
Certificate	ATEX Baseefa09ATEX0326X IECEx BAS 09.0153X UKEX BAS21UKEX0439	
Power Source	Rechargeable battery, Lithium-ion	
Light Duration Full/Half	Up to 4.0/8.0 hrs	Up to 7.5/15.0 hrs
Ingress Protection	IP67 to EN60529 : 1992	
Weight (incl cells)	1.2 kg	
Compatible Charger	XT-200L 12-24Vdc / XT-200H 90V-254Vac	

Name of Mfr.: Wolf Safety Lamp Company

Battery Chargers for LED Hand Lamp

Cargadores de pilas para linternas LED
LED ハンドランプ用充電器　LED 手电用充电器

The XT-200 quick charger base can fully recharge the handlamp in 2 hours. The charge operates from 90 - 254 V AC main voltage.

33 06 14	Battery charger XT-200H for LED hand lamp Wolf XT	Pc.

Compressed Air/Electric Safety Lights

Luces de Seguridad de Aire Comprimido / Eléctrica
防爆型エアーライト　防爆气力式电灯

Explosion-proof, high powered compressed air driven lamp, commonly used in the oil and petrochemicals industries, for tank cleaning and pipeline inspections, offering a safer alternative to low voltage lighting in dangerously wet conditions as well as where flammable gases and vapours can accumulate in confined spaces.



A-TL45



A-TL44

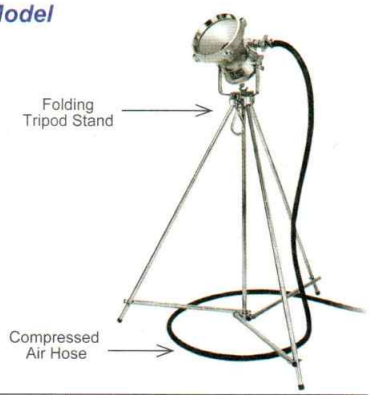
Unit Per Set

CODE	33 06 37	33 06 38
Model	A-TL45	A-TL44
Beam Type	Flood or Spot	Bay light (All-around 360°illumination)
Lens	Toughened glass (15 mm)	Ball glass/ Polycarbonate dome
Area of Classification	Zones 1 and 2, Gas Groups IIA, IIB, IIC	
Ambient Temperature	−20°C to + 40°C	
Certification	CML18ATEX9374X	
Enclosure	Aluminium or brass	
Light Source; Type Volts Watts Output	Halogen filled filament bulb 24 volt 250 W 6,000 lm (at 24 volt)	
Air Pressure	4.0 - 8.0 bar	
Consumption	0.75 m^3/min.	
Weight	7.1 or 13.5 kg	5.5 or 9.4 kg
Name of Mfr.	The Wolf Safety Lamp Company Ltd.	

Accessories for Model A-TL45 & A-TL44



Air Line Filter



CODE	Description	Size	Model	Unit
33 06 51	Compressed air hose, anti-static	12mm bore×18.3 mtr	A-179	Lgh
52	Compressed air hose, anti-static	12mm bore×36.6 mtr	A-180	Lgh
33 06 53	Air line filter	-	A-184	Pc.
33 06 54	Folding tripod stand	-	A-300	Pc.

Tank Lighting Kits

Equipos de iluminación de tanques
タンク照明セット　箱式照明套组

For Zone 1 areas

Tank Lighting kits provides a low voltage temporary lighting solution for Zone 1 Hazardous Areas, where potentially explosive gases, vapours and dusts may be present in a confined space. The kits allow for a flexible set up of high-quality task and ambient lighting to suit all working conditions in tanks and vessels, and offers operators a high level of

safety using various configurations of LED Floodlites (WF-300®XL), LinkEx™ LED Temporary Luminaires (LX-400 series) and ATEX Transformers.



Transformer


LED Floodlite


LED Temporary Luminaire

Stainless Steel Leadlamp Transformers for Tank Lighting Kit

Unit Per Pc.

CODE	33 19 01	33 19 02
Model	LL-133/T3	LL-223/T3
Volts in	110V AC	230V AC
Approval Code	For Output Power ≤ 400VA: Ex d e IIC T3 Gb - Ex t IIIC T195°C Db (-20°C ≤ Ta ≤ +30°C) For Output Power ≤ 320VA: Ex d e IIC T3 Gb - Ex t IIIC T195°C Db (-20°C ≤ Ta ≤ +42°C)	
Type of Protection	"e" increased safety "d" flameproof	
Area of Classification (Gas)	Zones 1 and 2, gas groups IIA, IIB and IIC	
Temp Classification (Gas)	T3	
Area of Classification (Dust)	Zones 21 and 22, Dust Groups IIIA, IIIB and IIIC	
Certificate	ATEX-LCIE02ATEX6118X IECEX-LCI 11.0008X	
Ingress Protection	IP66	
Power	320/400VA	
Volts out	24V	
Socket Arrangement	4 output sockets, ATX 110/24V 2P + E as standard	
Size	512 × 562 × 260 mm (L × W × H)	
Weight	28 kg	

Name of Mfr.: Wolf Safety Lamp Company

LED Floodlites WF-300®XL

The Linkex™ WF-300®XL LED Floodlite is a high performance, robust, lightweight and portable Floodlite for use in potentially explosive atmospheres. It delivers an outstanding level of white light and is fully compliant with the latest ATEX and IECEx standards, including OPIS - Optical Intrinsic Safety. Fitted with Wolf's unique SOVI system to ensure safe operation, the Floodlite is certified for safe use in Zone 1, T4, IIc, -40°C to +55°C ambient, hazardous gas, vapour, mist or dust environments.

Unit Per Pc.

CODE	33 19 05	33 19 06
Voltage	18-50V AC/DC (LV)	90-264V AC/DC (HV)
Approval Code	II 2 G D Ex eb mb op is IIC T4 Gb Ex tb op is IIIC T118°C Db T = -40°C to +55°C	
Type of Protection	'eb' increased safety 'mb' encapsulation 'tb' enclosure protection	
Area of Classification (Gases)	Zones 1 and 2, Gas groups IIA, IIB and IIC	
Temp Classification (Gases)	T4	
Area of Classification (Dust)	Zones 21 and 22, Dust Groups IIIA, IIIB and IIIC	
Certificate	CML 18ATEX3372X IECEx CML 18.0198X	
Light Source	36 x white high power LEDs	
Ingress Protection	IP66/67	
Weight	7.3 kg (excluding cable)	

Name of Mfr.: Wolf Safety Lamp Company

(to be continued)

Tank Lighting Kit Configuration

Unit Per Set

CODE	Model	Transformer	Lamps	Cable
33 19 16	LL-155/T3	LL-133/T3 110V AC	4 × WF-300®XL (58W LED Floodlites)	Fitted with 20 mtr of SY cable
17	LL-255/T3	LL-233/T3 230V AC		
33 19 18	LX-185/T4	LL-133/T4 110V AC	4 × LX-400 (27W LED 180° Leadlamps)	
19	LX-285/T4	LL-233/T4 230V AC		

Name of Mfr.: Wolf Safety Lamp Company

LinkEx™ LED Temporary Luminaire

Unit Per Set

CODE	Product's Code	LED Temporary Luminaire	Linkable	Fitted with SY Cable	Plug & Socket
		AC 110V			
33 19 21	LX-400SH	LED	No	10 mtrs 2.5 mm²	ATX plug
22	LX-400SH		Yes	5 mtrs 2.5 mm²	ATX plug & Socket
33 19 23	LX-400SH/360	LED	No	10 mtrs 2.5 mm²	ATX plug
24	LX-400SH/360		Yes	5mtrs 2.5 mm²	ATX plug & Socket
		AC 230V			
33 19 26	LX-400SH	LED	No	10 mtrs 2.5 mm²	ATX plug
27	LX-400SH		Yes	5 mtrs 2.5 mm²	ATX plug & Socket
33 19 28	LX-400SH/360	LED	No	10 mtrs 2.5 mm²	ATX plug
29	LX-400SH/360		Yes	5 mtrs 2.5 mm²	ATX plug & Socket

Name of Mfr.: Wolf Safety Lamp Company

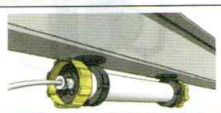
Accessories for LX-400 Series LED Temporary Luminaire

Reference Chart

LED Luminaire	Magnet Kit	Tripod	Scaffold bracket	Protective Films (×3 pack)
LED	LX-680	LL-680 + LL-670	LL-678	LL-545/3

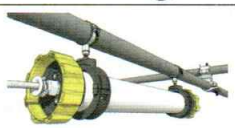
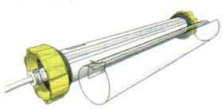
Remark : Tripod (LL-680) will need to be used with a Tripod Bracket (LX-670)

Unit Per Set

CODE	Model & Name
33 19 30	LL-680 Magnet Kit 

(to be continued)

Unit Per Set

CODE	Model & Name
33 19 32	LL-680 "Tripod" 
33	LX-670 "Tripod Bracket" for Tripod LL-680 
34	LX-678 "Scaffold Bracket" 
37	LX-545/3 "Protective Films (x3 Pack)" 

Accessories for WF-300®XL LED Floodlite

Unit Per Pc.

CODE	Model & Name
33 19 41	WF-545 "Magnetic Set" 
33 19 42	LL-680 "Tripod"

33

Safety Equipment

Tank Lighting Kits Zone 0, 1 & 2

Kits de Iluminación para Depósitos Zona 0, 1 y 2
タンク照明セット　ゾーン 0, 1, 2
水箱照明套件 0、1 和 2 区

ATEX approved for use in Zones 0,1 & 2 potentially explosive gas atmospheres, and Zones 20, 21 & 22 potentially explosive dust atmospheres. Group I approval for use in mining applications.

Made of stainless steel with an anti-static coating, each frame incorporates hand lamp holders with a "snap-in/snap-out" function to secure the hand lamp, but quick release allows the floodlight stand of hand lamps to be manually tilted and locked in position. The hand lamps can be removed from the stand in the hazardous area and used for close inspection work or in awkward to reach locations.


FS-004


FS-006

Unit Per Pc.

CODE	33 19 03	33 19 04
Model	FS-004	FS-006
Area of Classification (Gas)	Zone 0, 1, and 2, Gas Groups: IIA, IIB, and IIC	
Area of Classification (Dust)	Zone 20, 21, and 22, Dust Groups: IIIA, IIIB, and IIIC	
Ex Mark	I M1 Ex ia I Ma II 1G Ex ia op is IIC T4 Ga II 1D Ex ia IIIC T135°C Da	
Ingress Protection	IP66	
Power Source	4 x LR20 (D) Alkaline Battery (Single Hand Lamp)	
Light Duration	Up to 28.3 hours	
Hand Lamp Configuration	4 pieces of EX-6100 Safety Hand Lamp	6 pieces of EX-6100 Safety Hand Lamp
Dimensions (mm)	370 × 380 × 522	370 × 510 × 522
Weight (kg,Carrying in Work)	+/-10.50 (1 piece of hand lamp stand + 4 pieces of EX-6100 with batteries)	+/-14.50 (1 piece of hand lamp stand + 6 pieces of EX-6100 with batteries)

Name of Mfr. : Fortune Protection Safety Ltd.

Accessories for Model FS-004 & FS-006



CODE	Model	Description	Launched Diameter & Height	Unit
33 19 07	B-400	Tripod Stand	D: Φ1,100 mm H: 1,348 mm	Pc.

Name of Mfr. : Fortune Protection Safety Ltd.

Rechargeable LED Floodlights

Reflectores LED recargables　充電式 LED ライト　充电式 LED 灯



The ATEX & IECEx certified rechargeable, high output LED floodlight for use in harsh, remote applications for extended periods. It offers unique levels of light output, operational duration and robustness in a self-contained battery powered lamp.

Both models deliver up to 3,100 lumens of light from its 18 LED lamp head, have a battery duration of up to 40 hours with LED life of 100,000 hours.

Unit Per Pc.

CODE	33 19 51	33 19 52
Model	WL-80	WL-85
Light Output	Up to 3,100 lumens	
Light duration – High/Low		
Power Source Capacity	18 Ah	35 Ah
Battery Type	Rechargeable battery, sealed gel lead acid (12V)	
Approval Code	II 2 GD Ex eb ib mb op is IIC T4 Gb Ex tb op is IIIC T135°C Db	
Type of Protection	'eb' Increased Safety, 'ib' Intrinsic Safety, 'op is' optical intrinsic safety, 'mb' Encapsulation, 'tb' Enclosure Protection	

(to be continued)

Area of Classification (Gases)	Zones 1 & 2, Gas Groups IIA, IIB, IIC	
Temp. Classification (Gases)	T4	
Area of Classification (Dust)	Zones 21 and 22	
Certificate	CML 18ATEX3373X, IECEx CML 18.0199X	
Ingress Protection	IP66 and IP67 to IEC60529	
Beam Type	Spot beam with a flood of low level fringe light	
Light Source Power	18 x LEDs	
Weight	16.5 kg	23 kg

Name of Mfr.: Wolf Safety Lamp Company

LED Portable Daylight Signaling Lamps

Lámparas LED de señalización de luz solar
LED ポータブル昼間信号灯
LED 便携式日光信号灯



Installation required by SOLAS regulations Chapter V which reads as follows: "All ships of over 150 tons gross tonnage, when engaged on international voyages, shall have on board an efficient daylight signaling lamp which shall not be solely dependent upon the ship's main source of electrical power."

< Features >

* Long life and needless lamp exchange.
* 2 hours or more continuous operations with incorporated rechargeable battery in main body.
* All weather condition due to strict waterproof body.
* Durable corrosion-proof Synthetic body.
* Shutterless, Realized 86% lighter than existence model.
* HK & MED approved.

Unit Per Set

CODE	33 06 50
Model	SPM-L01
Lamp	Hi glitter LED
Luminosity	100,00 cd or more
Protection	IPX7
Material	Synthetic Resin
Weight	0.97 kg
Name of Mfr	Shonan Kosakusyo Co, Ltd.

Accessories

33 06 46	Battery charger for SPM- L01 portable type
33 06 40	Carrying case for SPM-L01

Fire Hose

Manguera contra Incendios 消火ホース 消防皮龙

In cargo ships of 1,000 gross tons or more, the number of non-perishable fire hoses to be provided shall be one for each 30 mtr area of the ship and one spare.



In no case shall there be less than 5 hoses in all.

Unit Per C/L

CODE	Nominal Size	Length per Coil	Working Pressure
Rubber Lined Tetoron			
33 07 01	40	15 mtr	0.9 MPa
02	50		
03	65		
33 07 04	40	20 mtr	
05	50		
06	65		
33 07 07	40	25 mtr	
08	50		
09	65		
33 07 10	40	30 mtr	
11	50		
12	65		
D. N. V. Approved (Polyester yarn and coated inside with synthetic rubber)			
33 07 15	40 mm	15 mtr	1.3 MPa
16		20 "	
33 07 17	50 mm	15 mtr	
18		20 "	
33 07 19	65 mm	15 mtr	
20		20 "	
U. K. DOT Approved (All synthetic rubber lined)			
33 07 21	45 mm	15 mtr	1.3 MPa
24		18 "	
27		25 "	
33 07 22	50 mm	15 mtr	
25		18 "	
28		25 "	
33 07 23	65 mm	15 mtr	
26		18 "	
29		25 "	
H.K. Approved			
33 07 34	45 mm	15 mtr	1.3 MPa
35		20 "	
36		25 "	
33 07 37	50 mm	15 mtr	
38		20 "	
39		25 "	
33 07 40	65 mm	15 mtr	
41		20 "	
42		25 "	

Note: Coupling excluded

Fire Hoses
M.E.D. Approved Type

Rubber Covered Fire Hose SF-120
Outer Colour : Red

Mangueras de incendio aprobadas por M.E.D.
M E D認証消火ホース 获 MED 认证的消防水龙带



Features:
Tough, durable and very abrasion resistant.
Resistance to oil, fuel and a wide range of chemicals.
Resistance to heat, UV and ozone.
Excellent adhesion between rubber and textile.
No cleaning and drying required.

Applications:

Refineries, Chemical industry, Fire brigades, Marine and offshore installations and Fire hose for usage under tough conditions.

Service Temperature: -20°C up to + 100°C based on water.
Working Pressure: 20 bar

Unit Per C/L

CODE	Type	Flat Measure	Pressure	Alligator No.
33 37 01	38 mm × 15 mtr	65 mm	20 bar	SF1200381
02	38 mm × 20 mtr			SF1200382
03	38 mm × 30 mtr			SF1200383
33 37 04	45 mm × 20 mtr	70 mm	20 bar	SF120045
33 37 05	52 mm × 15 mtr	85 mm	20 bar	SF1200521
06	52 mm × 20 mtr			SF1200522
07	52 mm × 30 mtr			SF1200523

Name of Mfr.: Alligator

Uncoated Single Jacket Fire Hose SF-121 Outer Colour: White



Features:

Very lightweight and highly flexible (even at low temperature). Small coil diameter.

Excellent resistance to weathering and ozone.

Very good resistance to sea water and a wide range of chemicals.
Mildew and rotproof.

Applications:

Industrial and municipal fire brigades.
Marine firefighting.
Service Temperature: -10°C up to + 60°C based on water.
Working Pressure: 15 bar.

Unit Per C/L

CODE	Diam. × Length	Flat Measure	Pressure	Alligator No.
33 37 15	38 mm × 15 mtr	65 mm	15 bar	SF121038
16	38 mm × 20 mtr			SF1210382
17	38 mm × 30 mtr			SF1210383
33 37 18	52 mm × 15 mtr	85 mm	15 bar	SF121051
19	52 mm × 20 mtr			SF121052
20	52 mm × 25 mtr			SF12105225
21	52 mm × 30 mtr			SF1210523

Name of Mfr.: Alligator

Coated Single Jacket Fire Hose SF-123 Outer Colour: Red



Features:

Very lightweight and highly flexible (even at low temperature). Excellent resistance to heat, weathering and ozone.

Very good resistance to sea water and a wide range of chemicals.

Hardwearing for long service life.

Mildew and rotproof.

Applications:
Industrial and municipal fire brigades.
Marine firefighting

Service Temperature: -10°C up to + 60°C based on water.
Working Pressure: 15 bar.

Unit Per C/L

CODE	Diam. × Length	Flat Measure	Pressure	Alligator No.
33 37 26	38 mm × 15 mtr	65 mm	15 bar	SF123038
27	38 mm × 20 mtr			SF1230382
28	38 mm × 30 mtr			SF12030383
33 37 29	45 mm × 15 mtr	70 mm	15 bar	SF1230451
30	45 mm × 20 mtr			SF1230452
31	45 mm × 30 mtr			SF1230453
33 37 32	52 mm × 15 mtr	85 mm	15 bar	SF123051
33	52 mm × 20 mtr			SF123052
34	52 mm × 30 mtr			SF1230523

Name of Mfr.: Alligator

(to be continued)

Fire Hose

Inner/outer Synthetic Rubber Lined

Manguera Reforzada de Exinción
両面合成ゴム被覆強化ホース　消防皮龙



High durable fire hose with synthetic rubber reinforcement on inner and outer surface of the hose. It has excellent resistance to weather, abrasion, oil, chemical and especially to ozone attack. Easy to clean hose surface, and easy to handle because of difficulty to kink. Nominal working pressure is 16 kgf/cm². Supplied standard length in 20 mtr. Please specify type of hose coupling if necessary to be attached.

Unit Per C/L

CODE	Nominal Size	Weight grm/mtr	Length Per Coil
33 07 31	40	335	20 mtr
32	50	430	
33	65	570	

Fire Hoses with Prefitted Coupling

Mangueras de incendio con acoplamientos preajustados
カップリング付消火ホース　带接头的消防水带

Internationally approved fire hoses with prefitted fire hose coupling, covering a vast range of patterns and sizes to suit customer's requirements from around the world. Please specify necessary class certification of fire hose when ordering.



Machino Type – Brass



Unit Per Lgh.

CODE	Hose Size mm	Hose Length mtr	Pressure Bar	Flat Measure mm
Hose Colour – White				
33 37 41	38	15	10	68
42		20		
43		25		
44		30		
33 37 45	52	15	10	85
46		20		
47		25		
48		30		
33 37 49	65	15	10	105
50		20		
51		25		
52		30		

(to be continued)

Unit Per Lgh.

CODE	Hose Size mm	Hose Length mtr	Pressure Bar	Flat Measure mm
Hose Colour – Red				
33 37 53	38	15	15	65
54		20		
55		30		
33 37 56	52	15	15	85
57		20		
58		30		
33 37 59	65	15	15	105
60		20		
61		30		

Nakajima Type – Brass



Unit Per Lgh.

CODE	Size mm		Hose Length mtr	Pressure Bar	Flat Measure mm
	Lug	Hose			
Hose Colour – White					
33 37 62	61	38	15	10	68
63			25		
64			30		
33 37 65	72	52	15	10	85
66			25		
67			30		
33 37 68	91	65	15	10	105
69			20		
70			25		
71			30		
Hose Colour – Red					
33 37 72	61	38	15	15	65
73			20		
74			30		
33 37 75	72	52	15	15	85
76			20		
77			30		
33 37 78	91	65	15	15	105
79			20		
80			30		

Nakajima Type – Aluminium



Unit Per Lgh.

CODE	Size mm		Hose Length mtr	Pressure Bar	Flat Measure mm
	Lug	Hose			
Hose Colour – White					
33 37 81	61	38	15	10	68
82			25		
83			30		
33 37 84	72	52	15	10	85
85			25		
86			30		
33 37 87	91	65	15	10	105
88			20		
89			25		
90			30		
Hose Colour – Red					
33 37 91	61	38	15	15	65
92			20		
93			30		
33 37 94	72	52	15	15	85
95			20		
96			30		
33 37 97	91	65	15	15	105
98			20		
99			30		

Pin Lug Type – Brass



Unit Per Lgh.

CODE	Hose Size mm	Hose Length mtr	Pressure Bar	Flat Measure mm
Hose Colour – White				
33 38 00	38	15	10	68
21		20		
22		25		
23		30		
33 38 24	52	15	10	85
25		20		
26		25		
27		30		
33 38 28	65	15	10	105
29		20		
30		25		
31		30		
Hose Colour – Red				
33 38 32	38	15	15	65
33		20		
34		30		
33 38 35	52	15	15	85
36		20		
37		30		
33 38 38	65	15	15	105
39		20		
40		30		

Instantaneous Type – Brass



Unit Per Lgh.

CODE	Hose Size mm	Hose Length mtr	Pressure Bar	Flat Measure mm
Hose Colour – White				
33 38 41	38	15	10	68
42		20		
43		25		
44		30		
33 38 45	52	15	10	85
46		20		
47		25		
48		30		
33 38 49	65	15	10	105
50		20		
51		25		
52		30		
Hose Colour – Red				
33 38 53	38	15	15	65
54		20		
55		30		
33 38 56	52	15	15	85
57		20		
58		30		
33 38 59	65	15	15	105
60		20		
61		30		

Instantaneous Type – Aluminium



Unit Per Lgh.

CODE	Hose Size mm	Hose Length mtr	Pressure Bar	Flat Measure mm
Hose Colour – White				
33 38 62 **63** **64** **65**	38	15 20 25 30	10	68
33 38 66 **67** **68** **69**	52	15 20 25 30	10	85
33 38 70 **71** **72** **73**	65	15 20 25 30	10	105
Hose Colour – Red				
33 38 74 **75** **76**	38	15 20 30	15	65
33 38 77 **78** **79**	52	15 20 30	15	85
33 38 80 **81** **82**	65	15 20 30	15	105

Storz Type - Brass



Unit Per Lgh.

CODE	Size mm		Hose Length mtr	Pressure Bar	Flat Measure mm
	Lug	Hose			
Hose Colour – White					
33 38 83 **84** **85** **86**	66	38	15 20 25 30	10	68
33 38 87 **88** **89** **90**	66	52	15 20 25 30	10	85
33 38 91 **92** **93** **94**	81	65	15 20 25 30	10	105
33 38 95 **96** **97**	89	75	15 20 30	10	130
Hose Colour – Red					
33 38 98 **99** **39 00**	66	38	15 20 30	15	65
33 39 01 **02** **03**	66	52	15 20 30	15	85
33 39 04 **05** **06**	81	65	15 20 30	15	105
33 39 07 **08** **09**	89	75	15 20 30	15	130

Storz Type – Aluminium



Unit Per Lgh.

CODE	Size mm		Hose Length mtr	Pressure Bar	Flat Measure mm
	Lug	Hose			
Hose Colour – White					
33 39 10 **11** **12** **13**	66	38	15 20 25 30	10	68
33 39 14 **15** **16** **17**	66	52	15 20 25 30	10	85
33 39 18 **19** **20** **21**	81	65	15 20 25 30	10	105
33 39 22 **23** **24**	89	75	15 20 30	10	130
Hose Colour – Red					
33 39 25 **26** **27**	66	38	15 20 30	15	65
33 39 28 **29** **30**	66	52	15 20 30	15	85
33 39 31 **32** **33**	81	65	15 20 30	15	105
33 39 34 **35** **36**	89	75	15 20 30	15	130

Guillemin Type – Brass



Unit Per Lgh.

CODE	Hose Size mm	Hose Length mtr	Pressure Bar	Flat Measure mm
Hose Colour – White				
33 39 37 **38** **39**	45	15 20 30	10	70
33 39 40 **41** **42**	70	15 20 30	10	110
Hose Colour – Red				
33 39 43 **44** **45**	45	15 20 30	15	70
33 39 46 **47** **48**	70	15 20 30	15	110

Guillemin Type – Aluminium



Unit Per Lgh.

CODE	Hose Size mm	Hose Length mtr	Pressure Bar	Flat Measure mm
Hose Colour – White				
33 39 49 **50** **51**	45	15 20 30	10	70
33 39 52 **53** **54**	70	15 20 30	10	110

(to be continued)

Unit Per Lgh.

CODE	Hose Size mm	Hose Length mtr	Pressure Bar	Flat Measure mm
Hose Colour – Red				
33 39 55	45	15	15	70
56		20		
57		30		
33 39 58	70	15	15	110
59		20		
60		30		

Uni 45 Type - Brass



Unit Per Lgh.

CODE	Hose Size mm	Hose Length mtr	Pressure Bar	Flat Measure mm
Hose Colour – White				
33 39 61	45	15	10	70
62		20		
63		30		
Hose Colour – Red				
33 39 64	45	15	15	70
65		20		
66		30		

Uni 70 - Brass



Unit Per Lgh.

CODE	Hose Size mm	Hose Length mtr	Pressure Bar	Flat Measure mm
Hose Colour – White				
33 39 67	70	15	10	110
68		20		
69		30		
Hose Colour – Red				
33 39 70	70	15	15	110
71		20		
72		30		

Nor – Aluminium



Unit Per Lgh.

CODE	Size mm		Hose Length mtr	Pressure Bar	Flat Measure mm
	Lug	Hose			
Hose Colour – White					
33 39 73	65	52	15	10	85
74			20		
75			25		
76			30		
33 39 77	84	65	15	10	105
78			20		
79			25		
80			30		

(to be continued)

Unit Per Lgh.

CODE	Size mm		Hose Length mtr	Pressure Bar	Flat Measure mm
	Lug	Hose			
Hose Colour – Red					
33 39 81	65	52	15	15	85
82			20		
83			30		
33 39 84	84	65	15	15	105
85			20		
86			30		

Fire Hose Boxes

Cajas para Guardar Mangueras contra Incendios
消火ホース格納箱　消防皮龙箱



Versatile box to store fire hoses of up to 20 mtrs in length with nozzles and spanner.

The box and cover are made of polycarbonate for weather and sea water resistance.

33 07 51	Fire hose box, polycarbonate, capacity 20 mtrs	Pc.

Portable Fire Hose Binding Machines

Máquinas de fijación portable para mangueras de incendios
簡易式消火ホース金具結束機　简易式消防水带金属线捆扎机



Suitable for binding firefighting hose on hose coupling shanks using copper wire, G.I. wire or stainless steel wire. Applicable fire hoses between 25 mm to 110 mm to new hose couplings. Generally, 1.6 mm (16 SWG) galvanised wire is accepted as the binding wire.

33 07 52	Binding machine, fire hose, portable, For hose size 25 mm to 110 mm	Set

Spanners for Hydrant

Llave de Boca de Agua　消火継手用スパナ　消防扳手

Designed for tightening or loosening of fire hose couplings. Please select suitable spanner to your hose coupling type and size.



for Nakajima



for ANSI - Pin Lug



for ANSI - Slotter

Unit Per Pc.

CODE	Type of Hydrant	Nom. Coupling Size	Overall Length mm	Material
33 07 91	Nakajima	40A	270	Bronze
92		50A	295	
93		65A	330	
33 07 95	ANSI-Pin Lug	40A	246	Copper
96		65A	280	
33 07 97	ANSI-Slotter	40A	175	Copper
98		65A	235	

Fire Hose Nozzles

Lanza de Manguera contra Incendios
消火ホースノズル　消防皮龙喷嘴

Wide variety of nozzle connecting types with hose couplings are available according to several standards. Some common types are as shown below.


Nakajima Coupling


ANSI Pin Coupling


Machino Coupling

Unit Per Pc.

CODE	Nom. Size	Spout Diam.	Length	Weight
Nakajima Coupling				
33 08 01	40 mm	12 mm	350 mm	0.73 kg
03	50	16	450	1.17
04	65	20	500	1.77
ANSI Pin Coupling				
33 08 06	40 mm	12 mm	350 mm	0.71 kg
08	65	20	500	1.70
Machino Coupling				
33 08 09	40 mm	12 mm	350 mm	0.8 kg
10	50	16	370	1.2
11	65	20	500	2.0

Guillemin Type


33 35 61


33 35 62


33 35 63


33 35 64

Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
33 35 61	45mm, Jet/Spray	Aluminium	Guillemin	ST040012
62	70mm, Jet/Spray			ST040022
63	45mm, Jet/Spray with manshield			ST040014
64	70mm, Jet/Spray with manshield			ST040024

Pontstar Type


33 35 65


33 35 66


33 35 67


33 35 68

Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
33 35 65	DN40	Brass	Pontstar Robinet Diffuseur	ST040025
66	DN70			ST040029
33 35 67	DN40		Fut de Lance Ponstar	ST040026
68	65/70 mm			ST040030

UNI 45/UNI 70 Type


UNI 45


UNI 70

Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
33 35 69	45 mm, Jet / Spray	Brass	UNI 45	ST04545
70	70 mm, Jet / Spray		UNI 70	ST04560

Nakajima Type


33 08 01-04


33 35 71-73

Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
33 08 01	1-1/2" (40A) Lug size 61mm	Brass	Nakajima	ST050012
03	2" (50A) Lug size 72 mm			ST050071
04	2-1/2" (65A) Lug size 91 mm			ST050091
33 35 71	1-1/2" (40A) Lug size 61mm	Aluminium		ST051012
72	2" (50A) Lug size 72 mm			ST051071
73	2-1/2" (65A) Lug size 91 mm			ST051091

NS / KR Type



Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
33 35 74	68 mm, Jet / Spray	Brass	NS	ST056012
75	83 mm, Jet / Spray		KR	ST056021

PIN Lug Type



Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
33 35 76	1-1/2" (40A) Thread:11-1/2 TPI Jet/Spray short	Brass	PIN Lug	ST0750200
33 08 08	2-1/2" (65A) Thread: 7-1/2 TPI Jet/Spray short			ST075032

LFB Type


33 35 77


33 35 78

Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
33 35 77	2-1/2" Thread: 5-1/5 TPI Jet/Spray	Brass	LFB	ST120011
78	2-1/2" Thread: 5-1/5 TPI BSP male			ST120019

Instantaneous Type



Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
33 35 79	2-1/2"	Brass	Instantaneous	ST230011

NOR Type


33 35 80


33 35 81

Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
33 35 80	2" (LAS 2/50A) Jet/Spray	Brass	NOR	ST250011
81	2-1/2" (LAS 1/65A) Jet/Spray			ST250021

Barcelona Type



33 35 82 33 35 83 33 35 84 33 35 85

Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
33 35 82	DN45, Lug size 45 mm Jet/Spray	Aluminium	Barcelona	ST300012
83	DN70, Lug size 70 mm Jet/Spray			ST300022
84	DN45, Lug size 45 mm Jet/Spray with manshield			ST300014
85	DN70, Lug size 70 mm Jet/Spray with manshield			ST300024

ROTA Type



Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
33 35 86	2-1/2", Jet/Spray	Brass	ROTA	ST320012

Storz Type



33 35 91 33 35 92 33 35 93 33 35 94

33 35 95 33 35 96 33 35 97 33 35 98



33 36 01 33 36 02

Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
	Multi Purpose Nozzles			
33 35 91	2", Lug size:66 mm DIN 14365	Aluminium	Storz-C	ST44066
92	2-1/2", Lug size: 81 mm DIN 14365		Storz-65	ST44081
93	3", Lug size:89 mm DIN 14365		Storz-B	ST44089
94	2", DIN 14365		BSP male	ST44099
33 35 95	2", Lug size:66 mm Nozzle with manshield	Aluminium	Storz-C	ST45066
96	2-1/2", Lug size: 81 mm Nozzle with manshield		Storz-65	ST45081
97	3", Lug size:89 mm Nozzle with manshield		Storz-B	ST45089
98	2", Nozzle with manshield		BSP male	ST45099
	Fire Nozzles			
33 36 01	2", with jet/spray nozzle	Brass	BSP male	ST49527
33 36 02	2", Lug size:66 mm Jet/Spray	Brass	Storz-C	ST500012
03	2-1/2", Lug size 81 mm Jet/spray		Storz-65	ST500032
04	3", Lug size 89 mm Jet/spray		Storz-B	ST500042

UNIFIRE / HS 16 Type



33 36 05 33 36 06

Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
33 36 05	2" Thread: BSP male	Brass chrome plated PVC	UNIFIRE V16	ST550500
06	2" Thread: BSP male		UNIFIRE	ST550501

SMS Type



33 36 07 33 36 08

Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
33 36 07	2-1/2", jet/spray with manshield	Aluminium	SMS	ST62005
08	2-1/2", jet/spray			ST62010

Foam Nozzles with Ball Valve



Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
33 36 09	2" Thread: BSP male	Aluminium	-	ST700400

Ball Nozzles



Unit Per Pc.

CODE	Size	Material	Type	Alligator No.
33 36 10	13 mm	Chromed	-	ST954013
11	19 mm			ST954019
12	25 mm			ST954025

Applicators for All Purpose Nozzle

Aplicadores para Lanzas Multiusos

オールパーパス式ノズル用アプリケーター　多用途噴嘴

For use with all purpose nozzle. Applicator is made of bronze with brass coupling. Please specify the type of coupling, Nakajima, ANSI pin, etc., to be connected with when ordering.



Unit Per Pc.

CODE	Size	CODE	Size
	BSP Male Thread Coupling		
33 07 53	50A × 1,200 mm	**33 07 54**	50A × 1,800 mm
	Storz Coupling		
33 07 55	50A x 1,200 mm	**33 07 58**	65A × 1,800 mm
56	50A x 1,800 mm	**59**	75A × 1,200 mm
57	65A x 1,200 mm	**60**	75A × 1,800 mm
	ANSI PIN Coupling		
33 07 61	40A x 1,200 mm	**33 07 67**	65A x 1,200 mm
62	40A x 1,800 mm	**68**	65A x 1,800 mm
63	40A x 3,600 mm	**69**	65A x 3,600 mm

(to be continued)

Unit Per Pc.

CODE	Size	CODE	Size
	Nakajima Coupling		
33 08 15	40A × 1,200 mm	**33 08 18**	65A × 1,200 mm
16	40A × 1,800 mm	**19**	65A × 1,800 mm
17	40A × 3,600 mm	**20**	65A × 3,600 mm
33 08 94	50A x 1,200 mm		
95	50A x 1,800 mm		
96	50A x 3,600 mm		
	Machino Coupling		
33 07 71	40A x 1,200 mm	**33 07 77**	65A x 1,200 mm
72	40A x 1,800 mm	**78**	65A x 1,800 mm
73	40A x 3,600 mm	**79**	65A x 3,600 mm
33 07 74	50A x 1,200 mm		
75	50A x 1,800 mm		
76	50A x 3,600 mm		

Remark: Lug distance of Storz coupling C 50A: 66 mm, Storz coupling 65A: 81 mm, Storz coupling B 75A: 89 mm, and of Nakajima coupling 40A: 61mm, 50A: 2 mm, 65A: 91mm

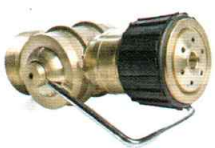
Fog Nozzles 3-position for Fire Hose Nozzle

Lanza Contraincendios de 3 posiciones, Latón
ホースノズル用噴霧ノズル　消防皮龙三段式喷嘴

3-position nozzles produces shut-off/spray/jet flow spray modes.

Nozzle comes with couplings suitable to connect with the hose couplings of the ship. Made of brass.

Made of Brass



Unit Per Pc.

CODE	Type of Coupling	Size
33 08 30	BSP male	2" (50A)
33 08 42	Storz	2" (50A)
43		2-1/2" (65A)
33 08 31	Nakajima	1-1/2" (40A)
32		2" (50A)
33		2-1/2" (65A)
33 08 34	ANSI Pin	1-1/2" (40A)
35		2" (50A)
36		2-1/2" (65A)
33 08 37	Machino	1-1/2" (40A)
38		2" (50A)
39		2-1/2" (65A)

Made of Aluminium



Unit Per Pc.

CODE	Type of Coupling	Size
33 35 50	BSP male	2" (50A)
33 35 51	PIN Lug	1-1/2" (40A)
52		2-1/2" (65A)
33 35 53	Storz	2" (50A)
54		2-1/2" (65A)
33 35 55	Nakajima	1-1/2" (40A)
56		2" (50A)
57		2-1/2" (65A)
33 35 58	Machino	1-1/2" (40A)
59		2" (50A)
60		2-1/2" (65A)

International Shore Connections

Conexiones Internacional para Suministro de Agua desde Tierra
国際陸上施設連結具　国际通岸消防接头

Required by SOLAS regulations Chapter II Regulation 19. "Ships of 500 tons or more shall be provided with at least one international shore connection."



The connection is fitted with a coupling to match the hose couplings on the ship.

Please specify the required type of ship's coupling: Nakajima, ANSI Pin, etc. when ordering. Connections come with bolts, nuts, washers and gaskets.

Basic Dimensions

Outside Diam.	: 178 mm	Inside diam.	: 64 mm
P. C. D.	: 132 mm	Flange Thick	: 14.5 mm
Slots in Flange	: 19 mm diam × 4 holes		
Bolts and Nuts	: 16 mm diam × 50 mm length × 4 pcs.		

33 08 41	International shore connection fitted with couplings to match hose coupling on ship	Pc.

Keeping Box for International Shore Connection

Made of polyester reinforced with glass fibre. The outside is smooth finished.



33 08 40	Keeping box for international shore connection, polyester, red coloured, 290 × 290 × 170 mm	Pc.

Name of Mfr.: Alligator

Fire Hose Couplings

Acoplamientos de mangueras de incendio
消火ホース継ぎ手　灭火水龙带接头

A wide variety of types are available as per the illustration below. Made of Brass or Aluminium are available, and used for shipboard fire fighting.



Nakajima　Machino　John Morris　Nor



USA Pin　USA Slotter　French　Storz

Unit Per Pr.

CODE	Size	Type	Standard	Connection
		Brass		
33 08 51 **52** **53**	40A(1-1/2) 50A(2) 65A(2-1/2)	Nakajima	JIS F-7335	Interlocking
33 08 54 **55** **56** **57** **58**	25A(1) 40A(1-1/2) 50A(2) 65A(2-1/2) 75A(3)	Machino	JIS B-9911	Inserting
33 08 59 **60** **61**	40A(1-1/2) 50A(2) 65A(2-1/2)	John Morris	B.S.336	Inserting
33 08 62 **63** **64**	40A(1-1/2) 50A(2) 65A(2-1/2)	Nor	Norwegian	Interlocking
33 08 65 **66**	1-1/2" 2-1/2"	(USA) ANSI Pin	NH (NST)	Screw Connecting
33 08 69 **70**	1-1/2" 2-1/2"	(USA) ANSI Slotteer	NH (NST)	
33 08 73 **74**	40A(1-1/2) 65A(2-1/2)	French	NF-S61-704 NF-S61-705	Interlocking
33 08 75 **76**	52C(2) 75B(3)	Storz	DIN 14302 DIN 14303	Interlocking
33 08 77 **78** **79** **80**	25A(1) 40A(1-1/2) 50A(2) 65A(2-1/2)	BSP & PF - Not illustrated -	BSP 21 JIS B-0202	Screw Connecting
		Aluminium		
33 08 88 **89** **90**	40A(1-1/2) 50A(2) 65A(2-1/2)	Nakajima	JIS F-7335	Interlocking
33 08 82 **83**	40A(1-1/2) 65A(2-1/2)	Machino	JIS B-9911	Inserting
33 09 31 **32** **33**	40A(1-1/2) 50A(2) 65A(2-1/2)	John Morris	B.S.336	Inserting

Rubber Packings for Hose Coupling

Juntas de Goma para Racores de Manguera

ホース接手用ゴムパッキング 消防皮龙接头备用橡皮垫圈

Please specify the type and nominal size of hose coupling to be attached.



How to order: 33 - 08 - 86

Rubber packing for hose coupling, TYPE of HOSE COUPLING, NOMINAL SIZE

Unit Per Pc.

CODE	Size	CODE	Size
	For Nakajima Coupling		
33 08 45 **46**	1-1/2" 2"	**33 08 47**	2-1/2"
	For ANSI PIN Coupling		
33 08 48 **49**	1-1/2" 2"	**33 08 50**	2-1/2"
	For Machino Coupling		
33 08 97 **98**	1-1/2" 2"	**33 08 99**	2-1/2"

Screw Thread Information for the above

Standard	Size	Thread Per Inch	Basic O.D. Male Part.
USA NH (NST)	1-1/2" 2" 2-1/2"	9 8 7-1/2	1.990" 2.5156" 3.0686"
British BSP Japan PF/PT	1-1/2" 2" 2-1/2"	11 11 11	47.803 mm 59.614 mm 75.184 mm

Reducing Hose Couplings

Racores Reducidos para Manguera 段落ち接手 异径皮龙接头

Made of brass. Designed for connecting hoses of different size. Furnished in individual pieces.



Nakajima



Machino



ANSI Pin

Unit Per Pc.

CODE	Coupling Type	Size	
		Connection	Hose End
33 08 84	Nakajima	2"	1-1/2"
91 **85**		2-1/2"	1-1/2" 2"
33 08 92 **87**	Machino	2-1/2"	1-1/2" 2"
33 08 93 **33 09 00**	ANSI Pin	2-1/2"	1-1/2" 2"

Fire Hose Couplings

Y Piece

Pieza de conexión en Y para mangueras de incendio

消火ホース継ぎ手Y字型 人字形灭火水龙带接头



33 08 81	Coupling fire hose, brass, Y piece, Inlet 2" male	Pc.

Fire Hose Couplings

Pieza de conexión en Y para mangueras de incendio

消火ホース継ぎ手 人字形灭火水龙带接头

Guillemin Type



33 18 01-03



33 18 06-14



33 18 16-19



33 18 21-24



33 18 26-29



33 18 31

CODE	Size	Material	Type	Alligator No.
Fire Hose Couplings with Locking Ring				Unit Per Pc.
33 18 01	Hose end 45 mm Lug size 45 mm	Aluminium	Guillemin	SM044045
02	Hose end 38 mm Lug size 70 mm			SM044063
03	Hose end 70 mm Lug size 70 mm			SM044070
Adapters				Unit Per Pc.
33 18 06	2" BSP female, Lug size 45 mm	Aluminium	Guillemin	SM046045
07	2" BSP female, Lug size 70 mm			SM046070
08	2-1/2" BSP female, Lug size 70 mm			SM046071
09	1-1/2" R female, Lug size 45 mm			SM046044
10	2" R female, Lug size 50 mm			SM046050
33 18 11	1-1/2" BSP male, Lug size 45 mm	Aluminium	Guillemin	SM046043
12	2" R male, Lug size 45 mm			SM046046
13	2" R male, Lug size 50 mm			SM046051
14	2-1/2" R male, Lug size 70 mm			SM046073
33 18 16	2-1/2" BSP female, Lug size 70 mm	Brass	Guillemin	SM047071
17	2" R female, Lug size 45 mm			SM047047
18	2" R female, Lug size 70 mm			SM047072
19	2-1/2" R female, Lug size 70 mm			SM047074
Caps with Locking Ring				Unit Per Pc.
33 18 21	Lug size 45 mm	Aluminium	Guillemin	SM048045
22	Lug size 70 mm			SM048070
33 18 23	Lug size 45 mm	Brass	Guillemin	SM048545
24	Lug size 70 mm			SM048570
Rubber Rings Suction/Delivery				Unit Per Pc.
33 18 26	Suction/Delivery 45 mm	Rubber	Guillemin	SM049045
27	Suction/Delivery 70 mm			SM049070
28	Delivery 45 mm			SM049046
29	Delivery 70 mm			SM049071
Spanners				Unit Per Pc.
33 18 31	for all size	Brass	Guillemin /DSP	SM05010

CODE	Size	Material	Type	Alligator No.
Hose Couplings				Unit Per Pr.
33 18 41	45 mm	Brass	UNI 45	SM06045
42	70 mm		UNI 70	SM06070
Rubber Rings				Unit Per Pc.
33 18 43	-	Rubber	UNI 45	SM06145
44			UNI 70	SM06170
Adapters				Unit Per Pc.
33 18 51	45× 2" (UNI female × BSP female)	Brass	UNI 45	SM065040
52	70× 2" (UNI female × BSP female)		UNI 70	SM065060
53	70× 2-1/2" (UNI female × BSP male)		UNI 70	SM065065
54	70× 2-1/2" (UNI female × BSP female)		UNI 70	SM065066
33 18 55	45× 2" (UNI male × BSP female)	Brass	UNI 45	SM06569
56	70× 2" (UNI male × BSP female)		UNI 70	SM06570
57	70× 2-1/2" (UNI male × BSP female)		UNI 70	SM06571
58	70× 2-1/2" (UNI male × BSP male)		UNI 70	SM06572
59	45× 70 (UNI male × UNI female)		UNI 45/ UNI 70	SM06575
Caps				Unit Per Pc.
33 18 61	-	Brass	UNI 45	SM07045
62			UNI 70	SM07070
Spanners				Unit Per Pc.
33 18 63	-	Brass	UNI 45-70	SM075045

UNI 45 / UNI 70 Type


33 18 41/42


33 18 43/44


33 18 51


33 18 52


33 18 53


33 18 54


33 18 55


33 18 56


33 18 57


33 18 58


33 18 59


33 18 61/62


33 18 63

Machino/Nakajima Type


33 18 71


33 18 72


33 18 73


33 18 74


33 18 75


33 18 76


33 18 77


33 18 78-80


33 18 81


33 18 82


33 18 83


33 18 84


33 18 86


33 18 87


33 18 88


33 18 91-93


33 18 96-98

CODE	Size	Material	Type	Alligator No.
Adapters				Unit Per Pc.
33 18 71	1-1/2"(40A) female Thread:2" BSP female	Brass	Machino	SM082040
72	1-1/2"(40A) male Thread:2" BSP female			SM082055
33 18 73	2" (50A) female Thread: 2" BSP female	Brass	Machino	SM082045
74	2" (50A) male Thread: 2" BSP female			SM082056
33 18 75	2-1/2" (65A) male Thread: 2" BSP female	Brass	Machino	SM082060
76	2-1/2"(65A) female Thread: 2" BSP female			SM082050
77	2-1/2"(65A) female Thread: 2-1/2" BSP female			SM082047
Caps				Unit Per Pc.
33 18 78	1-1/2" (40A)	Bass	Machino	SM08405
79	2" (50A)			SM08407
80	2-1/2" (65A)			SM08410
Adapters				Unit Per Pc.
33 18 81	1-1/2" (40A) Lug Size: 61 mm Thread: 2" BSP female	Brass	Nakajima	SM09861
82	2" (50A) Lug Size: 72 mm Thread: 2" BSP female			SM09872
83	2-1/2" (65A) Lug Size: 91 mm Thread: 2" BSP female			SM09891
84	2-1/2" (65A) Lug Size: 91 mm Thread: 2-1/2" BSP female			SM09895
33 18 86	1-1/2" (40A) Lug Size: 61 mm Thread: 2" BSP female	Aluminium	Nakajima	SM09897
87	2" (50A) Lug Size: 72 mm Thread: 2" BSP female			SM09898
88	2-1/2" (65A) Lug Size: 91 mm Thread: 2" BSP female			SM09899
Caps				Unit Per Pc.
33 18 91	1-1/2" (40A) Lug size: 61 mm	Aluminium	Nakajima	SM099061
92	2" (50A) Lug size: 72 mm			SM099072
93	2-1/2" (65A) Lug size: 91 mm			SM099091
33 18 96	1-1/2" (40A) Lug size: 61 mm	Brass	Nakajima	SM10061
97	2" (50A) Lug size: 72 mm			SM10072
98	2-1/2" (65A) Lug size: 91 mm			SM10091

KR/NS Type



33 32 01



33 32 02



33 32 03/04



33 32 05

CODE	Size	Material	Type	Alligator No.
Fire Hose Couplings				Unit Per Pc.
33 32 01	63 mm Lug size: 84 mm Hose end: 63 mm	Brass	KR	SM138065
33 32 02	50 mm Lug size: 68 mm Hose end: 50 mm	Brass	NS	SM140050
Adapters				Unit Per Pc.
33 32 03	2" Lug size: 68 mm Thread: BSP female	Brass	NS	SM141050
33 32 04	2" Lug size: 84 mm Thread: BSP female	Brass	KR	SM141084
Caps				Unit Per Pc.
33 32 05	2", Lug size: 68mm	Brass	NS	SM142050

PIN Lug Type



33 32 06/07



33 32 11/12
33 08 66

CODE	Size	Material	Type	Alligator No.
Caps				Unit Per Pc.
33 32 06	1-1/2" (40A) Thread: 9 TPI female	Brass	PIN Lug	SM158380
07	2-1/2" (65A) Thread: 7-1/2 TPI female			SM158650
Hose Couplings				Unit Per Pr.
33 32 11	2-1/2" (65A) Hose end: 38 mm Thread: 7-1/2 TPI	Brass	PIN Lug	SM174380
12	2-1/2" (65A) Hose end: 50 mm Thread: 7-1/2 TPI			SM174500
33 08 66	2-1/2" (65A) Hose end: 65 mm Thread: 7-1/2 TPI			SM174630
Hose Couplings				Unit Per Pr.
33 32 15	1-1/2" (40A) Hose end: 38 mm Thread: 7-1/2 TPI	Aluminium	PIN Lug	SM175380
16	2" (50A) Hose end: 50 mm Thread: 7-1/2 TPI			SM175500
17	2-1/2" (65A) Hose end: 65 mm Thread: 7-1/2 TPI			SM175630

LFB/LRT Type



33 32 21-23



33 32 24



33 32 26



33 32 27

CODE	Size	Material	Type	Alligator No.
Hose Couplings				Unit Per Pr.
33 32 21	2-1/2" (65A) Hose end: 38 mm Thread: 5-1/5 TPI	Brass	LFB	SM204380
22	2-1/2" (65A) Hose end: 50 mm Thread: 5-1/5 TPI			SM204500
23	2-1/2" (65A) Hose end: 63 mm Thread: 5-1/5 TPI			SM204630
Adapter				Unit Per Pc.
33 32 24	2-1/2" (65A) 5-1/5" female thread × 2-1/2" BSP female thread	Brass	LFB	SM204631
Caps				Unit Per Pc.
33 32 26	2-1/2"	Brass	LFB	SM205650
File Hose Couplings				Unit Per Pr.
33 32 27	2-1/2" Hose end: 63mm	Brass	LRT	SM206630

Instantaneous Type



33 32 29
33 08 59/60/61



33 32 31-33



33 32 34/35



33 32 36/37



33 32 38/39



33 32 41/42



33 32 43/44



33 32 45



33 32 46



33 32 47



33 32 48

CODE	Size	Material	Type	Alligator No.
Fire Hose Couplings				Unit Per Pr.
33 08 59	Lug size 2-1/2" Hose end: 40 mm	Brass	Instanta-neous	SM395238
32 29	Lug size 2-1/2" Hose end: 45 mm			SM395245
08 60	Lug size 2-1/2" Hose end: 50 mm			SM395252
08 61	Lug size 2-1/2" Hose end: 65 mm			SM395265
33 32 31	Lug size 2-1/2" Hose end: 38 mm	Aluminium	Instanta-neous	SM396038
32	Lug size 2-1/2" Hose end: 52 mm			SM396050
33	Lug size 2-1/2" Hose end: 63 mm			SM396063
Adaptors Female				Unit Per Pc.
33 32 34	2-1/2" Thread: 2" BSP female	Brass	Instanta-neous	SM410050
35	2-1/2" Thread: 2-1/2" BSP female			SM410065
33 32 36	2-1/2" Thread: 2" BSP female	Aluminium	Instanta-neous	SM411050
37	2-1/2" Thread: 2-1/2" BSP female			SM411065
Adapters Male				Unit Per Pc
33 32 38	2-1/2" Thread: 2" BSP female	Brass	Instanta-neous	SM415050
39	2-1/2" Thread: 2-1/2" BSP female			SM415065
33 32 41	2-1/2" Thread: 2" BSP female	Aluminium	Instanta-neous	SM416050
42	2-1/2" Thread: 2-1/2" BSP female			SM416065
33 32 43	2-1/2" Thread: 2" BSP male	Aluminium	Instanta-neous	SM417050
44	2-1/2" Thread: 2-1/2" BSP male			SM417065
Caps Male				Unit Per Pc.
33 32 45	2-1/2" male	Brass	Instanta-neous	SM420065
46	2-1/2" female			SM420080
33 32 47	2-1/2" male	Aluminium		SM421065
Rubber Rings				Unit Per Pc.
33 32 48	2-1/2"	Rubber	Instanta-neous	SM425066

NOR Type



33 32 51-53
33 08 62/63/64



33 32 55-58



33 32 60-62



33 32 63/64



33 32 65



33 32 66/67

CODE	Size	Material	Type	Alligator No.
Hose Couplings				Unit Per Pr.
33 08 62	1-1/2" (40A) Hose end: 38 mm	Brass	NOR	SM530138
32 51	2" (LAS 2) Hose end: 38 mm			SM530238
08 63	2" (50A) Hose end: 50 mm			SM530250
32 52	2-1/2" (LAS 1) Hose end: 38 mm			SM530638
08 64	2-1/2" (65A) Hose end: 65 mm			SM530665
32 53	2-1/2" (LAS 1) Hose end: 50 mm			SM530650
Adapters				Unit Per Pc.
33 32 55	2" (LAS 2) Thread: 1-1/2" BSP female	Brass	NOR	SM535038
56	2" (LAS 2/50A) Thread: 2 BSP female			SM535050
57	2-1/2" (LAS 1) Thread: 2" BSP female			SM535065
58	2-1/2" (LAS 1/65A) Thread: 2-1/2" BSP female			SM535070

(to be continued)

(to be continued)

CODE	Size	Material	Type	Alligator No.
Adapters				Unit Per Pc.
33 32 60	2" (LAS 2/50A) Thread: 2" BSP male	Brass	NOR	SM540050
61	2-1/2" (LAS 1) Thread: 2 BSP male			SM540065
62	2-1/2" (LAS 1/65A) Thread: 2-1/2" BSP male			SM540070
Caps				Unit Per Pc.
33 32 63	2" (LAS2/50A)	Brass	NOR	SM542050
64	2-1/2" (LAS 1/65A)			SM542065
Coupling Spanners				Unit Per Pc.
33 32 65	2" - 2-1/2"	Steel	NOR	SM543015
Rubber Rings				Unit Per Pc.
33 32 66	2"	Rubber	NOR	SM545050
67	2-1/2"			SM545065

Barcelona Type



33 32 71-73



33 32 74-77



33 32 81-84



33 32 86-89



33 32 91/92



33 32 93



33 32 94/95

CODE	Size	Material	Type	Alligator No.
Hose Couplings				Unit Per Pc.
33 32 71	DN45 Hose end 45 mm Lug size 62 mm	Aluminium	Barcelona	SM550035
72	DN70 Hose end 63 mm Lug size 85 mm			SM550063
73	DN70 Hose end 70 mm Lug size 85 mm			SM550070
33 32 74	DN70 Hose end 38 mm Lug size 85 mm	Brass	Barcelona	SM552039
75	DN70 Hose end 52 mm Lug size 85 mm			SM552050
76	DN70 Hose end 63 mm Lug size 85 mm			SM552063
77	DN70 Hose end 70 mm Lug size 85 mm			SM552070
Adapters				Unit Per Pc.
33 32 81	DN45, Lug size 62 mm, Thread: 2" BSP female	Aluminium	Barcelona	SM555005
82	DN70, Lug size 85 mm, Thread: 2" BSP male			SM555009
83	DN70, Lug size 85 mm, Thread: 2" BSP female			SM555010
84	DN70, Lug size 85 mm, Thread: 2-1/2" BSP female			SM555070

(to be continued)

33 32 86	DN45, Lug size 62 mm, Thread: 2" BSP female	Brass	Barcelona	SM556005
87	DN70, Lug size 85 mm, Thread: 2" BSP female			SM556010
88	DN70, Lug size 85 mm, Thread: 2-1/2" BSP female			SM556070
89	DN70, Lug size 85 mm, Thread: 2-1/2" BSP male			SM556071
Caps				Unit Per Pc.
33 32 91	DN45 Lug size: 62 mm	Aluminium	Barcelona	SM560045
92	DN70 Lug size: 85 mm			SM562070
33 32 93	DN70 Lug size: 85 mm	Brass	Barcelona	SM562070
Rubber Rings				Unit Per Pc.
33 32 94	DN45	Rubber	Barcelona	SM570045
95	DN70			SM570070

GOST Type



33 32 96/97



33 33 01-03



33 33 04/05

CODE	Size	Material	Type	Alligator No.
Hose Couplings				Unit Per Pc.
33 32 96	2" Hose end: 52 mm Lug size: 79 mm	Brass	GOST 2 LUGS	SM640050
97	2-1/2" Hose end: 64 mm Lug size: 96 mm			SM640065
Adapters				Unit Per Pc.
33 33 01	2", Lug size 79 mm Thread: 2" BSP female	Brass	GOST 2 LUGS	SM641050
02	2-1/2", Lug size 96 mm Thread: 2" BSP female			SM641065
03	2-1/2", Lug size 96 mm Thread: 2-1/2" BSP female			SM641070
Caps				Unit Per Pc.
33 33 04	2", Lug size 79 mm	Brass	GOST 2 LUGS	SM642050
05	2-1/2", Lug size 96 mm			SM642065

ROTA 3 LUGS Type



33 33 06-09



33 33 11-13



33 33 14/15



33 33 16

CODE	Size	Material	Type	Alligator No.
Hose Couplings				Unit Per Pc.
33 33 06	2" Hose end: 50 mm	Brass	ROTA 3 LUGS	SM660035
07	2-1/2" Hose end: 38 mm			SM660038
08	2-1/2" Hose end: 50 mm			SM660050
09	2-1/2" Hose end: 63 mm			SM660065
Adapters				Unit Per Pc.
33 33 11	2", Thread: 2" BSP female	Brass	ROTA 3 LUGS	SM665035
12	2-1/2", Thread: 2" BSP female			SM665050
13	2-1/2", Thread: 2-1/2" BSP female			SM665065
Caps				Unit Per Pc.
33 33 14	2"	Brass	ROTA 3 LUGS	SM666035
15	2-1/2"			SM666065
Rubber Rings				Unit Per Pc.
33 33 16	2-1/2", Inside dia 62 mm Outside dia 74 mm Thick 16mm	Rubber	ROTA	SM667065

Storz Type


33 33 21-38


33 33 41-48


33 33 51-55


33 33 61-66


33 33 71-75


33 33 76-78


33 33 81-98
33 08 75/76


33 34 01-07


33 34 11-15


33 34 21-25


33 34 26


33 34 27


33 34 28


33 34 29


33 34 30


33 34 36-38


33 34 41-47


33 34 51-55


33 34 61-65

CODE	Size	Material	Type	Alligator No.
Hose Couplings				Unit Per Pc.
33 33 21	Lug size: 52 mm Hose end: 25 mm	Aluminium	Storz	SM700525
22	Lug size: 52 mm Hose end: 32 mm			SM700532
23	Lug size: 52 mm Hose end: 38 mm			SM700538
33 33 24	Lug size: 66 mm Hose end: 25 mm	Aluminium	Storz-C	SM700625
25	Lug size: 66 mm Hose end: 32 mm			SM700632
26	Lug size: 66 mm Hose end: 38 mm			SM700638
27	Lug size: 66 mm Hose end: 45 mm			SM700645
28	Lug size: 66 mm Hose end: 52 mm			SM700650
33 33 31	Lug size: 81 mm Hose end: 38 mm	Aluminium	Storz-65	SM700838
32	Lug size: 81 mm Hose end: 52 mm			SM700850
33	Lug size: 81 mm Hose end: 65 mm			SM700865
34	Lug size: 81 mm Hose end: 75 mm			SM700875
33 33 35	Lug size: 76 mm Hose end: 65 mm	Aluminium	Storz China	SM700880
33 33 36	Lug size: 89 mm Hose end: 52 mm	Aluminium	Storz-B	SM700950
37	Lug size: 89 mm Hose end: 65 mm			SM700965
38	Lug size: 89 mm Hose end: 75 mm			SM700975
Adapters				Unit Per Pc.
33 33 41	1-1/2" Lug size 66 mm Thread: BSP female	Aluminium	Storz-C	SM705645
42	2" Lug size 66 mm Thread: BSP female			SM705650
43	2-1/2" Lug size 66 mm Thread: BSP female			SM705665
33 33 44	2" Lug size 81 mm Thread: BSP female	Aluminium	Storz-65	SM705850
45	2-1/2", Lug size 81 mm Thread: BSP female			SM705865
33 33 46	2" Lug size 89 mm Thread: BSP female	Aluminium	Storz-B	SM705950
47	2-1/2", Lug size 89 mm Thread: BSP female			SM705965
48	3" Lug size 89 mm Thread: BSP female			SM705975
33 33 51	1-1/2" Lug size 66 mm Thread: BSP male	Aluminium	Storz-C	SM710654
52	2" Lug size 66 mm Thread: BSP male			SM710655
33 33 53	2" Lug size 81 mm Thread: BSP male	Aluminium	Storz-65	SM710855
54	2-1/2" Lug size 81 mm Thread: BSP male			SM710860
33 33 55	2-1/2" Lug size 89 mm Thread: BSP male	Aluminium	Storz-B	SM710890

(to be continued)

CODE	Size	Material	Type	Alligator No.
Reducing Pieces				Unit Per Pc.
33 33 61	66 × 44 mm	Aluminium	Storz	SM712044
62	81 × 66 mm			SM712081
63	89 × 66 mm incl. swivel			SM712089
64	89 × 81 mm			SM712091
65	115 × 66 mm			SM7120911
66	133 × 89 mm			SM712092
Caps				Unit Per Pc.
33 33 71	1-1/2", Lug size 52 mm	Aluminium	Storz	SM715052
72	2", Lug size 66 mm		Storz-C	SM715660
73	2-1/2", Lug size 81 mm		Storz-65	SM715881
74	3", Lug size 89 mm		Storz-B	SM715889
75	4", Lug size 133 mm		Storz	SM715895
Y Piece with Cocks				Unit Per Pc.
33 33 76	Inlet 89 mm Outlet 66 mm	Aluminium	Storz	SM716750
77	Lug size 81 mm			SM716760
78	Lug size 66 mm			SM716770
Hose Couplings				Unit Per Pc.
33 33 81	Lug size: 44 mm Hose end: 19 mm	Brass	Storz	SM720420
82	Lug size: 44 mm Hose end: 25 mm			SM720425
83	Lug size: 44 mm Hose end: 32 mm			SM720432
84	Lug size: 52 mm Hose end: 25 mm			SM720525
85	Lug size: 52 mm Hose end: 32 mm			SM720532
86	Lug size: 52 mm Hose end: 38 mm			SM720538
33 33 87	Lug size: 66 mm Hose end: 25 mm	Brass	Storz-C	SM720625
88	Lug size: 66 mm Hose end: 32 mm			SM720632
89	Lug size: 66 mm Hose end: 38 mm			SM720638
08 75	Lug size: 50 mm Hose end: 50 mm			SM720650
33 90	Lug size: 66 mm Hose end: 45 mm			SM720645
91	Lug size: 66 mm Hose end: 63 mm			SM720663
33 33 92	Lug size: 81 mm Hose end: 38 mm	Brass	Storz-65	SM720838
93	Lug size: 81 mm Hose end: 50 mm			SM720850
94	Lug size: 81 mm Hose end: 75 mm			SM720875
33 33 95	Lug size: 76 mm Hose end: 63 mm	Brass	Storz-China	SM720865
33 33 96	Lug size: 89 mm Hose end: 38 mm	Brass	Storz-B	SM720938
97	Lug size: 89 mm Hose end: 50 mm			SM720950
98	Lug size: 89 mm Hose end: 63 mm			SM720963
08 76	Lug size: 89 mm Hose end: 75 mm			SM720975
Adapters				Unit Per Pc.
33 34 01	1-1/2", Lug size 66 mm Thread:BSP female	Brass	Storz-C	SM725062
02	2", Lug size 66 mm Thread:BSP female			SM725066
33 34 03	2", Lug size 81 mm Thread:BSP female	Brass	Storz-65	SM725081
04	2-1/2", Lug size 81 mm Thread:BSP female			SM725082
33 34 05	2", Lug size 76 mm Thread:BSP female	Brass	Storz China	SM725085
33 34 06	2", Lug size 89 mm Thread:BSP female	Brass	Storz-B	SM725089
07	2-1/2", Lug size 89 mm Thread:BSP female			SM725090
33 34 11	1-1/2", Lug size 66 mm Thread:BSP male	Brass	Storz-C	SM727062
12	2", Lug size 66 mm Thread:BSP male			SM727066
33 34 13	2",Lug size 81 mm Thread:BSP male	Brass	Storz-65	SM727080
14	2-1/2", Lug size 81 mm Thread:BSP male			SM727081
33 34 15	3", Lug size 89 mm Thread:BSP male	Brass	Storz-B	SM727089
Caps				Unit Per Pc.
33 34 21	44 mm	Brass	Storz	SM735044
22	52 mm			SM735052
23	66 mm	Brass	Storz-C	SM735066
20	76 mm	Brass	Storz-China	SM735076
24	81 mm	Brass	Storz-65	SM735081
25	89 mm	Brass	Storz-B	SM735089
Chain & S-Hook				Unit Per Pc.
33 34 26	30 cm	Steel	-	SM736100
Spanners				Unit Per Pc.
33 34 27	2" - 2-1/2"	Brass	Storz	SM755650
28	3"/2"	Iron Steel with PVC Handle	Storz-BC	SM760760
29	4", 3", 2"	Iron	Storz-ABC	SM760770
30	4", 3", 2"	Steel with PVC Handle	Storz-ABC DIN 14822	SM760780
Rubber Rings Delivery				Unit Per Pc.
33 34 36	66 mm	Rubber	Storz-C	SM790066
37	81 mm		Storz-65	SM790081
38	89 mm		Storz-B	SM790089
Rubber Rings Suction/Delivery				Unit Per Pc.
33 34 41	31 mm	Rubber	Storz	SM845031
42	44 mm			SM845044
43	52 mm			SM845052
44	133 mm			SM845133
45	66 mm	Rubber	Storz-C	SM845066
46	81 mm	Rubber	Storz-65	SM845081
47	89 mm	Rubber	Storz-B	SM845089
Locking Rings				Unit Per Pc.
33 34 51	44 mm	Steel	Storz	SM847044
52	52 mm			SM847052
53	66 mm	Steel	Storz-C	SM847066
54	81 mm	Steel	Storz-65	SM847081
55	89 mm	Steel	Storz-B	SM847089
Rubber Rings				Unit Per Pc.
33 34 61	48×37×3 mm (1-1/2")	Rubber	-	SM84948
62	60×47×3 mm (2")			SM84960
63	75×54×3 mm			SM84972
64	76×66×3 mm (2-1/2")			SM84976
65	88×78×3 mm (3")			SM84988

(to be continued)


33 34 66/67


33 34 68


33 34 71-76


33 34 81-85


33 34 91-96


33 35 01-04


33 35 11-16

CODE	Size	Material	Type	Alligator No.
Dual Nipples				Unit Per Pc.
33 34 66	1-1/2" × 1-1/2" Thread:ANST male	Brass	-	SM900040
67	2-1/2" × 2-1/2" Thread: BSP male			SM900066
68	2" × 2" Thread: BSP male			SM902050
Reducing Nipples				Unit Per Pc.
33 34 71	2" × 1" BSP male	Brass	-	SM905025
72	2-1/2"×1-1/2" BSP male			SM905065
73	2-1/2" × 2" BSP male			SM905066
74	2-1/2" × 2" ANST male × BSP male			SM905067
75	2-1/2"×2-1/2" ANST male × BSP male			SM905068
76	2-1/2"×2" ANST male×VP male			SM905069
33 34 81	2-1/2"×1-1/2" BSP male × BSP female	Brass	-	SM910065
82	2-1/2"× 2" BSP male × BSP female			SM910066
83	2-1/2"× 2" ANST male × BSP female			SM910067
84	2-1/2"×2-1/2" ANST male × BSP female			SM910068
85	2-1/2"×UNI70 ANST male × female			SM910070
Reducing Sockets				Unit Per Pc.
33 34 91	1-1/2"×2" ANST female × BSP female	Brass	-	SM915040
92	2-1/2"×1-1/2" BSP female			SM915065
93	2-1/2"×2" BSP female			SM915066
94	2-1/2"×2-1/2" ANST female × BSP female			SM915067
95	2-1/2"×2" ANST female × BSP female			SM915068
96	2-1/2"×2-1/2" ANST female × BSP female			SM915069
Reducing Socket Swivel				Unit Per Pc.
33 35 01	1-1/2"×2" ANST female × BSP female	Brass	-	SM917038
02	1-1/2"×1-1/2" ANST female × ANST female			SM917040
03	2-1/2"×2" ANST female × BSP female			SM917065
04	2-1/2"×2-1/2" ANST female × ANST female			SM917070
Reducing Nipples				Unit Per Pc.
33 35 11	2"×1-1/2" BSP female × BSP male	Brass	-	SM920050
12	2-1/2"×2" BSP female × BSP male			SM920065
13	2-1/2"×2" ANST female × BSP male			SM920066
14	2-1/2"×2-1/2" ANST female × BSP male			SM920067
15	2-1/2"×1-1/2" ANST female × ANST male			SM920069
16	2-1/2"×1-1/2" ANST female × 9THR			SM920070

SMS Type


33 35 25-27


33 35 28-30


33 35 31/32


33 35 33/34


33 35 36


33 35 37


33 35 38


33 35 39

CODE	Size	Material	Type	Alligator No.
Hose Couplings				Unit Per Pr.
33 35 25	2-1/2", Hose end 38mm	Alluminium/ Pressal	SMS	SM92538
26	2-1/2", Hose end 50mm			SM92550
27	2-1/2", Hose end 63mm			SM92563
33 35 28	2-1/2", Hose end 38mm	Brass	SMS	SM92638
29	2-1/2", Hose end 50mm			SM92650
30	2-1/2", Hose end 63mm			SM92663
Adapters				Unit Per Pc.
33 35 31	2-1/2", Thread 2" BSP female	Alluminium/ Pressal	SMS	SM93010
32	2-1/2", Thread 2-1/2" BSP female			SM93020
33 35 33	2-1/2", Thread 2" BSP female	Brass	SMS	SM93110
34	2-1/2", Thread 2-1/2" BSP female			SM93120
Caps				Unit Per Pc.
33 35 36	2-1/2"	Alluminium/ Pressal	SMS	SM94063
33 35 37	2-1/2"	Brass	SMS	SM94263
Reducing Couplings				Unit Per Pc.
33 35 38	63 mm × 32 mm	Alluminium/ Pressal	SMS	SM94563
Rubber Rings				Unit Per Pc.
33 35 39	2-1/2"	Rubber	SMS	SM95063

Water Mist Lance and Mobile Water Monitor

Lanza de nebulización y control de agua móvil
ウォーターミストランス・移動式水噴射装置
水雾枪及移动式消防水炮

The SOLAS (SOLAS II-2/10 7.3) amendments requires the following additional firefighting systems for ships designed to carry container on or above the weather deck, and keel laid on or after 1 January 2016.

(i) Water mist lance (at least one should be installed on board), which is a device to penetrate a container wall and produce water mist inside containers.

(ii) Mobile water monitor (only for a ship designed to carry five or more tiers of containers on or above the weather deck), which is a portable device to spray water to the top tier of containers on deck. Ships with breadth less than 30m: at least two mobile water monitors to be installed, ships with breadth of 30m or more: at least four mobile water monitors to be installed.

Water Mist Lance



It complies fully with the IMO's Maritime Safety Committee's 93rd session and SOLAS regulation II-2/10.7.3. Mist Lance consists of a tube with a piercing nozzle which is capable of penetrating a container wall and producing a water mist inside the container when connected to the fire main.

Unit Per Set

CODE	33 08 12
Max. Working Pressure	20 bar
Water Consumption	72 ltr/min at 4 bar (K-Facter : 34.6)
Throwing Distance	Approx. 10 mtr
Inlet Connection	1" BSP female thread
Dimension L × W × D	530 x 150 x 28 mm
Weight	Approx. 2 kg (w/o Hydraulic coupling)

Special Hammer for Water Mist Lance

A heavy hammer for making an opening for extinguishing lances in doors, steel tanks, roller shutters, roofing tiles etc. Made from galvanized steel, solid welded-on impact tip and non-slip handle. Dimension: 480 mm x W165 mm. Weight: 2.8 kg.



33 08 13	Hammer galvanized for making an opening for water mist lance	Pc.

Mobile Water Monitor



In addition to SOLAS amendment, MSC.1/Circ.1472 was also approved to set design and performance standards of a mobile water monitor. It is water discharge device of portable type, consisting of inlet fitting, monitor water way, swivel fitting, discharge nozzle and a shut-off device.

Highly maneuverable, operating like hand line nozzles while delivering much more wear. Simple to set up for quick attack operations, and can be left unmanned at the fire scene to conserve manpower. Horizontal range of 0 degree from 250 degree, and vertical swivel range of 0 degree from 90 degree. Ground spikes at the base is resistant to long-term wear and provide excellent ground stability.

Flow Rate and Discharge Length ± 5% tolerance

Monitor Inlet Pressure	Flow Setting	Flow Rate	Straight Stream Reach	
			Effective	Overall
Bar	Nozzle Tip	LPM	Meters	Meters
4	1,140	800	38	41
	1,900	1,300	43	46
	2,660	1,870	46	49
7	1,140	1,080	46	49
	1,900	1,805	54	58
	2,660	2,525	56	59
9	1,140	1,200	52	54
	1,900	2,010	60	63
	2,660	2,820	60	63

Unit Per Set

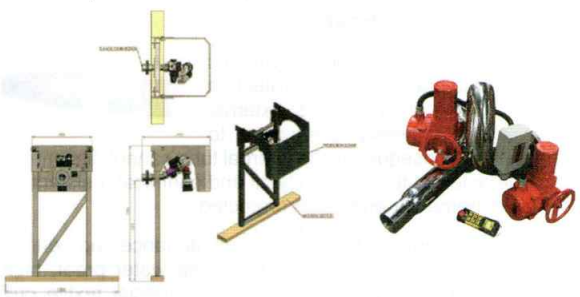
CODE	33 08 14
Model	WM-80M
Material	Body : Stainless steel 316 Jet spray nozzle: Bronze
Working Pressure	Max. 16 bar
Flow Rate	Over 1,300 ltr/min @4 bar
Discharge Length	Over 40 mtr @4 bar
Connection	2" PT female threads
Overall Dimension	Approx. 760 × 420 mm
Weight	Approx. 22 kg w/o coupling
Note :	Hydrant coupling for option
Certificate	KR & MED approval

Anti-Piracy Water Jet Cannons

Cañones de agua antipiratería 海賊対策水射出器 反海盗水枪



A water jet cannon is based on the use of high quality oscillating water cannons, which are installed on several points on the ship and prevent any boarding attempt when activated. The system is sent to the ship as a modular package that is installed by the crew without any required external help. Training will be given to operate the system and a user manual will enable smooth operation of the system.



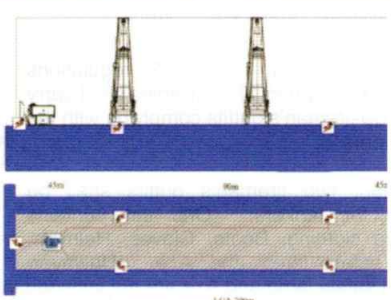
The installation of the system is divided into 2 main categories.

A – Engine room related installation

- Ensure existing pump has enough capacity.
- Else, in case the capacity is not available, connect engine room pumps to on deck diesel powered booster pump.
- Connection of hoses from pump (via engine room or deck).

B – Deck related installation

- Install water cannons on deck or railing, using supplied connection kit.
- Run 6" feeder hoses from main pump outlet / manifold.
- Run 4" hoses from feeder to water cannon.



System Components

- Storage container.
- High quality oscillating water cannons, (a modified type of the systems used by fire fighting departments).
- Special fittings to temporarily attach the cannons to deck or railing.
- Hoses, supplying water from pump to water cannons.
- Ballistic shields to protect water cannons from direct small caliber fire arms.

Typical Installation Pattern per Ship's Overall Length

Overall Length	No. of Cannon	Water Supply	
		ltr/min.	m3/hr
200 mtr	5 cannons	10,000	600
280 mtr	7 cannons	14,000	840
360 mtr	9 cannons	18,000	1,080

Performance of Water Jet Cannon

- Ultra compact
- Weight : just 11.4 kg
- Totally adjustable
- Capacity 2,000 ltr/min at 5.5 bar
- Range 50 – 55 meters
- High quality aluminium
- Includes manometer
- Left right radius between -180 degrees to +180 deegrees
- Up down radius between -45 degrees to +90 degrees
- 12/24V electro motor
- Remote control option with joystick
- 10 year warranty

Water Supplying Hose



Made from thick woven synthetic thread with a bacl PVC/Nitril protection coating. The internal and external tubes are seamlessly interwoven to long levity. Consequently the internal tube cannot disconnect from the external tube. Totally oil and chemical resistant as well as extreme UV and Ozon protected.

Long levity, remains flexible, no maintenance, no rotting, temperature range -35°C to +100°C, sea water proof, high resistance to tearing and bending, and special textile cuff protect connector areas.

Couplings & Connectors



High quality aluminium connectors with fast connect and release system, as used by fire fighting department worldwide.

How to order: 31 - 41 - 21

Water jet cannon system, With further details

Fireman's Outfits

Trajes de Bombero　消防員装具　消防服



Required according to SOLAS regulations Chapter II Regulation 17. "All ships shall carry at least two fireman's outfits complying with the requirements."

In addition, two fireman's outfits shall be provided for tankers. One set contains Protective clothing, Boots, Gloves, Helmets, Electric safety lamp and Axe. However, Electrical safety lamp and Axe are not included in the unit.

Unit Per Set

CODE	33 09 01	33 09 11	33 09 21	33 09 41
Approved	H. K.	U. K. DOT	N. M. D.	MED

Individual Order

Items	Approval				Unit
	H.K.	U.K. DOT	N.M.D.	MED	
Helmet	**33 09 02**	**33 09 14**	**33 09 22**	**33 09 42**	Pc.
Coat	**03**	**12**	**23**	**43**	Pc.
Trousers	**06**	**17**	**26**	**44**	Pr.
Boots	**04**	**16**	**24**	**45**	Pr.
Gloves	**05**	**15**	**25**	**46**	Pr.

Fire Blankets

Mantas Protectoras contra Incendios
防火毛布　防火毯



Flameproof blanket can envelop a worker from head to foot to extinguish burning clothes. Should be located in any fire-hazard area to provide instant protection when clothing catches fire.

Unit Per Set

CODE	Material	Size	Case
33 09 50	Fibreglass with silicone rubber coating	1.8 × 1.2 mtr	PVC
51	Flame-retardant wool	82" × 62"	Metal

Water-Jel Fire Blankets and Sterile Burn Dressings

Mantas Protectoras Contraincendios "Water-Jel" y Apósitos contra Quemaduras "Sterile Burn Dressings"
ウォータージェル防火毛布　水凝胶防火毯



When placed on a victim, this unique fire blanket helps stop burn progression, relieve the pain, cool the skin, and protect against airborne contamination all in one easy step.

The gel-soaked blankets can also be used to extinguish flames on a victim, protect a rescuer from heat and flames, and extinguish small fires.

Fire Blankets

Unit Per Pc.

CODE	Size mm	CODE	Size mm
33 09 53	460 × 200	**33 09 55**	1,830 × 1,520
54	910 × 760	**56**	2,440 × 1,830

Sterile Burn Dressings



Sterile burn dressings help stop burn progression, relieve the pain, cool the skin, and protect against airborne contamination. These water-soluble dressings will not stick to the wound and are easy to store, carry, and use.

Unit Per Pkt

CODE	Size mm	CODE	Size mm
33 09 57	50 × 150	**33 09 59**	100 × 400
58	100 × 100		

Name of Mfr.: Water-Jel Technologies

Fire Axes

Hachas para Bombero 消防斧 消防斧

Required with fire fighting gear by SOLAS regulation Chapter III Number 17. "The axe shall have a pick head with a wood or insulated handle."



33 09 61	Fire axe pickhead with wood handle	Pc.
62	Fire axe pickhead with insulated handle	"

Emergency Door Key Case

Caja de llaves para puertas de emergencia
緊急用キーケース 紧急门钥匙盒

Polyester Door Key Case to put around the locked door. In case of emergency, break the glass case and take the key for evacuation.



Size 110×132 mm, coloured.

33 09 68	Emergency Door Key Case	Pc.

Fireproof Lifelines

Guía Socorro-cinturón Bompero
命綱 防火救生绳

Combination rope of wire and nylon or hemp rope, complete with safety snap hook. Available 15 to 50 mtr lengths.



Unit Per C/L

CODE	Line			Hook
	Diam.	Length	Construction	
33 09 69	8 mm	15 mtr	Wire & Hemp	Safety Snap Hook
70		21 mtr		
71		30 mtr	Wire & Nylon	
72		40 mtr		
73		50 mtr		
74	12 mm	40 mtr	Wire & Hemp	

Chemical Protection Suits

Trajes de Protección contra Productos Químicos
耐薬品スーツ 防化服

A limited-use chemical protective suit for operations on board that involve a gaseous, liquid or solid hazardous substance.
The suit material is resistant against the chemical substances listed below in accordance with EN 943-1:2002 1b, EN943-2:2002(ET), SOLAS II-2,Reg.19.



Note: Breathing apparatus and boots are excluded from the set.

Chemical Substance	Breakthrough time in min.	Chemical Substance	Breakthrough time in min.
Acetone	> 480	Hydrogen Chloride	> 480
Acetonitrile	> 480	Methanol	> 480
Ammonia	> 480	Methyl Chloride	> 480
1,3 Butadiene	> 480	n-Heptane	> 480
Carbon Disulfide	> 480	Caustic Soda 40%	> 480
Chlorine	> 480	Sulphuric Acid 96%	> 480
Dichloromethane	> 480	Tetrachloethylene	> 480
Dimethylamine	> 480	Tetrahydrofurane	> 480
Ethyl Acetate	> 480	Toluene	> 480
Ethylene Oxide	> 480		

(to be continued)

Type	Chemical protection suits complete with socks
Model	CPS5800
Shelf Life	10 years
Weight	2.2 kg
Approvals	EN943 1: 2002 type 1b EN943 : 2002 (ET) SOLAS II-2, Reg 19 ISO 16602:2007

Name of Mfr.: Draeger

Unit Per Set

CODE	Size (mtr)	No.	CODE	Size (mtr)	No.
33 09 81	M:1.6-1.75	R57787	**33 09 79**	XL :1.8-1.90	R57789
78	L:1.7-1.85	R57788	**80**	XXL:1.85-2.0	R57790

Gas Protection Suits

Trajes de Protección contra Gases
耐ガススーツ 耐瓦斯装具



The ideal disposable, gas-tight chemical protective suit for hazmat incidents. Where complete protection against hazardous gases, liquids and particles is of the utmost priority, this lightweight garment is the suit of choice.

The suit material is resistant to the chemical substances listed below in accordance with EN 943-1:2002 1a, EN943-2:2002(ET), SOLAS II-2 Reg.19 and NFPA 1994: 2007.

Note: Breathing apparatus and boots are excluded from the set.

Chemical Substance	Breakthrough time in min.	Chemical Substance	Breakthrough time in min.
Acetone	> 480	Methanol	> 480
Acetonitrile	> 480	Methyl Chloride	> 480
Ammonia	> 480	Mustard Gas (HD)	> 480
1,3 Butadiene	> 480	n-Heptane	> 480
Carbon Disulfide	> 480	Sarine (GB)	> 480
Chlorine	> 480	Sodium Hydroxide 40%	> 480
Dichloromethane	> 480	Soman (GD)	> 480
Dimethylamine	> 480	Sulphuric Acid 96%	> 480
Ethyl Acetate	> 480	Tetrachloethylene	> 480
Ethylene Oxide	> 480	Tetrahydrofurane	> 480
Hydrogen Chloride	> 480	Toluene	> 480
Lewisite (L)	> 480	VX	> 480

Type	Gas protection suits complete with socks
Model	CPS5900
Shelf Life	10 years
Weight	3 kg
Approvals	EN943 1: 2002 type 1b EN943-2: 2002 (ET) NFPA 1994: 2007 SOLAS II-2, Reg 19 ISO 16602:20071

Name of Mfr.: Draeger

Unit Per Set

CODE	Size (mtr)	No.	CODE	Size (mtr)	No.
33 09 82	S:1.5-1.65	R57781	**33 09 85**	XL :1.8 -2.0	R57784
83	M:1.6-1.75	R57782	**86**	XXL:1.95-2.1	R57785
84	L:1.7-1.85	R57783			

Disposable Gas Protection Suits

DuPont™ Tychem®10000

Trajes Desechables de Protección Contra Gases
使い捨て耐ガススーツ　一次性气体防护服



Designed for disposable (limited or single use) Chemical Protection Suits for gas, liquids, solid chemicals. Overwhelmingly light weight, high mobility and comfort than general rubber protective clothing. Comply with Bureau Veritas Rules for the Classification of Steel Ships SOLAS II-2, Reg19. IGC Code. IBC Code. EN943:2002. EU Category: Type 1a.

Note: Breathing apparatus, boots are excluded from the set.

DuPont™ Tychem®10000			
Chemical Substance	Break-through time in min.	Chemical Substance	Break-through time in min.
Acetone	>480	Chloromethane	> 480
Acetonitrile	>480	Nitrobenzene	> 480
Ammonia Gas	>480	Sodium Hydroxide 50%	> 480
1.3 Butadiene	>480	Sulfuric Acid 98%	> 480
Carbon Disulfide	>480	1122 Tetrachloroethylene	> 480
Chlorine Gas	>480	Tetrahydrofuran	>480
Dichloromethane	>480	Toluene	>480
Diethylamine	>480	Tabun	>480
N,N-Dimethylformamide	>480	Sarin	>480
Ethyl Acetate	>480	VX Gas	>480
Ethylene Oxide Gas	>480	Mustard Gas	>480
N-Hexane	>480	Lewisite	>480
Hydrogen Chloride	>480		
Methanol	>480		

Model	DuPont™ Tychem®10000
Application	Protection against toxic, corrosive gases, liquids, solid chemicals.
Weight	Approx 4,000g (XL size, without boots)
Approvals	EN943:2002 SOLAS II-2, Reg 19

Unit Per Set

CODE	Size (mtr)	Chest (cm)	CODE	Size (mtr)	Chest (cm)
DuPont™Tychem®C					
33 09 75 76	M:1.68-1.76 L:1.74-1.82	92-100 100-108	**33 09 77 99**	XL:1.8-1.88 XXL:1.86-1.94	108-116 116-124

Name of Supplier.: Takashina

DuPont™, Tyvec®, Tychem® are trademarks or registered trademarks of E.I. du Pont de Nemours and Company.

Disposable Chemical Protection Suits

DuPont™ Tyvek® 600 Plus

Traje de protección química desechable
使い捨て耐薬品スーツ　一次性化学防护服



Designed for disposable (limited or single use) Chemical Protection Suits for sprays, solid particles and fibers tight. Suitable for Cleaning and maintenance on-board, Spray painting, Asbestos, Dismantling of a ship (Dioxins). Comply with Bureau Veritas Rules for the Classification of Steel Ships SOLAS II-2, Reg. EN 14605:2005+A1:2009. EU Category: Type 4.5.6.

Note: Breathing apparatus are excluded from the set.

Model	DuPont™Tyvek® 600 Plus
Weight	Approx 300 grm (without gloves and boots)
Approvals	EN 14605:2005+A1:2009 SOLAS II-2, Reg 19 Biological protection: EN 14126:2003

Unit Per Set

CODE	Size (mtr)	Chest (cm)	CODE	Size (mtr)	Chest (cm)
33 09 87 88	M:1.68-1.76 L:1.74-1.82	92-100 100-108	**33 09 89 90**	XL:1.8-1.88 XXL:1.86-1.94	108-116 116-124

Name of Supplier.: Takashina

DuPont™ Tychem®2000C/DuPont™ Tychem®6000F

Designed for disposable (limited or single use) Chemical Protection Suits for liquids, sprays, solid particles and fibers tight. Overwhelmingly light weight, high mobility and comfort than general rubber protective clothing. Comply with Bureau Veritas Rules for the Classification of Steel Ships SOLAS II-2,Reg.IGC Code.IBC Code. EN14605: 2005+A1:2009. EU Category: Type 3.4.5.6.

Note: Breathing apparatus are excluded from the set.



DuPont™ Tychem®C



DuPont™ Tychem®F

DuPont™ Tychem®2000C		DuPont™ Tychem®6000F	
Chemical Substance	Break-through time in min.	Chemical Substance	Break-through time in min.
Hydrochloric Acid (37%)	265	Acetone	> 480
Sulfuric Acid (>95%)	> 480	Acetonitrile	> 480
Sulfuric Acid Fuming (30%)	82	Aniline	> 480
Nitric Acid (70%)	> 480	Diethyl Ether	> 480
Phosphoric Acid (85%)	> 480	Vinyl Chloride	> 480
Hydrofluoric Acid (48%)	17	Chlorine(gaseous)	>480
Perchloric Acid (70%)	> 480	Xylene, mixed isomers	>480
Hydrogen peroxide (50%)	> 480	Ethyl Acetate	>480
Sodium Hydroxide (50%)	> 480	Mercury	>480
Sodium Hypochlorite (15%)	> 480	Styrene	>480
		Toluene	>480
Potassium Chromate (sat)	> 480	Phenol (85%)	>480
Mercuric II Chloride (sat)	> 480	Butanol, n-	>480
Formaldehyde (10%Liquid phase)	> 480	Benzene	>480
		Methanol	117

Model	DuPont™Tychem®2000C	DuPont™Tychem®6000F
Application	Protection against numerous inorganic chemicals.	Protection against numerous organic and highly concentrated inorganic chemicals.
Resistance	Resists liquid splashes up to 2 bar.	Resists liquid splashes up to 5 bar.
Weight	Approx 450 g (without gloves and boots)	Approx 650 g (without gloves and boots)
Approvals	EN 14605:2005+A1:2009 SOLAS II-2, Reg 19 Biological protection: EN 14126:2003	

Unit Per Set

CODE	Size (mtr)	Chest (cm)	CODE	Size (mtr)	Chest (cm)
DuPont™Tychem®2000C					
33 09 91	M:1.68-1.76	92-100	33 09 93	XL:1.8-1.88	108-116
92	L:1.74-1.82	100-108	94	XXL:1.86-1.94	116-124
DuPont™Tychem®6000F					
33 09 95	M:1.68-1.76	92-100	33 09 97	XL:1.8-1.88	108-116
96	L:1.74-1.82	100-108	98	XXL:1.86-1.94	116-124

Name of Supplier.: Takashina

DuPont™, Tyvec®, Tychem® are trademarks or registered trademarks of E.I. du Pont de Nemours and Company.

Asbestos Safety Kit

Equipo de seguridad para asbesto

アスベスト保護キット　石棉保护套件



The asbestos safety kit is used by vessel's crew to remove asbestos materials during operation/at sea. The kit is accompanied by an instruction how to use the PPE, the equipment including vacuum cleaner. The kit is usually part of an Asbestos Management Plan. In this Plan the locations of asbestos are indicated and preventive measures to avoid exposure to the asbestos fibres. The kit is not to be used for large scale asbestos removal works e.g. during docking.

Each item in the kit is according to EU quality standard for asbestos removal, and approved by a certified company (such as Kiwa Oesterbaai) for Inventory of Hazardous Materials (DNV, Rina, Bureau Veritas, Lloyd's Register).

Asbestos Safety Kit contains:

- HEPA vacuum cleaner with vacuum cleaner bags
- PPE
- Asbestos waste bags
- Asbestos warning stickers
- Duct tape
- Glue spray
- Spray bottle with impregnating fluid
- Full instruction
- Certified

33 09 67	Asbestos safety kit	Set

Name of Mfr.: Alligator

Fire Extinguishers

Extintores Contraincedios　消火器　灭火器

Ships of 1,000 gross tons or more shall carry at least 5 portable fire extinguishers as required by 1974 SOLAS Chapter II Regulation 6 amended 1983.

Table for General Extinguishing Agents Required

Class of Fire	Type of Hazard	Agents				
		Water	Foam	ABC Dry Chemical	CO_2	Halon
A	Ordinary Combustible Wood, Cloth, Paper Rubbish	Yes	Yes	Yes	No	No
B	Flammable Liquids and Grease, Gasoline, Oil, Paint Grease, Natural Gas, Manufactured Gas	No	Yes	Yes	Yes	Yes
C	Electrical Equipment Wiring, Controls, Panels, Motors	No	No	Yes	Yes	Yes
A + B	Combination of Ordinary Combustible and Flammable Liquids and Gases	No	No	Yes	No	No
A + C	Combination of Ordinary Combustible and Electrical Equipment	No	No	Yes	No	No
B & C	Combination of Flammable Liquids & Gases and Electrical Equipment	No	No	Yes	Yes	Yes
A,B & C	Combination of Ordinary Combustible and Flammable Liquids & Gases and Electrical Equipment	No	No	Yes	No	No

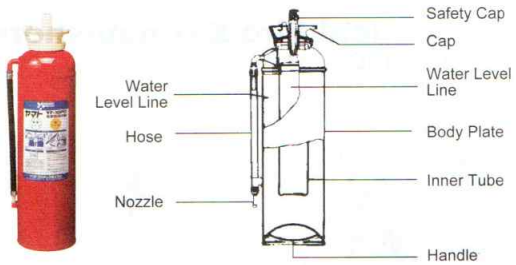
(To be continued)

Chemical Foam Fire Extinguishers

AB Type

Extintores de Espuma Tipo AB　化学泡消火器　AB 型泡沫灭火器

Class AB foam fire extinguisher for flammable or combustible liquid and wood, cloth, paper, rubber, etc, Not for use in fires of electrical origin.



Unit Per Pc.

CODE	Water Capacity	Discharge Duration	Weight	Remark
33 10 01	9 ltr	App. 70 sec.	14 kg	Portable
02	45 "	110 "	100 kg	Movable
03	150 "	240 "	275 kg	Stationary

Refills AB Type

for Chemical Foam Fire Extinguisher

Cargas para Extintores de Espuma Tipo AB

詰替用泡消火剤　泡沫灭火机药粉



A & B in twin pack, chemical refill and lead sealing plate for foam extinguisher.

Unit Per Pkt

CODE	For	Unit		Remark
33 10 06	9 ltr	650 grm	× 2 (A & B)	-
08	9 ltr	650 grm	× 2 (A & B)	w/lead plate
09	45 ltr	3.5 kg	× 2 (A & B)	-
10	150 ltr	11 kg	× 2 (A & B)	-
33 10 11	9 ltr	Lead seal plate only (Pc.)		

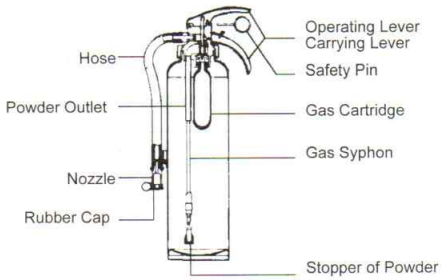
Dry Chemical Fire Extinguishers

ABC type

Extinguidores de Polvo Tipo ABC　ABC 粉末消火器　ABC 干粉灭火器

Class ABC chemical powder fire extinguisher for flammable liquid, wood, cloth, paper, rubber, etc. Also applicable for use in fires of electrical origin.





Unit Per Pc.

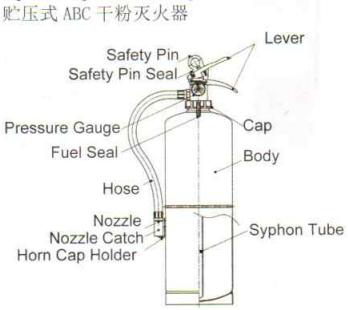
CODE	Power Content	Discharge Duration	Weight	Remark
33 10 15	1.2 kg	App. 10 sec.	2.9 kg	Portable
16	3.5 "	14 "	6.5 "	"
17	5.0 "	15 "	9.1 "	"
18	6.0 "	16 "	10.1 "	"
33 10 19	20.0 kg	35 Sec.	46.0 kg	Wheeled
20	23.0 "	42 "	47.0 "	

Dry Chemical Fire Extinguishers

Pressurized, ABC Type

Extintor de incendios de polvo químico, presurizado, tipo ABC
蓄圧式 ABC 粉末消火器　貯圧式 ABC 干粉灭火器





The universal designed Fire Extinguisher, with only 1/3 of power to squeeze the lever compared to a regular extinguisher. Since this cylinder is already pressurized, there are no worries about bursting at the time of operation (burstless). Maintenance check is quite simple to check the pressure gauge pointer is in green zone. Also it is in compliance with PRTRs (Pollutant release and transfer register).

Unit Per Pc.

CODE	Powder Content	Discharge Duration	Weight	Remark
33 10 04	5.0 kg	App. 14 sec.	8.3 kg	Portable
05	6.0 kg	18 sec.	9.3 kg	Portable
14	23.0 kg	42 sec.	42.0 kg	Wheeled

Name of Mfr.: Hatsuta Seisakusho Co. Ltd.

Refills for Dry Chemical Fire Extinguisher and Spare CO_2 Gas Cartridges

Cargas para Extintores de Polvo Tipo ABC y Repuesto de Cartucho de CO2
詰替え用 ABC 粉末消火剤及び予備炭酸ガス入りカートリッジ
ABC 干粉灭火器药粉

ABC powder refill and carbon dioxide gas cartridges for dry chemical extinguisher.



Refills

Unit Per Pkt

CODE	Contents	CODE	Contents
33 10 26	1.2 kgs	**33 10 24**	3.5 kgs
27	1.5 "	**22**	5.0 "
28	2.0 "	**25**	6.0 "
23	3.0 "	**29**	15.0 "

Spare CO_2 Gas Cartridges

Unit Per Btl.

CODE	Contents	For	
		Powder Contents	Fire Extinguisher
33 10 21	B17 grm	1.2 kg	CSP-4SA
32	C30 grm		SSA-4L
50	B30 grm		SSA-4S
33 10 34	C60 grm	3.5 kg	SDP-10SA SA-10L SA-10R
33 10 30	D105 grm	4.5 kg	SDP-15SA
33 10 39	D155 grm	6.0 kg	SDP-20SA SA-20L
33 10 40	D450 grm	20 kg 23 kg 23 kg	SA-50 SA-50S SDP-55
33 10 54	3.4 ltr (N_2)	40 kg	SDP-100
59	13.4 ltr (N_2)		SA-100F
33 10 60	13.4 ltr (N_2)	45 kg	SDP-100HP SA-100H

Remark: CSP and SDP from Hatsuta/SSA and SA from Yamato

Spare CO_2+ N_2 Mixed Cartridges

Unit Per Btl.

CODE	Contents	For	
		Powder Contents	Fire Extinguisher
33 10 57	D61 grm (CO_2 + N_2)	4.5 kg 5.0 kg	SA-15NR SA-17NR
33 10 58		6.0 kg	SA-20NR

Carbon Dioxide Fire Extinguishers

BC Type

Extintores de CO2 Tipo BC
二酸化炭素消化器　二氧化碳灭火器



Class BC carbon dioxide fire extinguisher for fighting flammable liquid and electrical fires.

CO_2 is a clean, dry gas and does not conduct electricity. It leaves no residue and can be used on delicate electronic equipment.

Unit Per Pc.

CODE	CO2 Content	Discharge Duration	Weight	Remark
33 10 41	2.3 kg	16 sec.	8.5 kg	Portable
42	5.0 "	27 "	15.5 "	"
43	6.8 "	30 "	21.1 "	"
44	23.0 "	40 "	100.0 "	With wheel

Refilling

for Carbon Dioxide Fire Extinguisher

Cargas para Extintores de CO2
二酸化炭素消化器ガス充填　二氧化碳灭火器填充

Empty cylinders can be refilled with carbon dioxide gas as dictated by the High Pressure Gas Safety Regulations. When refilling, the Pressure Test Certificate of the cylinder may be required.

CODE	CO2 Content	Unit
33 10 46	2.3 kg	Time
47	5.0 "	"
48	6.8 "	"
49	23.0 "	"

Maintenance Equipment

for Fire Extinguishers

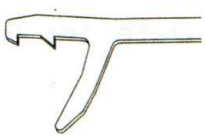
Cargas para Extintores de CO2

消火器用保守器具　灭火器维护设备

To be provided on board for testing, inspection and service apparatus.



Clamping Stand



Cap Spanner

CODE	Description	Unit
33 10 55	Clamping stand	Set
56	Cap spanner	Pc.

U.K. DOT Approved Fire Extinguishers

Extintores Contraincendios Aprobados por U.K. DOT

U.K. DOT 承認消化器　DOT 确认水灭火器

Here listed is one of the classified fire extinguishers by U.K. DOT for your reference.



Unit Per Pc.

CODE	Model	Agent	Contents	Application
33 10 61	CW 9	Water	9 ltr	Class A
33 10 62	CF 9	Foam	9 ltr	Class B
63	TF 45	"	45 "	"
64	TF 135	"	136 "	"
33 10 65	CD 10	CO_2	4.5 kg	Class B, C
66	CD 15	"	6.8 "	"
33 10 67	SP 3	Powder	3.0 kg	Class A, B, C
68	SP 6	"	6.0 "	"
69	SP 9	"	9.0 "	"

Name of Mfr.: Chubb Fire Limited

Portable Foam Applicators

Aplicadores Portátiles de Espuma

持運び式泡放射器　便携式泡沫发射器

Installation required by SOLAS 1983 Chapter II, Regulation 6. It shall consist of an air-foam nozzle of an inductor type capable of being connected to the fire main by a fire hose. It is a portable tank containing at least 20 ltr of foam-making liquid and 1 spare tank.



Specifictions

Foam Ejecting Capacity	:	Not less than 1.5 m³/min.
Foam Expansion Ratio	:	Not less than 6 times
Water Solved Foam Ejecting Capacity	:	Not less than 250 ltr/min.
Foam Liquid Applied	:	3% regular
Foam Liquid Quantity	:	20 ltr × 2 containers

33 10 76	Portable foam applicator unit complete (Please specify type of hose coupling, using on board)	Set

ABC Fire Extinguishers

of Self-activating Chemical

Extintores Tipo ABC, Activados Químicamente

ABC 自動拡散型粉末消化器

ABC 自动扩散粉末消化器



The fire extinguisher works similarly to a sprinkler and is suitable for installation on the wall, near the ceiling, in the engine room, store room or empty cabin where people cannot identify the outbreak of fire. The fire extinguisher is fitted with a sensor capable of identifying atmospheric temperature over 95°C. ABC chemical powder is automatically radiated to extinguish a fire at the early stages.

Specifications

Applicable Class of Fire	ABC
Applicable Room Volume	8 m³
Powder Contents	1.5 kg
Sensor Reaction	Over 95°C
Time of Radiation	Approx. 6 sec.
Size W x D x H	102 × 107 × 475 mm
Weight	4.1 kg

33 10 79	ABC fire extinguisher, self-activating type with bracket	Set

Foam Concentrates

Espuma Concentrada　消火泡原液　泡沫浓缩液

For inflammable liquid fires it is essential to choose the foam concentrates suitable for the specific fire. The following foam concentrates are available for various fires.

No.	Name of Foam Concentrates
1	Fluoroprotein Foam
2	A.F.F.F. (Aqueous Film Forming Foam)
3	Protein Foam
4	Alcohol Resistant Fluoroprotein Foam
5	Alcohol Resistant A.F.F.F.
6	Synthetic Foam

Suggested Foam Application Methods for Various Hydrocarbon Fires.

Oil Fire

Type of Fire	Foam Concentrate	Expansion Ratio	Foam Generators
Oil Tank	1 Fluoroprotein Foam 2 A.F.F.F. 3 Protein Foam	Low Expansion Foam	•Foam Monitor •Foam Chamber
Oil Tank Sub-surface Injection	Fluoroprotein Foam A.F.F.F.	Low Expansion Foam (2-4times)	•High back pressure Foam Generator

(to be continued)

Type of Fire	Foam Concentrate	Expansion Ratio	Foam Generators
Polar Solvents	Alcohol Resistant Fluoroprotein Foam Alcohol Resistant A.F.F.F.	Low Expansion Foam	Pour gently foam on surface of Liquid
L.N.G. L.P.G.	Synthetic Foam	High Expansion Foam Medium Expansion Foam	•High Expansion Foam Generator •Medium Expansion Foam Generator
Fat Oil	A.F.F.F.	Low Expansion Foam	•Fog Foam
Engine Room Bilge	A.F.F.F.	Low Expansion Foam	•Foam Sprinkler •Fixed Foam
	Synthetic Foam	High Expansion Foam	•High Expansion Foam Generator
Sea Spill Fire *Ships *Birth *Tanker	Fluoroprotein Foam Protein Foam A.F.F.F.	Low Expansion Foam	•Foam Monitor
Offshore Rigs & Platforms	1% Concentration A.F.F.F.	Low Expansion Foam	•Monitor
Spill of Hazardous Materials	Air Foam Alcohol Resistant A.F.F.F.	Low Expansion Foam	•Foam nozzle

Precautions in Storage

(1) Exposure to direct sun light should be avoided.

(2) The frequency of contact with air must be reduced as much as possible.

(3) Blending with different types of concentrates or liquids or contamination of a new product by an old one should be avoided to ensure the safety and effectiveness of the foam concentrates.

Unit Per Can

CODE	Name of Foam Concentrate	Concent-ration	Containing Can	
			Poly Can	Drum
33 10 81	Fluoroprotein Foam	3%	20 Ltr	
33 10 82				200 Ltr
33 39 87	A.F.F.F. (Aqueous Film Forming Foam)	1%	20 Ltr	
33 39 88				200 Ltr
33 10 83		3%	20 Ltr	
33 10 84				200 Ltr
33 10 85		6%	20 Ltr	
33 10 86				200 Ltr
33 10 87	Protein Foam	3%	20 Ltr	
33 10 88				200 Ltr
33 10 89		6%	20 Ltr	
33 10 90				200 Ltr
33 39 89	Alcohol Resistant Fluoroprotein Foam	3%	20 Ltr	
33 39 90				200 Ltr
33 10 91		6%	20 Ltr	
33 10 92				200 Ltr
33 10 93	Alcohol Resistant A.F.F.F.	6%	20 Ltr	
33 10 94				200 Ltr
33 10 95	Synthetic Foam	3%	20 Ltr	
33 10 96				200 Ltr

Synthetic Foam Concentrate for High Expansion Foam System

High expansion foam system is specially used for engine room and pump room. The types of foam concentrate are designated by each F.F.S manufacturer's specification in related to Class approval and cannot use the general synthetic foam concentrate. Please specify the manufacturer, type of F.F.S. model and type of Class approval when ordering.

CODE	Manufacturer of Fire Fighting System	Concentrate Model No.	Class	Content
33 39 91 **33 39 95**	Kashiwa Tech Ltd.	STHAMEX SV2% F-6 #9242	NK	50L/drum 200L/drum
33 39 96 **33 39 92**		STHAMEX SV-HT2%F-10 #9273	NK, LR, DNVGL, BV	50L/drum 200L/drum
33 39 93	Survitec Group Ltd.	HiEx Foam FC High Expansion 2% F-10 IAF PD9272	NK, CCS	20L/can
33 39 94				200L/durm

Heat Detector Testers

Probador de Detector del Calor
熱感知器用テスター　感熱器測試儀



Designed to provide quick and reliable testing of heat detector with a maximum of safety regardless of the number of units to be tested.

33 10 71	Heat detector tester	Set

Heat Detector Testers for Explosion-proof Area

Probador de detectores de temperatura para zona a prueba de explosiones
熱感知器用加熱試験器　热感应器用加热测试器



Used for carrying out the operation test of the heat detector by utilizing chemical reaction of quicklime and water to generate the high temperature vapor. The tester can also be used at explosion-proof area, because it does not use fire during the operation test. After the vapor generation is finished, wait about 10 minutes before removing the heat generating material from the container because the heat generating material is hot.

In case of using the tester in the explosion-proof area, the applicable gases are limited to Grade IIB, T4 or less according to Gas Classification (Ministry of Labour, Research institute of Industrial Safety Japan) and those having the ignition temperature of 425°C or over. The tester is the approved product of Fire Protection Equipment & Safety Center of Japan, and it is required to be calibrated every 10 years. (The calibration label should be checked.) Support rods are sold separately.

Unit Per Pc.

CODE	**33 10 45**
Model	FTH011
Type Approval No.	TH-004
Max. Temperature	100°C

(to be continued)

Unit Per Pc.

CODE	33 10 45
Applicable Detector	Heat detector except for line type detector Fixed temperature type detector: 90°C or less Compensation type detector: 100°C or less Typical explosion-proof type heat detectors are as follows; Model FDL116-IW-75 / FDL916-IW-65/ FDL120-E-60/FDL120-E-80/FDL120-E-90/ FDL120-E-100/FDP219 -I/FDP216-I/FDP214-I/FDP114-I
Weight	Approx. 900 grm
Accessories	Push stick (Made of wood φ18), M5 screw (for fitting the support rod)
Support Rod (Sold separately)	ZER-S2 : Min.980 mm – Max.2,700 mm ZER-L2 : Min.1,725 mm – 6,000 mm

Name of Mfr. : Nohmi Bosai Ltd.

Smoke Detectors

Detector de Humo 煙感知器 偵煙探測器



A device for detecting smoke emerged by potential fire, and raising an alarm and flickering LED light to alert. Normally the smoke detectors are mounted on the ceiling or on a wall near the ceiling. The detector is powerd by lithium battery and which life lasts for about 10 years, but depends on environmental condition where it is mounted. A little blip and indicator light notify you the end of battery lifetime.

Unit Per Pc.

CODE	33 10 72
Alarm Sound	More than 70 dB
Alarm Light	LED Red
Size	100 mm diam. × 44 mm thick
Weight	160 grm

Name of Mfr. : Nippon Dry-Chemical Co.,Ltd.

Intrinsically Safe Smoke Detectors

Detectores de humo intrinsecamente seguros

本質安全防爆煙探知器 本质安全型防爆烟雾探测器



Intrinsically safe optoelectric smoke detectors for detecting smoke emerged by potential fire, especially in hazardous area. This will be mounted on the ceiling and once it detects the smoke, it will flicker the warning indicator light.

Unit Per Pc.

CODE	33 11 00
Rated Voltage/Current	DC16V / 100 mA
Alarm Light	LED Red
Approved Class	Ex ib B T5
Weight	240 grm

Smoke Detector Testers

Detectores de Humo 煙感知器用テスター 烟感式探测器



For testing ionization and photoelectric detector at sight for smoke detection fire alarm system on the ceiling. Test gas is separate order.

33 10 73	Smoke detector tester	Set
74	Spare test gas for smoke detector tester, 350 grm/tin	Tin

Smoke Detector Test Spray

Pulverizador para pruebas de detectores de humo

煙感知器用テストスプレー 烟感探测器测试喷雾



For secure testing of optical or photoelectrical smoke detectors without the need of additional testing instruments. Safe and easy to use, gentle on electronic instruments, evaporation without residues, can content lasts for up to 150 applications, and free of silicone.

Shake can before use and spray test spray for about 5 seconds and with a distance of approx. 30 cm towards the smoke detector. The functioning of the smoke detector has to be tested on a regular basis, and recommended testing period is two inspections per year.

Unit Per Can

CODE	Contents ml	CODE	Contents ml
33 10 75	150	33 10 77	250

Name of Mfr.: Weicon GmbH & Co. KG

Smoke & Heat Detector Tester

(combined / dual unit)

Detector verificador de humo y calor

煙・熱感知器用マルチテスター 烟 / 热检测器用检测

A combined smoke & heat detector tester in one tool, suitable for testing;

(a) Optical and ionization smoke detectors, and (b) Heat detectors (fixed temperature or rate-of-rise).

The detector can be either conventional or analogue addressable. Also, this enables testing of multi-detectors or multi-criteria detectors from a single test unit.



Test Mode

Normal Heat	To test rate-of-rise and fixed temperature heat detectors up to 90°C.
Hi Heat	To test rate-of-rise and fixed temperature heat detectors up to 100°C.
Smoke	A simulated smoke generated internally using a miniature heat exchanger and a harmless liquid from the smoke capsule.
Clearing	Clean air is blown to remove previously applied smoke.

Also, execute programmed testing, such as simultaneously, sequentially, combined simultaneous and sequentially.

Safety Features:

- Battery over-current cut-out.
- Default 2 minutes maximum test duration timeout.
- Auto power off after 5 minutes of non-use.

Operating Features:

- Colour coded LED user feedback.
- Automatic infrared sensing of the detector.
- Adjustable multi-position head.

Unit Per Pc.

CODE	33 10 80
Model	NITTAN-Testifire 1001
Heat Detector Testing	4 – 6A rms
Smoke Detector Testing	< 0.5A rms
IP (Ingress Protection) Rating	IP20 (Rated according to IEC 60529)
Battery Baton	Nominal 7.2V 2.2Ah NiMH rechargeable battery pack
Battery Charger	Using 100 – 230VAC or 12 VDC input
Weight	0.99 kg
Accessories	2 Batteries, 1 charger, 1 capsule for smoke detector testing

Name of Supplier(Contact): Consilium Nittan Marine Ltd, Tokyo

Cartridge Type Capsules for Smoke & Heat Detector Tester (combined/dual unit)



Cápsulas tipo cartucho para comprobador de detectores de humo y calor
煙・熱検知テスター用カートリッジ式カプセル
用于烟热探测器测试仪的盒式胶囊

33 10 97	Capsule, cartridge type for smoke & heat detector	Pc.

Accessories for Smoke & Heat Detector (combined/dual unit)

Accesorios para detectores de humo y calor
煙・熱検知器用アクセサリー　烟热探测器配件



Battery Baton



Battery Charger

Unit Per Pc.

CODE	Description	Remark
33 14 21	Battery baton	Nominal 7.2V 2.2 Ah NiMH rechargeable battery pack
22	Battery charger	100 – 230 VAC or 8.4 VDC input

Access Poles

for Smoke & Heat Detector Testers (combined/dual unit)



Postes de Acceso Postes de Acceso
煙・熱感知器用マルチテスター用伸縮ポール
用于烟雾和热量探测器多重测试仪的伸缩杆

Unit Per Pc.

CODE	Type	Max. Length
33 14 23	Telescopic	2.2 mtr
24		4.5 mtr
25	Extension	1.1 mtr

Smoke & Heat Detector Removal Kits

Kits de Extracción de Detectores de Humo y Calor
煙・熱感知器取り外しキット　烟雾和高温探测器拆除套件

Suitable for removal, inspection and replacement of most smoke, CO and heat detectors. Two types of grabbers suit different types of detectors, simply grab and twist the detector, and the stable spring joint allows the tool to remain parallel with the ceiling. It can be used for the removal of detectors installed in sloping ceilings. Can be used in conjunction with access pole.



Unit Per Set

CODE	33 14 20
Model	RT700M
Content	Access Pole × 6 Detector Removal Tool Cylinder Grabber × 3 Star Grabber × 3 Height Adjusting Magnet × 3 Glare Flashlight Flashlight Holder

Photoelectric Smoke Detector

Detector de Humo Fotoeléctrico
光電式煙探知器　光电烟雾探测器



Photoelectric smoke detector for detecting smoke emerged by potential fire, especially in accommodation area and engine room. This will be mounted on the ceiling and once it detects the smoke, it will turn on the alarm indicator (Red LED).

Unit Per Pc.

CODE	33 14 01
Rated Voltage/Current	DC24V/100 mA
Alarm Indicator	LED Red
Detector Class	EN54-7
Weight	148 grm

Flame Detectors Infrared type

Detectores de llamas de tipo infrarrojo
赤外線式炎探知器　红外线式火焰探测器



A sensor designed to detect the presence of a flame or fire. Flame will be detected by Infrared type sensor, and unit will be mounted on the ceiling in the room. Once it detects a flame, it will flicker the warning indicator light.

Unit Per Pc.

CODE	33 11 03
Rated Voltage/Current	DC30V/100 mA
Alarm Light	LED Red
Detecting Class	Class 1 (EN54)
Weight	210 grm

Fixed Temperature Heat Detector

Detector de Calor de Temperatura Fija
定温式熱検知器　固定温度热探测器

Fixed temperature heat detector for detecting heat emerged by potential fire, especially in Galley or workshop, unsuitable

locations for smoke detector installation. This will be mounted on the ceiling and once it detects the heat, it will turn on the alarm indicator (Red LED).



Unit Per Pc.

CODE	33 10 00
Nominal Operating Temperature	60°C
Rated Voltage/Current	DC24V/100 mA
Detector Class	EN54-5 A2S
Weight	82 grm

Testing Device

for Infrared Spot Type Flame Detector

Dispositivo de pruebas para detector de llamas de tipo de punto infrarrojo

赤外線スポット型感知器作動試験器　点型红外线火焰探测器测试器

An operation-testing device for infrared spot type flame detector. The testing device is capable of providing 2 ranges of emission of spectrums that are required to operate infrared flame detector: the spectrum similar to CO2 spikes immersion region by using an infrared filters over a source and the flickering similar to a flame by using a flashing lamp.



Available two type of testing methods depends upon the testing site environments. (a) Using the Test Initiation Switch (Normally use in this method), or (b) Using the Manual Test Switch (use this method if the (a) is not possible).

This testing device is mandated to calibrate at every 10 years.

The testing rod (Total length: 3,990 mm) is sold separately.

Unit Per Pc.

CODE	33 09 10
Applicable Detector	Infrared Spot Type Flame Detector Model 2RA-P
Light Source	Bulb 4.8V 0.5A
Battery	AA × 4 (Matsushita LR6 (G) or equivalent)
Dimension/ Weight	110 (W) × 148 (H) × 153 (D), Weight: Approx. 600 grm
Accessories	Carry bag, Battery (4 pcs), Spare lamp (1 pc Placed inside), Cotton swab (4 pcs), Manual

Marine Fire Stop Systems

Sistemas cortafuegos navales

舶用火災防御システム　船用火灾防范系统

Marine firestop products are always designed specifically fast, safe, and simple to install. Additionally, the products are easy to retrofit for existing penetrations. Sealants are resilient, tough and vibration resistant while fire-rated cable pathways facilitate cable changes without compromising the integrity of the sealed opening, providing continuous savings over the lifetime of the structure or vessel.

The marine firestopping products are fully tested to applicable standards to maintain the integrity of the decks and bulkheads they are rated to such as A0, A15, A30, A60, B0, B15, and B30, as well as hydrocarbon testing for H-Class divisions.

MDM: Marine Fire Rated Cable Pathways

For conditions where cable changes will be frequent and water pressure tightness is not a requirement, the EZ-Path® Marine Cable Pathway is the fastest and most reliable solution. The steel raceway contains a self-sealing system comprised of compressible foam pads installed to form an arch. As the cables pass through the device, the pads retract and allow them to pass while gently squeezing the bundle to provide a functional smoke and air seal. Device modules can be installed individually, or ganged to increase cable capacity. Accessory plates allow for easy mounting to bulkheads or decks.



MDM300A　MDM400A　MDM400B

MDM400C　MDM400D　MDM400G

Features & Benefits:

- Provides sealing function to restrict the passage of fire, smoke, hot gases and conditioned air.
- Easily installable and retrofittable around existing cables with split plate kits.
- No specialty tools required to install.
- Smooth edges protect cable jacketing during install.
- Easily installed into a roughly cut openings, no welded or specialized sleeves required.
- Vibration resistant.

Applications:

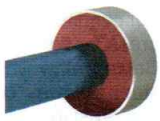
- Accessories adapt the pathways to ganged configurations, thicker walls, retrofit with previously installed cables.
- No putty or sealant required.

Unit Per Pc.

CODE	Model No.	Descriptions	Weight
Cable Loading Area / Pathway: 39cm² (6.0 in.²)			
33 14 26	MDM300A	Marine 300 EZ-Path with integrated solid plate	2.0 kg (4.4 lbs)
Cable Loading Area / Pathway: 82cm² (12.7 in.²)			
33 14 27	MDM400A	Marine 400 single solid plate kit and pathway unit	3.9 kg (8.6 lbs)
33 14 28	MDM400B	Marine 400 single split plate kit and pathway unit	3.9 kg (8.6 lbs)
33 14 29	MDM400C	Marine 400 two-gang solid plate kit with two pathway units	6.7 kg (14.9 lbs)
33 14 30	MDM400D	Marine 400 two-gang split plate kit with two pathway units	7.8 kg (17.2 lbs)
33 14 31	MDM400G	Marine 400 four-gang solid plate kit with four pathway unit	12.3 kg (27.3 lbs)

Name of Mfr.: Specified Technologies Inc.

MFS: Marine Firestop Sealant



An advanced hybrid polymer sealant designed for use in H60, A0-A60 and B0-B30 Class divisions in marine and offshore construction around both cable and pipe penetrations. Marine firestop sealant cures in the presence of atmospheric moisture to form a durable elastomeric seal. This excels in applications where a high-degree of water resistance is required, and complies with International Maritime Organization (IMO) standards.

Features & Benefits:
- Non-corrosive, non-conductive.
- Fast curing, ozone and UV resistant.
- Excellent chemical resistance protects in polluted or corrosive environments.
- Provides superior sealing function to prevent the passage of fire, smoke, hot gases, sound, conditioned air, and water.
- No specialty conduit frames, bolts, nuts, tools, or precision fitting required to install.
- No need to plan or engineer out multiple cable or pipe penetrations.
- No need to layout cables and install individual parts around each cable.

Applications:
- Can be used to form flexible, vibration-resistant seals around pipes and cables in bulkheads and decks.
- Can be used for interior or exterior applications and bonds well to a variety of materials commonly used in marine and offshore construction.
- Can be used in watertight decks and bulkheads.

Unit Per Pc.

CODE	Model No.	Description	Weight
33 14 32	MFS100	Marine firestop sealant, 9.5 oz. tube (281 ml, 17.1 cu.in.)	0.5 kg (1.18 lbs)

Name of Mfr.: Specified Technologies Inc.

MPU: Marine Firestop Putty



Designed to seal small to medium size openings in H60, A0-A60 and B0-B30 Class divisions in marine and offshore construction for pipes and cables. Marine Firestop Putty is a non-hardening, moldable compound that can be hand-packed into openings for permanent or temporary sealing. Complies with International Maritime Organization (IMO) standards.

Features & Benefits:
- Non curing properties to allow for removal and re-installation, for cable removal or addition.
- Provides superior sealing function to prevent the passage of fire, smoke, hot gases, sound, conditioned air, and water.
- Easily repairable, retrofittable, and installable.
- No specialty tools required to install.

Applications:
- Can be used to form flexible, vibration-resistant seals around pipes and cables in bulkheads and decks.

Unit Per Pc.

CODE	Model No.	Description	Weight
33 14 33	MPU28	Marine firestop putty bar, 458.8 ml, (28 cu.in.)	0.8 kg (1.85 lbs)
33 14 34	MPU52	Marine firestop putty coil, 15.9 ltr (3.5 gallon), packaged in pail	13.9 kg (30.8 lbs)

Name of Mfr.: Specified Technologies Inc.

MRF: Marine Firestop Foam



A two-component RTV silicone foam that features excellent crack-and-void filling capabilities. Marine Firestop Foam exhibits uniform cell structure, assuring reproducible, smoke-tight, fire resistant installations. The elastic properties of the foam readily accommodate minor vibration of the pipe, conduit, etc. without loss of system integrity. Used in a 1:1 mix ratio, Marine Firestop Foam, when properly mixed, expands 2 to 4 times its original volume, filling available spaces and forming an effective barrier against fire, smoke and water penetration.

Features & Benefits:
- High resilience allows movement due to expansion, contraction, or vibration.
- Excellent water resistance for water-tight sealing.
- Uniform cell structure ensures reproducible results every time. No charts to check.
- Excellent adhesion to most building substrates.
- Excellent smoke seal.

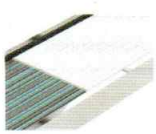
Applications:
- Designed as a seal for both deck and bulkhead penetrations against the passage of fire, smoke or other hot gases.
- Applied in liquid form (with proper damming) and then foams in place, readily sealing around penetrating items such as conduits, cables, duct work or mechanical piping.
- Useful in sealing areas such as control rooms against infiltration of airborne contaminants such as coal dust, dirt, etc.
- Ideal product for use as a thermal or acoustical insulation, or for vibration dampening.

Unit Per Pc.

CODE	Model No.	Description	Weight
33 14 35	MRF500	Marine firestop foam kit, 45.4 kg (100 lbs), part A and B	45.3 kg (100 lbs)
33 14 36	MRF520	Marine firestop foam, dual cartridge, 600 ml (20 oz), part A and B	0.95 k (2.10 lbs)

Name of Mfr.: Specified Technologies Inc.

MCC: Marine Cable Coating



A latex-based coating designed to protect grouped electrical cables against the propagation of fire. This material will limit flame spread along cables and cable trays. Marine Cable Coating will adhere well to virtually all cable jacketing materials. Application of material is achieved using airless spray equipment or by brush.

Features & Benefits:
- Water-based - easy installation, cleanup and disposal.
- Endothermic fillers - absorb heat and release water.
- High solids formula - no shrinkage!
- Sandable and paintable (when dry).
- Safe - low VOCs (Volatile Organic Compound), no solvents, non-halogenated.
- Excellent smoke seal.

Applications:
- Offers protection of grouped electrical, data, or communications cables in cable tray or racked cable applications.

Unit Per Pc.

CODE	Model No.	Descriptions	Weight
33 14 37	MCC105	Marine cable coating, 19 ltr (1,155 cu.in.)	24.9 kg (55 lbs)

Name of Mfr.: Specified Technologies Inc.

MFC: Marine Firestop Collars



Designed for use in A0-A60, B0-B30, and H0-H120 Class divisions to protect plastic pipes in marine and offshore construction. The heavy gauge stainless steel shell is lined with a molded, intumescent insert and provided with a marine grade, mild steel flange for attachment to the bulkhead or deck.

Features & Benefits:

- Heavy gauge, chromium rich 316 stainless steel construction.
- Resistant to aging and weathering, no soluble or hygroscopic ingredients.
- High volume of char.
- Provides sealing function to restrict the passage of fire, smoke, and hot gases.
- Easily installable and retrofittable around existing non-metallic pipes.
- Maintenance free.
- Tested and approved for use with USCG Approved SeaCor® and SeaDrain Plus® piping as well as other non-metallic and metallic pipes. (SeaCor® and SeaDrain Plus® are registered trademarks of Georg Fischer).
- Will not damage outside of pipe.

Applications:

- Sized to fit common pipe sizes.
- Applications were tested for common pipes including PVC, PVDF, CPVC, Pb, PE, PE-AL-PE, ABS, GRE, uPVC, Cu and Steel.

Unit Per Pc.

CODE	Model No.	Description	Weight
Marine traditional firestop collar			
33 14 38	MFC16	16 mm	0.09 kg (0.20 lbs)
39	MFC20	20 mm	0.10 kg (0.23 lbs)
40	MFC25	25 mm	0.12 kg (0.26 lbs)
41	MFC32	32 mm	0.16 kg (0.35 lbs)
42	MFC40	40 mm	0.19 kg (0.41 lbs)
33 14 43	MFC50	50 mm	0.51 kg (1.10 lbs)
44	MFC60	60 mm	0.60 kg (1.31 lbs)
45	MFC63	63 mm	0.61 kg (1.32 lbs)
46	MFC75	75 mm	0.70 kg (1.53 lbs)
47	MFC90	90 mm	0.79 kg (1.75 lbs)
33 14 48	MFC110	110 mm	0.92 kg (2.03 lbs)
49	MFC115	115 mm	0.95 kg (2.09 lbs)
50	MFC125	125 mm	1.51 kg (3.30 lbs)
51	MFC140	140 mm	1.64 kg (3.62 lbs)
52	MFC160	160 mm	1.83 kg (4.04 lbs)
33 14 53	MFC169	169 mm	2.13 kg (4.70 lbs)
54	MFC200	200 mm	4.20 kg (9.26 lbs)
55	MFC219	219 mm	4.60 kg (10.12 lbs)
56	MFC225	225 mm	4.97 kg (10.96 lbs)
57	MFC273	273 mm	5.90 kg (12.99 lbs)
33 14 58	MFC324	324 mm	6.94 kg (15.30 lbs)

Name of Mfr.: Specified Technologies Inc.

MFC-W: Watertight Marine Firestop Collars

Water-tight, factory-manufactured, intumescent device for use as a penetration seal in fire-rated bulkheads and decks.

Features & Benefits:



- Tested to IMO A.754 FTP (Class A0-A60, B0-B30, and H0-H120 Bulkheads and Decks).
- Provides water-tightness up to 4 bar and gas-tightness up to 1 bar.
- Rapid intumescent expansion under fire conditions quickly seals off the path for fire, gases, and smoke.
- Stainless steel body with mild steel flange for weld-attachment.
- Solid design requires pipe to be inserted through the water-tight bushing.
- Flexible intumescent liner accommodates vibration and will not damage pipe.

Applications:

- Applications were tested for common plastic pipes, including PVC, PVDF, CPVC, Pb, PE, PE-AL-PE, ABS and GRE, through pressure rated bulkheads and decks.

Unit Per Pc.

CODE	Model No.	Description	Weight
Watertight marine firestop collar			
33 14 59	MFC16W	16 mm	0.09 kg (0.20 lbs)
60	MFC20W	20 mm	0.10 kg (0.23 lbs)
61	MFC25W	25 mm	0.12 kg (0.26 lbs)
62	MFC32W	32 mm	0.16 kg (0.35 lbs)
63	MFC40W	40 mm	0.19 kg (0.41 lbs)
33 14 64	MFC50W	50 mm	0.51 kg (1.10 lbs)
65	MFC60W	60 mm	0.60 kg (1.31 lbs)
66	MFC63W	63 mm	0.61 kg (1.32 lbs)
67	MFC75W	75 mm	0.70 kg (1.53 lbs)
68	MFC90W	90 mm	0.79 kg (1.75 lbs)
33 14 69	MFC110W	110 mm	0.92 kg (2.03 lbs)
70	MFC115W	115 mm	0.95 kg (2.09 lbs)
71	MFC125W	125 mm	1.51 kg (3.30 lbs)
72	MFC140W	140 mm	1.64 kg (3.62 lbs)
73	MFC160W	160 mm	1.83 kg (4.04 lbs)
33 14 74	MFC169W	169 mm	2.13 kg (4.70 lbs)
75	MFC200W	200 mm	4.20 kg (9.26 lbs)
76	MFC219W	219 mm	4.60 kg (10.12 lbs)
77	MFC225W	225 mm	4.97 kg (10.96 lbs)
78	MFC273W	273 mm	5.90 kg (12.99 lbs)
33 14 79	MFC324W	324 mm	6.94 kg (15.30 lbs)

Name of Mfr.: Specified Technologies Inc.

MFC-T: Transitional Marine Firestop Collars



Designed for use in A0-A60 and B0-B30 Class divisions to protect transitions between steel and plastic pipes in marine and offshore construction. The heavy gauge stainless steel shell is lined with a molded, intumescent insert and provided with a marine grade, mild steel flange for attachment to steel pipes.

Features & Benefits:

- Heavy gauge, chromium rich 316 stainless steel construction.
- Resistant to aging and weathering, no soluble or hygroscopic ingredients.
- High volume of char.
- Provides sealing function to restrict the passage of fire, smoke, and hot gases at transitions from plastic pipes to steel pipes or scuppers.
- Easily installable and retrofittable around existing pipes.
- Will not damage outside of pipe.
- No sealant or welding required.

Applications:
- Offers protection of connections between steel pipes or scuppers to plastic pipes in non-pressurized systems.
- Applications were tested for common plastic and steel pipes or scuppers.
- Easily retrofittable around existing, mated pipes.
- No pre-planning or staging necessary with split closure design.

Unit Per Pc.

CODE	Model No.	Description	Weight
33 14 80	MFC50T	50 mm steel & plastic pipe	0.54 kg (1.20 lbs)
33 14 81	MFC56T	50 mm steel pipe/60 mm plastic pipe	0.59 kg (1.30 lbs)
33 14 82	MFC75T	75 mm steel & plastic pipe	0.77 kg (1.70 lbs)
33 14 83	MFC79T	75 mm steel pipe/90 mm plastic pipe	0.91 kg (2.00 lbs)
33 14 84	MFC90T	90 mm steel & plastic pipe	1.00 kg (2.20 lbs)

Name of Mfr.: Specified Technologies Inc.

Safety Belts & Hooks

Cinturones de Seguridad y Ganchos
安全ベルト及びフック　安全带及安全钩

General use safety belt with lifeline and hook.



33 11 01



33 11 02

33 11 01	Safety belt with lifeline & hook	Pc.
02	Lifeline & hook 10 mmϕ × 1,500 mm	"

Harnesses

Fall Protection Range

Cinturón de Seguridad　作業用安全帯　工業用安全帯

Designed and used to prevent accidents at work or to protect against consequences of accidents at work.

Statistics prove, year after year, that lack of fall protection is a leading factor in job fatalities and injuries. The Fall Protection product lines enables your company to provide optimum quality, comfortable fall arrest systems for your workers. It combines quality, comfort, and value.

Approval: Most harnesses have compliance for each region depending on the delivery location, such as OSHA, ANSI, JP industrial standard, etc.

- Excellent value / Optimum quality / Reliable protection / Practical operation / User-friendly design / Comfortable

3M Full Body Harnesses for General Fall Arresting

A full body harness is personal protective equipment worn to prevent falls when working at heights and provide both high safety and comfort to support on-site work. The back D-ring is for fall arrest attached on the most harnesses. The chest-D ring enables connection to a ladder climbing safety system. Please specify if any additional attachment points or specifications are required.



- Durable polyester web construction.
- light and compact Pass-Thru buckle.
- Quick Connect buckles enhance adjust-ability.

Unit Per Pc.

CODE	Size	Attachment Point: Back, Chest	Part No. EU/US/JP
Buckle Type: Pass-Thru			
31 15 11	S	1B	1161600/1161570/1161648
12	M/L		1161601/1161571/1161649
13	XL		1161602/1161572/1161650
Buckle Type: Quick-Connect			
31 15 26	S	1B	- /1161524/1114080
27	M/L		- /1161525/1114081
28	XL		- /1161526/1114101
31 15 20	S	1B, 1C	1161615/1161556/1114102
21	M/L		1161616/1161557/1114103
22	XL		1161617/1161558/1114104

Name of Mfr.* 3M Company

3M Work Positioning Products

Positioning D-rings located on the hips are used with positioning devices and allow workers to use both hands. While work positioning belts may be used in conjunction with a harness you already have, they must never be used for personal fall arrest.



- Durable polyester web construction.
- Adjustable work positioning rope is Ideal for work positioning while pole climbing.

Unit Per Pc.

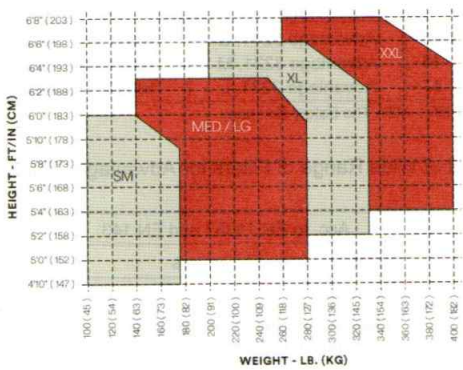
CODE	Size	Attachment Point: Back, Hip	Part No. EU/US/JP
Harness integral with WP belt			
31 15 29	S	1B, 2H	1161624/1161304/1161651
30	M/L		1161625/1161305/1161652
31	XL		1161626/1161306/1161653
WP belt*			
31 15 32	S	2H	- /1091014/1112988
33	M		- /1091015/1112989
WP rope*			
31 15 34	2.0~3.0 m	-	1200317/1234083/1112992

Name of Mfr.* 3M Company
*For right-handed

Harness Size Information

Here is the example of right fitting harness charts provided by 3M company, based on the height and weight. Sizes may be different by models and manufactures, so please make sure to check the right size through your local supplier.

3M™ Protecta® Harness Sizing Guidance



Lanyards

Lanyards　ランヤード　挂绳

A rope or strap made of synthetic fiber with hooks, carabiners, shock absorbers to connect with safety harnesses as lifeline. Single leg or twin leg are available. Twin-lanyards provide 100% tie-off, allowing users to stay protected when changing locations.

Elastic Type Lanyards

Elastic type fall protection lanyard with shock absorber, elastic leg stretches in reaction to users movements. It is compact and fordable when not in use. Furthermore, it extends and effectively absorbs the impact during a fall event.


Single


Twin

Unit Per Pc.

CODE	31 15 35	31 15 36
Type	Single	Twin
Working length	1.7 m or longer	
Weight Capacity	130 kg or more	

Rope/Strap Lanyards

Rope lanyard type of fall protection equipment with pack-style shock absorber. It is compact and fordable when not in use. It dissipates energy, limiting the forces on the body by absorbing component in a fall event.


Single


Twin

Unit Per Pc.

CODE	31 15 37	31 15 38
Type	Single	Twin
Working length	1.8 m or more	
Weight Capacity	100 kg or more	

Self-Retracting Lanyard

It is designed to activate self-lock system when it detects the fall event to minimize the falling distance. It is very lightweight and easy to use. It is ideal fall protection equipment for workers under 5 meters height. Single or twin types are available.


Single


Twin

Unit Per Pc.

CODE	31 15 39	31 15 40
Type	Single	Twin
Working length	1.8 m or longer	
Weight Capacity	128 kg or more	

Fall Arrester Retractable Type

Disoisitivo Autocaido, Cable de Acero
墜落防止器　自锁救生索



The self-locking mechanism reduces the impact force and automatically stops the fall when a worker slips or falls with a sudden tension. Housing is made of durable glassfibre and drum-wound lifeline is made of stainless steel. Work load is less than 130 kg. Workers using fall arrester must work directly under the anchorage to prevent swing fall injuries.

Unit Per Pc.

CODE	Length of Wire	Diam. of Wire	Max. Load Capacity	Weight
33 11 05	10 mtr	4.76 mm	130 kg	4.6 kg
06	12 "			4.9 kg
07	15 "			9.8 kg
08	20 "			9.8 kg
09	25 "			10.3 kg

Dust Protecting Masks

Masacarilla para Protección del Polvo, 1 Filtro　防塵マスク　防尘口罩

Designed to prevent the inhalation of dust. Two types of filtering systems are available: a Mechanical Type which filters fumes and dust through a filter cartridge, and an Electrostatic Type which collects fumes and dust over the filter by static electricity.

It must be noted that these masks are not effective for poisonous gases or vapours. Also to avoid risk, it must never be used in circumstances where the Oxygen (O_2) concentration is lower than 18 %.


Single Filter


Twin Filter


Full Face Twin Filter

Unit Per Pc.

CODE	Size	Preventive Efficienty	Weight grm
Single Filter			
33 11 11	M/L	97.4% (ave)	96
Twin Filter			
33 11 16	M	99.9% (ave)	125
17	L		129
Full Face Twin Filter			
33 11 65	M	99.96% (ave)	415
74	L		420

* These products meet requirements for a minimum 95% filtration efficiency. Applicable laws and regulations vary by region.

Replacement Filters for Dust Protecting Masks

Please specify the original maker and model name of dust protecting mask in use.

Unit Per Pc.

CODE	**33 11 18**	**33 11 20**
Filter Type	Mechanical	Electrostatic

Respirators Advantage 200 LS

Mascarillas Advantage 200 LS　防毒マスク　防毒面具



The Advantage 200 LS Respirator provides a better looking, lighter, and softer face piece, which is made from a translucent "Ocean Blue" formulation of thermoplastic rubber:

The MSA patented MultiFlex® System – a soft, pliable combination of rubber and plastic that provides a virtually customized fit. In addition, the highly effective AnthroCurve™ Sealing Surface instantly conforms to each wearer, equalizing pressure on the face seal area and eliminating annoying pressure points. The unmatched fit exceeds all previous levels of comfort.

This half mask type respirator features a twin filter cartridge with large area and capacity to provide for low breathing resistance and long life.

Not for use in atmospheres containing less than 19.5% oxygen.

CODE	Size	PT/No. US/EU	Unit
33 11 21	Small	815696 / 430356	Pc.
22	Medium	815692 / 430357	"
23	Large	815700 / 430358	"

Name of Mfr. : MSA The Safety Company

Fullface Respirators Advantage 3200

Respiradores Enteras　全面防塵防毒マスク　全面防尘防毒面具



New generation of lightweight air-purifying full face respirator offers a comfortable fit. The face piece lens has been engineered to be optically correct, giving you superior visibility and peripheral vision. The wraparound scratch-resistant polycarbonate face piece lens provides a wide distortion-free field of vision.

The lens meets all requirements of ANSI Z87.1 including the high-impact performance requirements.

Requires only routine filter replacement and approved according EN136 class 2. As well approved by NIOSH (The National Institute for Occupational Safety and Health) according 42 CFR, part 84.

Unit Per Pc.

CODE	Type	Part No. US/EU
33 12 45	Advantage 3211, S	10031340 / 10027727
46	Advantage 3221, M	10031309 / 10027726
47	Advantage 3231, L	10083791 / 10027728

Name of Mfr.: MSA The Safety Company

Excerpt of Wide Range of Filters for Advantage 200LS and 3200

Filter Type	Acc. to EN 14387 and EN 143	Part No.
A2	Organic gases and vapors	430371
K2	Ammonia	-
A1B1E1	Organic, Inorganic, Sulfur Dioxide and Acid gases and vapors	-
A2B2E1K1	Organic, Inorganic, Sulfur Dioxide, Acid gases and vapors and Ammonia	430373
A2-P3 R	Organic gases and vapors and Particles	430372
K2-P3 R	Ammonia and Particles	10107165
A1B1E1-P3	Organic, Inorganic, Sulfur Dioxide, Acid gases and vapors and Particles	10144828
A2B2E1K1-P3 R	Organic, Inorganic, Sulfur Dioxide and Ammonia gases and vapors and Particles	430374
P2 R	Particle filter with medium efficiency plus adapters	10011347
P3	Particle filter with high efficiency	430375

Name of Mfr. : MSA The Safety Company

Filter Type	Acc. to NIOSH (to 42 CFR, Part 84)	Part No.
GMA	Organic gases and vapors	815355
GMA-P100	Organic gases and vapors and Particles	815362
GMB	Chlorine, Sulfur Dioxide, Chlorine Dioxide, Hydrogen Chloride and Hydrogen Sulfide	815356
GMB-P100	Chlorine, Sulfur Dioxide, Chlorine Dioxide, Hydrogen Chloride, Hydrogen Sulfide and Particles	815363
GMC	Organic gases and vapors, Chlorine, Sulfur Dioxide, Chlorine Dioxide, Hydrogen Chloride and Hydrogen Sulfide	815357
GMC-P100	Organic gases and vapors, Chlorine, Sulfur Dioxide, Chlorine Dioxide, Hydrogen Chloride, Hydrogen Sulfide and Particles	815364
GMD	Ammonia and Methylamine	815358
GMD-P100	Ammonia, Methylamine and Particles	815365
GME	Organic gases and vapors, Chlorine, Sulfur Dioxide, Chlorine Dioxide, Hydrogen Chloride, Hydrogen Sulfide, Ammonia and Methylamine	815359
GME-P100	Organic gases and vapors, Chlorine, Sulfur Dioxide, Chlorine Dioxide, Hydrogen Chloride, Hydrogen Sulfide, Ammonia, Methylamine and Particles	815366
P100	Filter with 99,97% efficiency, against all particulate aerosols	815369

Respirators

Máscarillas 2 Filtros　防毒マスク　防毒面具

Half mask type respirators which feature a twin filter cartridge with large area and capacity to provide for low breathing resistance and long life. Not for use in atmospheres containing less than 19.5% oxygen.



Filter Type	EU according EN141 and EN143	Part No.
A2	Organic gases and vapors with boiling point > 65°C	430159 box of 12
A2-P3	Organic gases and vapors with boiling point > 65°C and particles	430162 box of 6
A1B2E1K1	Organic gases and vapors with boiling point > 65°C and inorganic gases and vapors, Sulfur Dioxide, Hydrogen Chloride and other acid gases, Ammonia and Ammonia derivatives	430299 box of 10
A1B2E1K1-P3	Organic gases and vapors with boiling point > 65°C and inorganic gases and vapors, Sulfur Dioxide, Hydrogen Chloride and other acid gases, Ammonia and Ammonia derivatives and particles	430302 box of 6
Pre-filter	Protection of particle filter	816661 box of 50
P3	Particle filter with high efficiency	430158 box of 12

Application of Respirator Cartridges

PT/No.	Acid Gases	Filter Type
GMA PT/ No.464031	Organic vapor	R95 & N95
GME PT/ No.92790	Organic vapor, Chlorine, Sulfur dioxide, Chlorine dioxide, Hydrogen chloride, Hydrogen sulfide, Ammonia, Methylamine, Formaldehyde, Hydrogen fluoride	R95 & N95

Remark: R95 – Particular filter (95% filter efficiency level) effective against all particulate aerosols ; time use restrictions may apply.
N95 – Particular filter (95% filter efficiency level) effective against particulate aerosols free of oil; time use restrictions may apply.

33 11 24	Respirator, Comfo Classic, with respirator filter GME	Set
33 11 25	Respirator filter GMA, PT/No.464031	Pc.
27	Respirator filter GME, PT/No.492790	"

Twin Filter Half Mask Respirators

X-plore 3500

Respiradores de media mascara de doble filtro
ツインフィルター型防毒マスク　双过滤防毒半面罩



Twin gas and vapor filter cartridge half masks combine practicality of use with comfort. The use of new materials coupled with a modern, attractive design guarantees maximum comfort and user acceptance. Tested and certified according to EN 140 and NIOSH.

Not for use in atmospheres containing less than 19.5% oxygen.

Unit Per Pc.

CODE	Size	Part No.	CODE	Size	Part No.
33 12 91	Small	R55351	**33 12 93**	Large	R55352
92	Medium	R55350			

Name of Mfr.: Draeger

Twin Filter Cartridge for Respirator X-plore 3500

Twin filter cartridge for Draeger X-Plore 3500 offers large area and capacity to provide for low breathing resistance and long life. Approved to EN141 and EN143.

Not for use in atmospheres containing less than 19% oxygen.

Unit Per Box

CODE	Filter Type	EU according EN 141 and EN 143	Part No.
33 12 94	A2	Organic gases and vapors with boiling point > 65°C	6738873 (20 pcs/box)
95	A2-P3	Organic gases and vapors with boiling point >65°C and particles	6738875 (14 pcs/box)
96	A1B1E1K1	Organic gases and vapors with boiling point >65°C and inorganic gases and vapors, Sulfur Dioxide, Hydrogen Chloride and other acid gases, Ammonia and Ammonia derivatives	6738816 (20 pcs/box)
97	A1B1E1K1 - Hg-P3	Organic gases and vapors with boiling point >65°C and inorganic gases and vapors, Sulfur Dioxide, Hydrogen Chloride and other acid gases, Ammonia and Ammonia derivatives and particles, Mercury	6738817 (14 pcs/box)
98	Pre-Filter	Protection of particle filter	6738001 (20 pcs/box)
99	Pre-Filter Retainer	Securing Pre-filter	6738038 (12 pcs/box)
33 13 00	P3	Particle filter with high efficiency	6738011 (22 pcs/box)

Dust Mask Disposable

Máscarillas Desechables para Polvo
使い捨て防塵マスク　一次性防尘口罩



Protects against non-toxic dust, powders, and spray particles.

Comfortable, efficient, lightweight, and low cost, disposable mask.

33 11 28	Dust mark disposable	Pc.
30	" , 50's/pkt	Pkt

Dust Mask Disposable EN149 FFP2/FFP3 Standard

Máscaras Desechables FFP2/FFP3 Estándar
使い捨てマスク FFP2/FFP3 規格
一次性口罩 FFP2/FFP3 标准



Protects against non-toxic dust, powders, and aerosol particles. Meets European Standard EN 149:2001 with following classes.

FFP2: Minimum 94% filtration percentage and maximum 8% leakage to the inside. Mainly used for variety of industry including healthcare against influenza viruses, SARS, new coronavirus etc.

FFP3: Minimum 99% filtration percentage and maximum 2% leakage to the inside. The finest filtering mask of the FFPs.

33 11 77	Dust mask disposable, FFP2/N95/DS2 standard	Pc.
78	Dust mask disposable, FFP3/N99/DS3 standard	Pc.

Fire Resistant Face Mask

Mascarilla Resistente al Fuego　耐火・耐熱マスク　防火口罩



Reliable, reusable masks that will shield you from workplace heat hazards. This fire-resistant mask defends well against heat hazards such as flash fires and sudden flames. An anti-bacterial inner layer makes it suitable for blocking microbial hazards. Made of Nomex IIIA fabric, renowned for its comfort, fire resistant and moisture wicking properties. Suitable for utilities, manufacturing, oil & gas and chemical industrial work.

Notice for use:

- Wash the mask frequently to ensure that no greases, oily soils or other flammable contaminants are present during use.
- Ensure that the masks are clean and in proper condition before each wearing.
- Retire any mask with visible holes, rips, and/or tears or contamination from flammable materials.

33 12 02	Fire resistant face mask	Pc.

Paint Spray Respirators

Máscarillas para Pintura　塗装用防毒マスク　喷漆防毒面具



Low concentration single filter half face gas mask used as a respirator for low concentrations of gases, such as when painting with sprayers. Never use when the oxygen concentration in the atmosphere is less than 18 %.

33 11 31	Paint spray respirator, half mask single filter cartridge	Pc.
32	Replacement filter cartidge for paint spray respirator	Pc.

Fullface Respirators

Advantage 1000

Respiradores Enteras　全面防塵防毒マスク　全面防尘防毒面具



Lightweight air-purifying respirator offers a comfortable fit with increased vision due to the wrap-around flexible lens. Requires only routine filter replacement and approved by NIOSH (The National Institute for Occupational Safety and Health) and MSHA (Mine Safety and Health Administration).

Unit Per Pc.

CODE	Type	MSA No.
33 12 30	Black, S, w/speaking diaphragm	805414
32	Black, M, w/speaking diaphragm	805408
33	Black, L, w/speaking diaphragm	805420
33 12 34	ESP-II Amplifier Kit	10026265

Name of Mfr.: MSA The Safety Company

Filter Cartridges

for Advantage 1000 Fullface Respirator

Cartuchos Filtrantes　フィルターカートリッジ　过滤器滤筒

Filter cartridges are a separate order.

Unit Per Pc.

CODE	Type of Filter Cartridge	Respiratory Hazards	MSA No.
33 12 41	F	For dusts & mists having a TWA not less than 0.05 mg/m³ or 2 million particles/feet³.	802498
42	H	For dusts, fumes & mists having a TWA less than 0.05 mg/m³, asbestos-containing dusts & mists.	806564
43	GME	For Organic vapors, Chlorine, Hydrogen chloride, Sulfur dioxide, Ammonia, Methylamine, Pesticides, Paint, Lacquer & Enamel mists, Chlorine dioxide, Hydrogen sulfide, Formaldehyde, or Hhydrogen fluoride gases	806942
44	GME-H	For Organic vapors, Chlorine, Hydrogen chloride, Sulfur dioxide, Ammonia, Methylamine, Pesticides, Paint, Lacquer & Enamel mists, Chlorine dioxide, Hydrogen sulfide, Formaldehyde, or Hydrogen fluoride; Dusts, Fumes and Mists having a TWA less than 0.05 mg/m³, asbestos	802244

Fullface Respirators

Advantage 3100

Respiradores Enteras　全面防塵防毒マスク　全面防尘防毒面具



New generation of lightweight air-purifying full face respirator offers a comfortable fit. The face piece lens has been engineered to be optically correct, giving you superior visibility and peripheral vision. The wraparound scratch-resistant polycarbonate face piece lens provides a wide distortion-free field of vision.

Requires only routine filter replacement and approved according EN136 class 3. Suitable for European filters with thread according EN 148. As well approved by NIOSH (The National Institute for Occupational Safety and Health).

Unit Per Pc.

CODE	Type	Part No. US/EU
33 12 38	Advantage 3111, S	10031343 / 10027724
39	Advantage 3121, M	10031342 / 10027723
40	Advantage 3131, L	10031344 / 10027725

Name of Mfr.: MSA the Safety Company

Excerpt of Wide Range of Filters for Model 3100

To be used with MSA 3S, MSA Ultra Elite and MSA Advantage 3100 full face mask ranges and MSA Advantage 410 half mask. Thread Connector according EN 148-1.

Filter type [old]	p/n	Filter type [new]	p/n
87 A	D1040000	90 A	10115187
87 AX	D1051000	90 AX	10108408
87 B	D1041000	90 AB	10098113
87 E	D1042000	90 E	10115349
87 K	D1045000	90 K	10115320
87 ABEK	D1040713	90 ABEK	10098114
87 ABEK 2	D1051700	90 ABEK2	10098112
88 A / St	D1061000	92 A / St	10115188
88 B / St	D1062000	92 AB / St	10097994
88 ABEK / St	D1061702	92 ABEK / St	10097995
88 ABEK2 / St	D1061703	92 ABEK2 / St	10097996
89 A / St	D1106000	93 A / St	10115189
89 AX / St	D1070708	93 AX / St	10108409
89 B / St	D1070000	93 AB / St	10097993
89 K / St	D1112000	93 K / St	10115190
89 Hg / St	D1071000	93 Hg / St	10115201
89 ABEK Hg / St	D1070705	93 ABEK / St	10097231
89 ABEK2 Hg / St	D1070707	93 ABEK2 / St	10097232
89 ABEK CO NO Hg/St	D1018700	93 ABEK CO NO Hg/St	10160507
89 CO NO / St	D1018905	93 CO NO/ St	10115314
999 P3	D1010700	P3 PlexTec	10094376

Full Facemask Respirators

Máscara Entera　全面防塵防毒マスク　全面型防尘防毒面罩



A fullface respirator which is light and comfortable to wear, even for long periods of time without becoming tired or stressed. A wide sealing edge provides a snug fit to the face and adjusts easily for wearer comfort. Can be worn with a helmet and hearing protectors.

The facemask has a wide field of vision with inhalation air directed across the inside of the visor to prevent misting. One can talk clearly with the respirator on because of a protected speech diaphragm. The exhalation valve is of a secure construction and keeps the carbon dioxide level inside the mask at a minimum.

The facemask materials are resistant to a wide range of chemicals. Applicable filters are a separate order.

Unit Per Pc.

CODE	33 11 35	33 11 36	33 11 37
Material	Natual Rubber	Chloroprene Rubber	Silicons Rubber
Heat Resistance	100°C	120°C	250°C
Weight grm	560	600	550

Safety Filters for Full Facemask

Filtro de Recambio para Máscara

替フィルター　全面型防毒面罩用安全滤片



Each type of filter has various applications and resistance to different hazardous vapors and particles. When ordering, please ask your supplier for detailed information about the main area of application for each filter.

Unit Per Pc.

CODE	Filter Type
33 11 38	For particle w/filtering capacity low, medium or high.
39	For gas, with name of gas _____
40	For particle & gas, with name of gas _____

Power Assisted Respirators

Respiradores con Ayuda de Fuerza

ファン付き防塵・防毒マスク　风扇式防尘防毒面罩



Full face respirators which are comfortable to wear, light in weight, easy to decontaminate and maintain and compact with no impending hoses. 1.5 kg total weight including the fitted battery power pack and the only connection is an extending coil cord from the battery to the integral fan/motor unit in the mask.

Low profile facemask gives the wearer a panoramic field of vision through an optically corrected high-impact and chemically resistant visor. Air flow is directed over the inside of the visor to prevent misting and provide a cooling effect to the face making the respirator more comfortable to wear for long periods.

The assistance of the fan provides low resistance gives benefits to protection. The negative pressure induced inside of the facemask is much lower than in other respirators.

Specifictions

Facemask	Silicone elastomer with panoramic visor complete with optical and impact requirement of BS 2092 Grade 1
Blower	Airflow : 120 ltr/min. (Minimum rate) Motor Life : 1,000 hours
Battery	Life : 500 recharge cycle Duration : 10 hours minimum. Charging : approx. 14 hours required.
Component	Complete with facemask, fan/motor unit, battery, filter, airflow tester & manual

33 11 45	Respirator, power assisted with AC 110 volt battery charger	Set
46	Respirator, power assisted with AC 220 volt battery charger	"

Hose Adaptors for Power Assisted Respirator

Adaptadores de Manguera para Respiradores

ファン付き防塵・防毒マスク用ホースアダプター

风扇式防尘防毒面罩用软管适配器



By connecting a lightweight belt-mounted adaptor with flexible hose, two screw-in filters can be used in place of the normal single filter. This means that filters can be oriented away from the source of contamination, and two filters used in parallel to provide extended filtration capacity.

33 11 47	Hose adaptor for power assisted respirator	Set

Power Assisted Respirators

Respiradores Asistidos　パワーアシスト呼吸器　电动辅助呼吸器



If your job demands long-term breathing protection, the OptimAir 3000 PAPR [Powered Air Purifying Respirator] is the way to go. Your breathing remains easy and free from resistance even after hours of work.

A maximum in safety, flexibility and ease-of-handling lets you concentrate on your work, knowing that your health is not being compromised.

The OptimAir 3000 PAPR system allows you to breathe normally while you work. Your comfort, well-being and ability to perform effectively are greatly enhanced. Filters also last longer. The microprocessor controlled, variable-speed motor guarantees an optimum amount of air in your head top [mask or hood] – even as your breathing rate changes during more strenuous tasks. In many situations it is not even necessary to maintain an airtight seal.

The pressure differential causes airflow to travel continuously from your face to the outside environment, preventing unfiltered air from entering your head top.

Unit Per Set

CODE	33 11 33	33 11 34
Product	OptimAir 3000 (3000A)	OptimAir 3000 EX (Ex-proof)
Content	Turbo Filtering Device, including comfortable OptiBelt, OptiCharge [standard] battery charger, OptiBat battery [NiMH] (Decon Belt, OptimAir Mask with Hose, Particle Filter [pck of 10])	Turbo Filtering Device Ex proof, including comfortable OptiBelt, OptiCharge Ex proof battery charger, OptiBat Ex proof battery [NiMH]
Air Flow	With use of Hood: Approx.130 ...150 L/Min With use of Full Face Mask: Approx. 110 L/Min (160 ... 185 L/Min)	With use of Hood: Approx.130 ... 150 L/Min With use of Full Face Mask: Approx. 110 L/Min
Energy Supply	NiMH Battery-pack [one click battery change]	NiMH Battery-pack ATEX [one click battery change]
Service Time	With Particle Filters: > 8 hours With Combination Filters: > 4 hours	
Filter Choice	Gas Filters / Particle Filters / Combination of Gas Filters and Particle Filters [stackable system]	
Calibration	Automatic self test and calibration at switching on	
Calibration Time	Approx. 8 seconds	
Alarms	Optical and acoustic: · non inserted filter for calibration · exhausted filter · empty battery · flow error · no hood, or mask connected	
Ingress Protection	IP54 according EN 60529	
Approvals	EC-type certified, according PPE Directive 89/686/EC [including 93/68/EC, 93/95/EC and 96/58/EC] and according EMC Directive 89/336/EC, EN12941:2004 TH2 - Hoods and Visors TH3 - Hooded Helmet EN12942:2003 TM3 - Full Face Mask	EC-type certified, according PPE Directive 89/686/EC [including 93/68/EC, 93/95/EC and 96/58/EC] and according EMC Directive 89/336/EC, EN 61000-6-2 EN 61000-6-4 BVS 07 ATEX E 38 II 2G Ex ib IIB T4 II 2D Ex ibD 21 T130°C Type of protection: EN 60079-0; 2006 EN 60079-11;2007 EN 61241-0: EN 61241-11: EN 12942:2003 TM3 - Full Face Mask
Product Number	10049557 (10049558)	10049559
Dimensions [HxWxD]	With Flat Cap for particle, or gas filters: 200 × 270 × 110 mm With High Cap for combination of filters: 200 × 270 × 130 mm	
Weight	1.28 kg including Particle Filters 1.7 kg including Combination Filters	

Name of Mfr. : MSA The Safety Company

OptimAir Filters

OptimAir Filter A p/n 10049637 [10 pck]	Vapours from organic compounds with a boiling point higher than 65°C.
Optim Air Filter ABEK p/n 10049635 [10 pck]	A: brown: Filter Class 1: Vapours from organic compounds with a boiling point higher than 65°C. B: grey: Filter Class 1: Inorganic gases and vapours, e.g. Chlorine, hydrogen sulphide, hydrogen cyanide (not carbon monoxide). E: yellow: Filter Class 1: Sulphur dioxide, hydrogen chloride, acid gases. K: green: Filter Class 1: Ammonia and organic ammonia derivatives.
Optim Air Filter P3 p/n 10049632 [10 pck]	P: white: Filter Class 3: Particle

Single Filter Cartridge Full Face Respirator

X-plore 6300

Respiradores Entera　全面防塵防毒マスク　全面型防尘防毒面罩



The efficient yet low-cost full face breathing mask. This mask has proven itself over decades of use worldwide - redesigned and improved with fresh colours and an integrated bar code.

Outstanding protection factor:
- Double layered face seal with triple sealing action.
- Two sizes in one mask => one size fits all.

Proven quality & reliability:
- Proven quality under hardest conditions: used by fire brigades all over the world for decades.
- All parts available as spare part.

Excellent field of vision:
- Excellent field of vision as visor is close to the face.

Requires only routine filter replacement and approved according EN136 class 3. Suitable for European filters with thread according EN 148-1 as well approved by NIOSH (The National Institute for Occupational Safety and Health) according 42 CFR, part 84.

Unit Per Pc.

CODE	Type	Part No.
33 12 71	X-plore 6300 w/o speech diaphragm**	R55800
72	X-plore 6530 w/speech diaphragm**	R55810

Name of Mfr.: Draeger
** BAFA Export License application is required for use onboard ship.

Single Filter Cartridge for Full Face Respirator

X-plore 6300

Respiradores Entera　全面防塵防毒マスク　全面型防尘防毒面罩

With standard thread connection in accordance with EN 148-1:



- Extensive range of filter types for all major areas of application.
- Conforming to EN 148-1.
- EN 14387, EN 143:2000, EN 371 CE approved (EN 141:2000).
- Filter with aluminium housing to ensure reliable recognition of possible damage.
- Individually packaged for optimum protection of the unused filter.
- Re-sealable for longer use.
- Shelf life (from date of production): 6 years for gas and combination filters & 12 years for particle filters.

Unit Per Pc.

CODE	Type	Part No	CODE	Type	Part No.
33 12 73	A2	6738855	**33 12 81**	A2B2E2K1-P2	6738803
74	A2-P2	6738857	**82**	A2B2E2K1Hg-P3	6738815
75	A2-P3	6738860	**83**	A1B2E2K1Hg-CO20-NO-P3	6738801
76	K2	6738856			
77	K2-P2	6738858	**84**	A2B2E2K2Hg-CO20-NO-P3RD	6738814
			85	AX	6738863
33 12 78	A2B2	6738779	**33 12 86**	AXB2	6738782
79	A2B2-P2	6738780	**87**	AX-P3	6738862
80	A2B2E2K1	6738802			

Filter Colour Code

Colour	Type	Main Application
Brown	AX	Gases and vapours of organic compounds. Boiling point ≤ 65°C
Brown	A	Gases and vapours of organic compounds. Boiling point > 65°C
Grey	B	Inorganic gases and vapours e.g. chlorine, hydrogen, Sulphide, hydrocyanic acid
Yellow	E	Sulphur dioxide, hydrogen chloride
Green	K	Ammonia
Black	CO	Carbon monoxide
Red	Hg	Mercury vapour
Blue	NO	Nitrous gases including nitrogen monoxide
Orange	Reactor	Radioactive iodine incl. radioactive iodide
White	P	Particles

Twin Filter Cartridge Full Face Respirator

X-plore 5000

Respiradores de rostro entero con cartucho de doble filtro

全面防塵防毒マスク　全面型防尘防毒面罩



Outstanding protection factor:
- Double layered face seal with triple sealing action.
- Two sizes in one mask ⇒ one size fits all.

Proven quality & reliability:
- Proven quality under hardest conditions: used by fire brigades all over the world for decades.
- All parts available as spare part.
- Excellent field of vision as visor is close to the face.

Requires only routine filter replacement and approved according EN136 class 3 and NIOSH 42 CFR, part 84.

Unit Per Pc.

CODE	Type	Part No.
33 12 89	With Polycarbonate Lens	R55270
90	With Triplex Lens	R56655

Name of Mfr.: Draeger

Plastic Chipping Goggles

Gafas protección contra el Polvo

防塵眼鏡　塑料防尘眼罩



Made of plastic, worn to protect the eye when chipping or scaling metal or other objects that may chip or fragment.

33 11 41	Chipping goggle plastic, standard	Pr.
42	" " " , anti-fog	"

Faceshields

Pantallas Prottección Facial　防災面　面平及支架

For protection of the face against abrasive particles, flying objects, and chemical splashes.

The faceshield stays in the up or down position as required with friction pivot hinges.



Standard



with Forehead Protection

33 11 43	Faceshield, standard	Pc.
44	Faceshield, with forehead protection	Pc.
48	Spare shield, polycarbonate, for forehead protection type faceshield	Pc.

Ear Muffs

Protectores de Oído　イアーマフ　耳罩

Highly efficient ear muffs for protection of loud noises of all pitches in factories and areas where air compressors and turbines are used.



MSA left/RIGHT



ScanSilence L3

MSA left/RIGHT

The MSA left/RIGHT, with a new headband with improved comfort, individual ear cups -left and right- and more space for the outer ear, this unique and careful design gives a wider range of protection. Approved according EN 352.

Unit Per Pr.

CODE	Type	Colour	Part No.
33 12 51	Low applications SNR 24 - H/M/L 27/22/14	White	10087436
52		Yellow	10087434
53		Blue	10087435
33 12 54	Medium applications SNR 28 - H/M/L 32/26/17	White	10087427
55		Yellow	10087425
56		Blue	10087426
33 12 57	High applications SNR 33 - H/M/L 33/31/21	White	10087421
58		Yellow	10087399
59		Blue	10087400

Name of Mfr.: MSA The Safety Company

ScanSilence L3

Protection against very high noise level and loud sounds. Using Omnifit reflective headband, light weight, and limited contact pressure for all-day comfort. Cups are 360° rotating anti-scratch and its height is adjustable. Attenuation: H=38 dB, M=34 dB, L=36 dB. Signal-to-noise ratio: 36 dB.

Standards: CE Approved / EN 352-1

33 12 60	Ear muff, ScanSilence L3	Pr.

Name of Mfr.: Scandia Gear

Ear Cup Kits

Kits de Auriculares イヤーカップキット 耳罩套件

Designed for easy attachment to any types of helmet.



Standard



MSA left/RIGHT



ScanSilence ML3

Unit Per Pr.

CODE	Type	Colour	Part No.	Applicable Type of Helmet
33 11 66	Ear cup kit, Standard	-	-	Standard
33 12 61	Left/RIGHT, low	White	10087439	
62	applications	Yellow	10087437	
63	SNR 25-H/M/L 27/22/15	Blue	10087438	V-Gard
33 12 64	Left/RIGHT, medium	White	10087430	Super
65	Applications	Yellow	10087428	
66	SNR 28-H/M/L 29/25/17	Blue	10087429	V-Gard
33 12 67	Left/RIGHT	White	10087424	Linesman
68	high applications	Yellow	10087422	
69	SNR 31-H/M/L 32/28/21	Blue	10087423	

Name of Mfr. : MSA The Safety Company

ScanSilence ML3

Protection against very high noise level and loud sounds. Light weight, and limited contact pressure for all-day comfort. Cup is anti-scratch and its height is adjustable. Attenuation: H=37 dB, M=32 dB, L=24 dB. Signal-to-noise ratio: 35 dB.

Standards: CE Approved / EN 352-1

33 12 70	Ear cup kits, ScanSilence ML3	Pr.

Name of Mfr.: Scandia Gear

Ear Plugs

Tapones para Oido 耳栓 耳塞

Three types of ear plugs are available. Made of silicon-rubber for general noise from high-pitched to low-pitched noises or only for high-pitched noises. Made of flexfit, self-expandable and self-adjusting foam.



Silicon Rubber



Self-fit Foam

33 11 56	Ear plug silicon rubber for hi-low pitch noise	Pr.
57	Ditto for hi pitch noise	"
33 11 58	Ear plug self-fit foam	Pr.

Safety Helmets

Cascos de Seguridad 安全帽 安全帽



A lightweight safety helmet made of glass fibre reinforced polyester resin. Adjustable in size. Easy replacement of the suspension. Weight: approx. 380 grm.

33 11 59	Safety helmet, polyester resin, white	Pc.
60	Safety helmet, polyester resin, yellow	"

Slotted V-Gard Safety Helmets

Cascos de Seguridad 安全帽 安全帽



Economical, lightweight, comfortable headwear. Made of high-density polyethylene in a variety of molded-in colours ideal for general industry and construction. Suspension, sweat band and nape strap form the complete protective system. Cap with slots to hold accessories. When ordering, specify colour.

Unit Per Pc.

CODE	Description Helmet Shell	Part No. US/EU
33 11 62	White	463942 / 262250
	Yellow	463944 / 262251
	Blue	463943 / 262252
	Green	463946 / 262253
	Orange	463945 / 262254
	Red	463947 / 10002901
	Grey	463948 / ---
	Gold	464852 / ---
33 11 63	Helmet Suspension	454230 / 262239
64	Helmet Chin Strap	258213 / 262153

Name of Mfr.: MSA The Safety Company

Work Vests

Chalecos de Trabajo 作業用ベスト 安全作业背心

Flotation work vest:
Made from multiple foam inserts and nylon outer shell, and orange color with phosphorescent white stripes provides high visibility for day and night. One size fits all.

Hazard warning vest:
Made from vinyl in yellow colour with reflective tape.



33 11 71



33 11 72

33 11 71	Flotation work vest	Pc.
72	Hazard warning vest	"

Whistles

Sibatos 笛 救生艇哨笛

Produces loud and clear tone, and used for signalling, warning., etc.

Available in plastic or steel.



Plastic



Steel

33 11 75	Whistle, plastic	Pc.
76	Whistle, steel	"

Anti-Slip Tapes

Cintas Anti-caídas 滑り止めテープ 防滑帶



Gives safe, slip free footing anywhere falls could be a problem. Designed especially for stairs, kitchens, around pools, in food service areas, wheel chair ramps and lobbies.

Diamond-hard mineral provides positive grip. Easy to apply backed adhesive-sticks at a touch.

Type	Surface	Back	Application
A For Rugged Surface	Mineral Grain	Alum. Foil	Vehicles' Steps
B For General Purpose	Mineral Grain	Polyester Film	Stair Steps
C For Interior Purpose	Plastic	Plastic	Interior room, Gymnasium
D For Interior Purpose	Plastic	Plastic	Pool, Bath, Shower Room

Unit Per Rls.

CODE	Type	Size W × L	Color
33 11 81	A	10 cm x 18 mtr	Black
86	A	10 cm x 18 mtr	Green
89	A	10 cm x 18 mtr	Yellow
33 11 82	B	10 cm x 18 mtr	Black
83	B	10 cm x 18 mtr	Red
90	B	10 cm x 18 mtr	Green
97	B	10 cm x 18 mtr	Grey
33 11 84	C	10 cm x 18 mtr	Black
85	C	10 cm x 18 mtr	Grey
33 12 00	D	10 cm x 18 mtr	White

Remark: Other sizes of width with 18 mtrs length are also available on request.

Anti-Slip Safety Products

Cintas Anti-caídas 滑り止め防止製品 防滑产品



An anti-slip safety products incorporate the unique Scotgrip® high-traction anti-slip safety surface which gives a sound foot-holding in the most extreme conditions. By installing anti-slip walkway & deck products not only is this slip hazard eliminated but the lifespan of the underlying material is greatly increased. These tough & durable products are manufactured under BS EN IS0 9001:2008 quality controlled conditions comprising of a reinforced composite base and a graded aggregate surface. As a Scotgrip® quality standard, these products are fire rated, spark and friction tested.

Scotgrip® Anti-slip Stair Nosings (SSN)

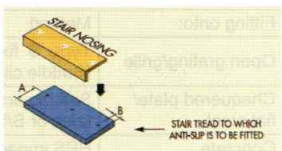
By installing Scotgrip® anti-slip stair nosings not only is this slip hazard eliminated but the lifespan of the step is greatly increased. These heavy duty safety products are easily fitted onto open grating/grille, chequered plate/flat steel, concrete or wood. Colour coded in a wide range of colour schemes to suit individual locations, but Safety Yellow colour one will be supplied if any colour code is not specified.

Designed for quick and secure fitting, either by mechanical fixings or bonding to existing surfaces. These products are pre-drilled where required for quick installation.

Surface Grades:
Coarse grade: 1 - 3 mm aggregate (1/16" – 1/8" approx.)
Extra coarse grade: 3 - 5 mm aggregate (1/8" – 3/16" approx.)

Fitting Data

Fitting onto:	Method
Open grating/grille	Type 'S' fixings (zinc or S/S) (Saddle clip assembles)
Chequered plate/ Flat steel	Self tap screws or nut, bolt and washer (zinc or S/S)
Concrete	HPS impact fixings (zinc or S/S)
Wood	Screws (zinc or S/S) or adhesive



Unit Per Sht.

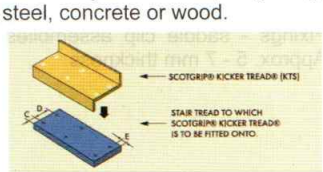
CODE	Breadth mm	Breadth Inch	Length mm	Length Inch	CODE	Breadth mm	Breadth Inch	Length mm	Length Inch
33 45 01			450	18	**33 45 21**			450	18
02			600	24	**22**			600	24
03	40	1-1/2	750	30	**23**	160	6	750	30
04			900	36	**24**			900	36
05			1,200	48	**25**			1,200	48
33 45 06			450	18	**33 45 26**			450	18
07			600	24	**27**			600	24
08	80	3	750	30	**28**	200	8	750	30
09			900	36	**29**			900	36
10			1,200	48	**30**			1,200	48
33 45 11			450	18	**33 45 31**			450	18
12			600	24	**32**			600	24
13	100	4	750	30	**33**	260	10	750	30
14			900	36	**34**			900	36
15			1,200	48	**35**			1,200	48
33 45 16			450	18					
17			600	24					
18	130	5	750	30					
19			900	36					
20			1,200	48					

Name of Mfr.: Scotgrip International.

Anti-slip Kicker Tread (KTS)

Designed to fit onto existing step

Anti-slip Kicker Tread® has all the same safety advantages of anti-slip stair nosings but has the added feature of a safety 'Kicker' incorporated at the rear of the tread to prevent objects being dropped or kicked over the back of it & falling below. These heavy-duty products are easily fitted onto open grating/ grille, chequered plate/flat steel, concrete or wood.



Standard Size of Kicker Tread

Breadth (or Depth) of Step	Length
Up to 200 mm (8" approx.) Up to 250 mm (10" approx.) Up to 300 mm (12" approx.)	Supplied to the exact length of your steps. (Please deduct 10mm (3/8" approx.) from length of steps to allow for proper seating.)

Surface Grades

Coarse grade Extra coarse grade	1 - 3 mm aggregate (1/16" – 1/8" approx.) 3 - 5 mm aggregate (1/8" – 3/16" approx.)

Coarse surface grade will be supplied if any surface grade is not specified.

Colour Code:
Colour coded in a wide range of colour schemes to suit individual locations. Available colours are: Safety yellow, Black/safety yellow, Black, Green, Grey, Blue, Red, White. Photoluminescent making is available.

Manufactured to customer specification:
Supplied to your requirements as the tread needs to be fairly snug with the stairway stringers.

Fitting Data

Fitting onto:	Method
Open grating/grille	Type 'S' fixings (zinc or S/S) (Saddle clip assemblies)
Chequered plate/ flat steel	Self tap screws or nut, bolt and washer (zinc or S/S)
Concrete	HPS impact fixings (zinc or S/S)
Wood	Screws (zinc or S/S) or adhesive

How to order: 33 - 45 - 36 (Sht)

Please specify the following:
Size (Breadth x Length), Surface grade (Coarse, extra coarse), Colour code (Safety yellow or any others), Pre-drill of fixing hole position (if necessary)

Name of Mfr.: Scotgrip International

Walkways/Decks

Walkways/decks/flooring can be made from various materials including the following: flat steel, open grating/grille, aluminium, concrete or wood. These tiles are installed onto your walkway/deck surfaces and secured by either mechanical fixing, welding or bonding with adhesive.

Surface Grades:
Coarse grade: 1- 3 mm aggregate (1/16" - 1/8" approx.)
Extra coarse grade: 3 - 5 mm aggregate (1/8" - 3/16" approx.)

Colour Code:
Colour code in a wide range of colour schemes to suit individual locations. Available colour codes are: Safety yellow, Black/safety yellow, Black, Green, Grey, Blue, Red, White. Photoluminescent making is available.

Anti-slip Grating Cover Tile (SGCT)

Designed for all open grating/grille surfaces (secured by Type 'S' Fixings - saddle clip assemblies). Approx. 5 - 7 mm thickness.



Unit Per Sht.

CODE	Breadth		Length		CODE	Breadth		Length	
	mm	Inch	mm	Inch		mm	Inch	mm	Inch
33 45 41			500	20	**33 45 61**			500	20
42			1,000	40	**62**			1,000	40
43	500	20	1,500	59	**63**	900	36	1,500	59
44			2,000	79	**64**			2,000	79
45			2,500	98	**65**			2,500	98
33 45 46			500	20	**33 45 66**			500	20
47			1,000	40	**67**			1,000	40
48	600	24	1,500	59	**68**	1,000	40	1,500	59
49			2,000	79	**69**			2,000	79
50			2,500	98	**70**			2,500	98
33 45 51			500	20	**33 45 71**			500	20
52			1,000	40	**72**			1,000	40
53	700	28	1,500	59	**73**	1,200	48	1,500	59
54			2,000	79	**74**			2,000	79
55			2,500	98	**75**			2,500	98
33 45 56			500	20					
57			1,000	40					
58	800	32	1,500	59					
59			2,000	79					
60			2,500	98					

Name of Mfr.: Scotgrip Internashonal.

Anti-slip Deck Tile (SDT)

Designed for walkways/decks/access ramps. This product maintains a certain flexibility to conform to un-even deck surfaces (secured by mechanical fixings/bonding with adhesive). Approx. 3 - 5 mm thickness. installation.



Unit Per Sht.

CODE	Breadth		Length		CODE	Breadth		Length	
	mm	Inch	mm	Inch		mm	Inch	mm	Inch
33 45 76			500	20	**33 45 96**			500	20
77			1,000	40	**97**			1,000	40
78	500	20	1,500	59	**98**	900	36	1,500	59
79			2,000	79	**99**			2,000	79
80			2,500	98	**33 46 00**			2,500	98
33 45 81			500	20	**33 46 01**			500	20
82			1,000	40	**02**			1,000	40
83	600	24	1,500	59	**03**	1,000	40	1,500	59
84			2,000	79	**04**			2,000	79
85			2,500	98	**05**			2,500	98
33 45 86			500	20	**33 46 06**			500	20
87			1,000	40	**07**			1,000	40
88	700	28	1,500	59	**08**	1,200	48	1,500	59
89			2,000	79	**09**			2,000	79
90			2,500	98	**10**			2,500	98
33 45 91			500	20					
92			1,000	40					
93	800	32	1,500	59					
94			2,000	79					
95			2,500	98					

Name of Mfr.: Scotgrip International.

Anti-slip Weld Deck Tile (SWDT)

Designed for walkways/decks/access ramps. This product is manufactured with steel plates built into the product base (secured by welding the steel plates to the deck). Approx. 4 - 6 mm thickness.



Unit Per Sht.

CODE	Breadth		Length		CODE	Breadth		Length	
	mm	Inch	mm	Inch		mm	Inch	mm	Inch
33 46 11			500	20	**33 46 31**			500	20
12			1,000	40	**32**			1,000	40
13	500	20	1,500	59	**33**	900	36	1,500	59
14			2,000	79	**34**			2,000	79
15			2,500	98	**35**			2,500	98
33 46 16			500	20	**33 46 36**			500	20
17			1,000	40	**37**			1,000	40
18	600	24	1,500	59	**38**	1,000	40	1,500	59
19			2,000	79	**39**			2,000	79
20			2,500	98	**40**			2,500	98

(to be continued)

(to be continued)

Unit Per Sht.

CODE	Breadth		Length		CODE	Breadth		Length	
	mm	Inch	mm	Inch		mm	Inch	mm	Inch
33 46 21			500	20	**33 46 41**			500	20
22			1,000	40	**42**			1,000	40
23	700	28	1,500	59	**43**	1,200	48	1,500	59
24			2,000	79	**44**			2,000	79
25			2,500	98	**45**			2,500	98
33 46 26			500	20					
27			1,000	40					
28	800	32	1,500	59					
29			2,000	79					
30			2,500	98					

Name of Mfr.: Scotgrip International.

Anti-slip Ladder Rung Covers for Vertical Ladders

By installing Ladder rung covers (square, round or diamond) not only is this slip hazard eliminated but the lifespan of the ladder rung is greatly increased. These heavy-duty safety products are easily fitted onto existing ladder rungs using adhesives. Standard safety yellow ladder rung covers highlight each rung when climbing or descending the ladder. Surface grade: Coarse grade: 1 - 3 mm aggregate (1/16" - 1/8" approx.).



Square (LRCS)

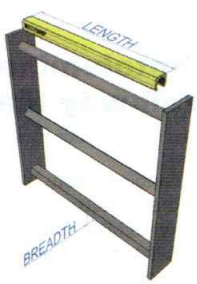


Diamond (LRCD)



Round (LRCR)

Specifications	
Tensile Strength	26 Mpa
Tear Strength	85 kN/m
Hardness	95 Shore A rating



For Square Bar (LRCS)

Unit Per Pc.

CODE	Breadth		Length		CODE	Breadth		Length	
	mm	Inch	mm	Inch		mm	Inch	mm	Inch
33 47 01			300	12	**33 47 11**			300	12
02			350	14	**12**			350	14
03	20	3/4	400	16	**13**	25	1	400	16
04			450	18	**14**			450	18
05			500	20	**15**			500	20
33 47 06			300	12	**33 47 16**			300	12
07			350	14	**17**			350	14
08	22	7/8	400	16	**18**	30	1-1/4	400	16
09			450	18	**19**			450	18
10			500	20	**20**			500	20

Name of Mfr.: Scotgrip International.

For Diamond Bar (LRCD)

Unit Per Pc.

CODE	Breadth		Length		CODE	Breadth		Length	
	mm	Inch	mm	Inch		mm	Inch	mm	Inch
33 47 71			300	12	**33 47 81**			300	12
72			350	14	**82**			350	14
73	20	3/4	400	16	**83**	25	1	400	16
74			450	18	**84**			450	18
75			500	20	**85**			500	20
33 47 76			300	12	**33 47 86**			300	12
77			350	14	**87**			350	14
78	22	7/8	400	16	**88**	30	1-1/4	400	16
79			450	18	**89**			450	18
80			500	20	**90**			500	20

Name of Mfr.: Scotgrip International.

For Round Bar (LRCR)

Unit Per Pc.

CODE	Breadth		Length		CODE	Breadth		Length	
	mm	Inch	mm	Inch		mm	Inch	mm	Inch
33 47 21			300	12	**33 47 31**			300	12
22			350	14	**32**			350	14
23	20	3/4	400	16	**33**	30	1-1/4	400	16
24			450	18	**34**			450	18
25			500	20	**35**			500	20
33 47 26			300	12					
27			350	14					
28	25	1	400	16					
29			450	18					
30			500	20					

Name of Mfr.: Scotgrip International.

Stepmate Bridges & Ramps



Designed to be placed over the potential hazards of pipes, cables & hoses in the workplace. These products are easily placed into position and can be used as both a temporary measure or as a more permanent fixture. Designed for pedestrian and light equipment use only. Standard colour is safety yellow which highlights the safe walking route over any potential hazards. Also have a wide range of colours to suit your individual location.

Surface Grades:
Coarse grade: 1 - 3 mm aggregate (1/16"-1/8" approx.)
Extra coarse grade: 3 - 5 mm aggregate (1/8" - 3/16" approx.)
Coarse surface grade will be supplied if any surface grade is not specified.

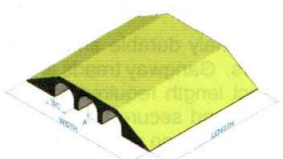


Pipe/Cable Bridge
(PCB1 - PCB5)



Genedral Purpose Ramp
(GP1 - GP4)

Pipe/Cable Bridges



Size mm (inch)

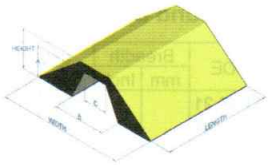
Type		PCB1	PCB2	PCB3	PCB4	PCB5
Width		380 (15")	610 (24")	750 (30")	900 (36")	1,100 (43")
Height		80 (3")	110 (4")	140 (5-1/2")	155 (6")	200 (8")
Length		1,000 (40")	1,000 (40")	1,000 (40")	1,000 (40")	1,000 (40")
No. of Slots		3	3	3	3	3
Size of Slot	A	35 (1-3/8")	65 (2-1/2")	100 (4")	115 (4-1/2")	150 (6")
	B	45 (1-3/4")	85 (3-3/8")	115 (4-1/2")	140 (5-1/2")	175 (7")
	C	45 (1-3/4")	85 (3-3/8")	115 (4-1/2")	140 (5-1/2")	175 (7")
Weight kg		10	18	24	29	36

Unit Per Pc.

CODE	Type	CODE	Type
33 47 51	PCB1	**33 47 54**	PCB4
52	PCB2	**55**	PCB5
53	PCB3		

Name of Mfr.: Scotgrip International.

General Purpose Ramp



Size mm (inch)

Type	GP1	GP2	GP3	GP4
Width	410 (16")	450 (18")	500 (20")	600 (24")
Height	100 (4")	125 (5")	150 (6")	180 (7")
Length	1,000 (40")	1,000 (40")	1,000 (40")	1,000 (40")
A	75 (3")	90 (3-1/2")	115 (4-1/2")	140 (5-1/2")
B	175 (7")	180 (7")	200 (8")	230 (9")
C	100 (4")	100 (4")	100 (4")	100 (4")
Weight kg	12	14	15	17

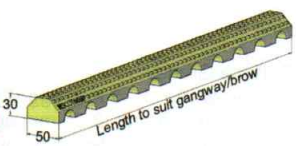
Unit Per Pc.

CODE	Type	CODE	Type
33 47 56	GP1	**33 47 58**	GP3
57	GP2	**59**	GP4

Name of Mfr.: Scotgrip International

Gangway Treads





Marine gangways are renowned for being extremely dangerous, especially when the angle of the gangway is steep and the surface is wet or oily or both. Some gangways have metal or wooden spars across the surface which can be a trip hazard in itself. By installing this gangway treads not only is this slip hazard eliminated but the lifespan of the underlying material is greatly increased.

Gangway tread will provide a sound foot holding even in the most extreme conditions. Colour coded in a wide range of colour schemes to suit individual locations: safety yellow, orange, red. Other colours are available upon your request.

Extremely durable and will remain highly effective for many years. Gangway treads are manufactured and supplied to the exact length required for your gangway/brow. Designed for quick and secure fitting, gangway treads can also be easily cut/shaped on site if required. Designed for quick and secure fitting, simply place on top of the existing surface & secured with mechanical fixings.

Specifications	
Tensile Strength	26 MPa
Tear Strength	85 kN/m
Hardness	95 Shore A rating
Weight	1.2 kg/m length

How to order: 33 - 47 - 62

Gangway tread, specify the required length and Colour Code (Safety Yellow, Orange, Red or any other colour).

Name of Mfr.: Scotgrip International.

Anti-slip Pipewalkers

Pasa-tuberías antideslizante
滑り止めパイプウオーカー　管上行走防滑垫

Pipewalkers will provide a sound foot-holding even in the most extreme conditions and will help eliminate "Slips and Trips" in your working environment. Tough, durable, and easy to handle, and can be placed into position quickly and easily due to their flexibility and light weight construction. There are different types ; short tread and long tread. Standard colours black and yellow, and manufactured under BS EN ISO 9001: 2008 quality controlled condition using highly compatible raw materials.

Surface Grade:
Available in the following surface grade;
Fine profile – 1 mm aggregate (1/16" approx.)



Short Tread



Long Tread

Unit Per Pc.

CODE	Type	Size width × length	Weight	Scotgrip No.
33 47 65	Short tread	700 × 3,300	24.5 kg	STP
66	Long tread	700 × 3,300		LTP

Name of Mfr.: Scotgrip International

Photoluminescent Wayfinding Walkway Matting

Cintas Fotoluminosas para Guia　蛍光誘導マット　萤光诱导地毯



For engine room safety in the event of darkness caused by a sudden power loss or low visibility caused by smoke. A durable hardwearing extruded PVC matting, which incorporates a central 100 mm wide photoluminescent wayfinding strip to show an escape path in sudden darkness. The material is non slip, shock absorbing, self draining and comfortable underfoot. It is resistant to most oils, acids, etc. which are used in the marine industry.

Unit Per Rls.

CODE	Width	Length
33 11 87	600 mm	10 mtr
88	910 mm	"

Hazard Warning Reflective Tapes

(Reflective Tiger Tapes)

Cintas Reflectivas para Advertencia de Peligro
反射虎テープ　虎斑带

Self adhesive black and yellow striped tape used to warn against hazards.

It can adhere to any reasonably clean surface and can be easily removed. Highly reflective for visibility at night or in a dark area.



Unit Per Rls.

CODE	Width	Thick	Length
33 11 91	45 mm	0.24 mm	10 mtr
92	90 "		
93	150 "		
94	970 "		
33 11 95	50 mm		33 mtr

Barrier Tapes

Cinta para Prohibir el Paso
バリケード・テープ　　封鎖帶



Strong, non-adhesive polyethylene barrier tape ideal for warning of danger areas or simply diverting the public etc. Normally striped in Black and Yellow.

Unit Per Rls.

CODE	Width mm × L mtr	CODE	Width mm × L mtr
33 11 98	80 × 50	**33 11 99**	75 × 500

Arm Bands

Brazaletes　腕章　　臂章



Made of felt covered by vinyl. For identification of person on duty, or appealing each other for caution to the hazards. Available various colours and notices upon request. Please specify colours, letters, symbols or signs when ordering.

How to order: 33 - 11 - 96
Arm band, COLOR, LETTER, SYMBOLS or SIGNS

Alcohol Screening Devices

Dispositivos de detección de alcohol
アルコールスクリーニング装置　　酒精筛选设备



An instrument to perform a breath alcohol test with speed and precision. It is also possible to measure alcohol in the ambient air (passive), in which case a mouthpiece isn't required.

All measurement functions can be operated with just one button to make it easier for you to perform the test. The large back-lit display is easy to understand due to its full-text messages which guide you securely through the alcohol test. An LED and audible signal complement the display and indicate the end of a measurement process.

Unit Per Set

CODE	**33 12 21**	**33 12 24**
Model	Alcotest 5820	Alcotest 6820
Sensor	Electrochemical Dräger sensor for 1/4" technology; alcohol-specific	
Measuring Range	0 to 2.5 mg/L	
Temperature Range	-5 to +50°C/23 to 122°F	
Display	Graphic backlit LCD display; 32 x 22 mm	Graphic LCD display; 41 mm x 24 mm
Datalogger	Storage of last 100 tests with test numbers	Space for saving the last 5,000 tests with test number, date and time

(to be continued)

Power Supply	1 x CR123A-Battery	2 x AA batteries or NiMH batteries
Dimensions (W × H × D),	50/60 x 141 x 31 mm	147 x 65 x 39 mm
Weight	150 grm incl. battery	approx. 260 grm
CE Marking Norm	2014/30/EU (electromagnetic compatibility)	Directive 89/336/ EEC (electromagnetic compatibility)
Norm	EN 15964, NHTSA, FDA Conformity, depending on configuration	Meets EN 60068-2-6, EN 60068-2-27, EN 60068-2-64, MIL-STD 810F
Protection type	IP54	
Including	3 mouthpieces, 1 battery, hand loop, plastic transportation case.	Test unit, 3 Mouthpieces, 2 Batteries, Hand strap, Plastic case strap, Plastic case

Name of Mfr.: Draeger

Accessories

CODE	Description	No.	Unit
	Dräger Alcotest mouthpiece (Slide'n'click)		
33 12 26	Package with 100 pieces	68 10 690	Pkt
18	Package with 250 pieces	68 10 825	"
19	Package with 1,000 pieces	68 10 830	"
33 12 22	PSU (power source) 600 mA, 11 V, for charging NiMH batteries (for Alcotest 6820 only)	83 16 991	Pc.
33 12 20	Battery (for Alcotest 5820 only)	45 43 808	Pc.

Portable Breath Analyzers

Analizador de aliento Portátil
アルコールチェッカー　　攜帶式酒精測試器



A portable alcohol tester offers PRISM* technology, let you avoid re-calibration process. Simply swap an old sensor with a new one, and you are instantly ready to get back to testing. Sensor requires to get replaced every 200 tests or every 12 months, whichever comes first.

Tester can be operated with a mouthpiece (included in package) for single use. If the "Flo" or "Flow" message is displayed while in use, this warns "insufficient airflow", and you are not blowing enough. Unit has range of 0.00 to 0.40% BAC (Blood Alcohol Content).

*PRISM (Pre-calibrated Replaceable Intelligent Sensor Modules)

US Patent No. 7,841,224,B2, and also globally patented.

Unit Per Set

CODE	**33 12 23**	**33 12 28**
Model	Alcomate Prestige AL-6000	Alcomate Premium AL-7000
Alcohol Sensor	Semiconductive Oxide Sensor	
Display	3-digit clear LCD	4-digit LED
Detection Range	0.00% - 0.40% BAC	
Sensor Accuracy	DOT Approved for Law Enforcement (Accuracy +/-0.01 at 0.10% BAC)	
Device Lifetime	Perpetuate (5 to 10 years with diligent maintenance)	Perpetuate (5 to 10 years with diligent maintenance)
Breath Sampling Time	3 sec. (fast mode) / 5 sec. (normal mode)	2 Seconds or less up to 0.100% BAC

(to be continued)

Unit Per Set

CODE	33 12 23	33 12 28
Certification	US DOT/NTHSA/ USCG	US DOT/NTHSA/ USCG
Size mm	137 × 73 × 44	108 × 51 × 191
Weight grm	51 (w/o battery)	48 (w/o battery)

Remark: NTHSA denotes National Traffic & Highway Safety Administration (USCG recognize USDOT approval).

Name of Mfr.: AK GlobalTech Corporation

Spare Sensor for Portable Breath Alcohol Tester

Spare sensor is also available as replacement, with PRISM Technology on AlcoMate Premium and Prestige Breath Alcohol Tester.

33 12 17	Sensor for portable breath analyzer	Pc.

Wall-mount Breath Alcohol Tester

Alcoholímetro de Montaje en Pared

壁掛け式アルコールチェッカー　壁挂式呼气酒精测试仪



A compact wall mounted breathalyser used extensively around the world. Following the on-screen instructions, donor inserts a mouthpiece into the sample port and blows steadily until the results appear. Uses premium grade platinum electrochemical fuels cells for accuracy. Test 100% of personnel prior to start of work. Patented modular system enables calibration to be completed on-site in 60 seconds increasing device availability for testing. Operates 24 hours per day in conditions from -10C to 55C. Easy installation. Optional data management system is available.

Unit Per Set

CODE	33 12 15
Model	Centurion Quantum
Test type	BrAC (Use Straw)
Data log capacity	10,000 + tests
Analysis Time	1 second for zero result
Calibration Period	12 months
Power Source	240 V
Certification	NHTSA/DOT/USCG AS3547:2019
Size mm	410 mm(H) x 210 mm (W) x 110 mm (D)
Weight kg	5 kg

Name of Mfr.: Alcolizer Technology

*BrAC denotes Breath Alcohol Concentration

Portable Drug Tester

Analizador de Drogas Portátil

ポータブルドラッグテスター　便携式药物测试仪



A fast, accurate saliva drug testing device for law enforcement and industrial workforces. A patented Optical Filtering System delivers accurate and fast drug test results and detects a variety of drug groups configured to target concentrations as specified under Australian Standards AS/NZS 4760:2019.

Unit Per Set

CODE	33 12 16
Model	Druglizer LE5
Test Options	Amphetamine, Benzodiazepines, Cannabis (THC), Cocaine, Methamphetamine, Opiates, Oxycodone
Sensor Type	Linear array with patented Optoelectronic sensor
Display	Transreflective colour graphics LCD screen
Analysis Time	90 seconds
Calibration Period	Module exchange system for one-site calibration every 6-12 months based on location
Power Supply	Rechargeable Li-ion battery
Operating Temperature	+15°C to +38°C
Standard	Australian Standards AS/NZS 4760:2019
Size mm	H196 × W66 × D43
Weight	310 grm

Name of Mfr.: Alcolizer Technology

Drug Testing Cups

Vaso para la Prueba de Medicamentos

ドラッグテストカップ　药物检验杯

A fully self contained drug screening cup for detecting drugs and drug metabolites in urine. Fully integrated design eliminates handling of the urine. Only the collector can activate the test, thus eliminating donor manipulation. Label hides test result from those who do not need to view results. The test is a fast visual, competitive panel immunoassay that can be used for the simultaneous, qualitative detection of a specific drug metabolite in human urine. Flat surface makes documenting result easy. The cup has easy Xerox feature where cup can be laid down on its side.

Features & Benefits

- FDA (U.S. Food and Drug Administration) 510(K) cleared.
- CLIA (Clinical Laboratory Improvement Amendments) waved.
- Up to 99% accurate.
- Adheres to the SAMHSA (Substance Abuse and Mental Health Services Administration) cutofffs.
- Shelf-life of 18 – 24 months.
- No more turning, simply put the key in and push.
- Easy to open top for the confirmation lab.
- The collector retains control of the chemistry & can time the results to insure proper interpretation.
- Tests for 5 drugs

  Marijuana (THC) 50 ng/ml

  Cocaine (COC) 300 ng/ml

  Amphetamine (AMP) 1,000 ng/ml

  Phencyclidine (PCP) 25 ng/ml

  Morphine / Opiates (MOR) 2,000 ng/ml

33 12 27	Drug testing cup	Set

Oxygen/Gas Detectors from Various Manufacturers

Riken Keiki

Type	CODE	Model	O_2 (% by vol)	Combustible Gas			Toxic Gas			Available Sensors
				CH_4	HC	LEL Combustible	H_2S (ppm)	CO (ppm)	CO_2	
Oxygen	**33 05 06**	OX-08	0-25							
Combustible Gas	**33 05 21**	GX-8000 (Type LEL)			0-100%LEL					
2 Gases	**33 05 37**	RX-8000		0-100% LEL to 100 vol %	0-100% LEL to 100 vol %					
	33 05 XX	RX-8000 (HC)	0-25		0-100% LEL to 100 vol %					
	33 05 XX	RX-8000 (CH_4)	0-25	0-100% LEL to 100 vol %						
3 Gases	**33 05 80**	RX-8700	0-25		0-100% LEL, 2-100% vol		Low: 0-100 High: 0-1,000			
4 Gases	**33 05 27**	GX-Force	0-40	0-100%LEL	0-100%LEL	0-100% LEL	0-30	0-500		
	33 05 20	GX-3R	0-40	0-100%LEL	0-100%LEL	0-100% LEL	0-100	0-500		
	33 05 21	GX-8000	0-40	0-100%vol 0-100%LEL	0-100%vol 0-100%LEL	0-100% LEL	0-30	0-500		
	33 05 37	RX-8500	0-25	0-100% LEL, 5-100% vol				0-1,000	0-2vol% 2-5vol%	
5 Gases	**33 05 09**	GX-3R Pro	0-40	0-100% LEL	0-100% LEL	0-100% LEL	0-100	0-500	0-5vol% 0-10,000 ppm	NO2, HNN, PH3, NH3
6 Gases	**33 05 XX**	GX-6000	0-25	0-100% LEL	0-100% LEL		0-30	0-150	0-10vol%	VOC,SO_2 NO_2, HCN, NH_3, CL_2

New Cosmos Electric

Type	CODE	Model	O_2 (% by vol)	Combustible Gas			Toxic Gas			Available Sensors
				CH_4	HC	LEL Combustible	H_2S (ppm)	CO (ppm)	CO_2	
Oxygen	**33 05 16**	XP-3380II	0-25							
	33 05 17	XO-326IIsA	0-25							
	33 05 18	XO-326IIsB	0-25							
	33 05 19	XO-326IIsC	0-25							
	33 05 81	XP-3318II	0-25			0-100%LEL				
	33 05 36	Tankscope II	0-25		0-25%vol	0-100%LEL	0-200	0-999		

MSA The Safety Company

Type	CODE	Model	O_2 (% by vol)	Combustible Gas			Toxic Gas			Available Sensors
				CH_4	HC	LEL Combustible	H_2S (ppm)	CO (ppm)	CO_2	
Single Gas	**33 05 XX**	Altair	0-25				0-100	0-500		
	33 05 XX	Altair Pro	0-25				0-200	0-1,500		NCN, Cl_2, ClO_2 SO_2, NO_2, NH_3, PH_3
	33 05 XX	Altair 2X					0-200	0-1,999		ClO_2, NH_3, SO_2
	33 05 XX	Altair 2X-P					0-200			
Two Toxic Gases	**33 05 XX**	Altair 2X-T					0-100			SO_2 (0-20 ppm)
Single or Multi Gas (2 Gas / 3 Gas / 4 Gas / 5 Gas / 6 Gas, including IR and PID)	**33 05 98**	Altair 4X	0-30	0-4.4/5 vol %	Butane 1.4 Vol% Hydrogen 4.0 Vol% Nonane 0.7 Vol% Pentane 1.1 Vol% Propane 1.7/2.1 Vol% Heavy Carbons	0-100% LEL	0-200	0-1,999		NO_2: 0-50 ppm SO_2: 0-20 ppm
	33 05 96	Altair 5X	0-30	0-4.4/5 vol%	Hydrogen 4.0 Vol% Pentane 1.1 Vol%	0-100%LEL	0-200	0-1,999		Cl_2, ClO_2, HCN, NH_3, NO, NO_2, PH_3, SO_2
	33 05 97	Altair 5X-1R	0-30	0-100 vol%			0-200	0-1,999	IR:0-10 Vol%	Cl_2, ClO_2, HCN, NH_3, NO, NO_2, PH_3, SO_2
Toxic Gases and Vapors	**33 05 XX**	Altair 5X PID	0-30				0-200	0-1,999	PID 0-2,000 ppm	Cl_2, ClO_2, HCN, NH_3, NO, NO_2, PH_3, SO_2

Draeger

Type	CODE	Model	O_2 (% by vol)	Combustible Gas			Toxic Gas			Available Sensors
				CH_4	HC	LEL Combustible	H_2S (ppm)	CO (ppm)	CO_2	
Single Gas	**33 05 XX**	Pac 6000	0-25				0-100	0-500		
	33 05 XX	Pac 6500	0-25				0-100	0-500		
	33 05 84	Pac 8000	0-25				0-100	0-500	0-5vol%	Cl_2, HCN, NH_3, NO_2, PH_3, SO_2
Combus-tible Gas	**33 05 82**	X-am 2500	0-25	0-5vol% 0-100%LEL		0-100% LEL	0-100	0-2,000		
Multi Gas	**33 05 XX**	X-am 2800 Bluetooth	0-25	0-100vol%/ LEL		0-100%LEL	0-200	0-2,000		
	33 06 74	X-am 5000	0-25	0-100vol%/ LEL		0-100% LEL	0-200	0-2,000	0-5vol%	NO, NO_2, SO_2, PH_3, HCN, NH_3, CL_2, H_2, OV
	33 06 75	X-am 5600	0-25	0-100vol%/ LEL		0-100% LEL	0-200	0-2,000	0-5vol%	NO, NO_2, SO_2, PH_3, HCN, NH_3, CL_2, H_2, OV
	33 05 83	X-am 8000	0-25	0-10%LEL	0-100vol%/ LEL Butane	0-100% LEL	0-100	0-2,000	0-5vol%	Amine, Cl_2, CLO_2, $COCL_2$, H_2, HCN
				0-100vol%	0-100vol%/ LEL Propane				0-100 vol%	Hydride, NH_3, NO, NO_2, Odorant, OV, PH_3

Gas Clip Technologies

Type	CODE	Model	O_2 (% by vol)	Combustible Gas			Toxic Gas			Available Sensors
				CH_4	HC	LEL Combustible	H_2S (ppm)	CO (ppm)	CO_2	
Single Gas	**33 05 XX**	SGC-H					0-100			
	33 05 XX	SGC-C						0-300		
	33 05 XX	SGC-O	0-30							
Multi Gas	**33 05 XX**	MGC-IR Pump	0-30	0-5vol%		0-100%LEL	0-100	0-300		
	33 05 XX	MGC-P Pump	0-30	0-5vol%		0-100% LEL	0-100	0-300		
	33 05 XX	MGC	0-30	0-5vol%		0-100% LEL	0-100	0-300		
	33 05 XX	MGC-P	0-30	0-5vol%		0-100% LEL	0-100	0-300		
	33 05 XX	MGC-S	0-30	0-5vol%		0-100% LEL	0-100	0-300		
2 Gases	**33 05 XX**	MGC-2	0-30	0-5vol%		0-100% LEL				
	33 05 XX	MGC-2-P	0-30	0-5vol%		0-100% LEL				

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Hose & Couplings

Rubber Hose/P.V.C. Hose  P. 35-1 ~ 8	Hose Nozzles  P. 35-8
Hose Couplings  P. 35-8 ~ 11	Couplers  P. 35-11 ~ 14
Hose Couplings  P. 35-14 ~ 19	Quick Disconnect Couplings  P. 35-19 ~ 21

Rubber Air Hose

Molded & Braided Construction

Manguera de Goma para Aire Construcción: Moldeada y Trenzada
エアホース　橡皮空气管

Black, corrugated or smooth surface, molded and braided construction, for general service.



Unit Per Mtr.

CODE	Nominal Size mm	Actual Size mm		Braid	Working Pressure kgf/cm²	Mtr Per Coil
		I.D.	O.D.			
35 01 01	6	6.3	14.5	2B	15	100
02	9	9.5	18.0	"	"	"
03	12	12.7	24.0	"	10	"
04	15	15.9	27.5	"	"	"
05	19	19.0	30.5	"	"	"
35 01 06	25	25.4	38.0	"	"	"
07	32	31.8	47.0	3B	7	"
08	38	38.1	53.5	"	"	"
09	50	50.8	71.0	"	"	50

Rubber Oxygen Hose

Molded & Braided Construction

Manguera de Goma para Oxígeno Construcción: Moldeada y Trenzada
酸素ホース　橡皮氧气管

For oxygen welding equipment. Lightweight, extremely flexible, and practically non-kinkable. Furnished in blue colour to distinguish oxygen lines from acetylene lines.



Unit Per Mtr.

CODE	Nominal Size mm	Actual Size mm		Braid	Working Pressure kgf/cm²	Mtr Per Coil
		I.D.	O.D.			
35 01 16	6	6.5	15.5	2B	15	200
17	8	7.9	16.5	"	"	"
18	9	9.5	18.0	"	"	"

Rubber Acetylene Hose

Molded & Braided Construction

Manguera de Goma para Acetileno Construcción: Moldeada y Trenzada
アセチレンホース　橡皮乙炔管

For acetylene welding equipment. Lightweight, extremely flexible, and practically non-kinkable. Furnished in red colour to be distinguished as an acetylene line.



Unit Per Mtr.

CODE	Nominal Size mm	Actual Size mm		Braid	Working Pressure kgf/cm²	Mtr Per Coil
		I.D.	O.D.			
35 01 21	6	6.3	13.5	1B	3	200
22	8	7.9	15.0	"	"	"
23	9	9.5	16.5	"	"	"

Rubber Twin Welding Hose

Molded & Braided Construction

Manguera Doble de Goma para Soldadura Construcción: Moldeada y Trenzada
溶接用ツインホース　橡皮气焊管

One piece, two-line welding hose, securely joined together to prevent tangling and increase flexibility. One line is red and the other is blue to facilitate the welding operation. Usually supplied in 100 mtr coils. This hose is lightweight and easy to move about reducing operator fatigue to a minimun.



Unit Per Mtr.

CODE	Nominal Size mm	Actual Size mm				Braid	W/P kgf/cm²	
		OX		AC				
		I.D.	O.D.	I.D.	O.D.		OX	AC
35 01 26	6 × 9	6.8	13.8	9.5	16.3	1	20	5
27	8 × 8	7.9	14.9	7.9	14.7	"	"	"
28	8 × 9	"	"	9.5	16.3	"	"	"

Corrugated Water Rubber Hose

Manguera Corrugada de Goma para Agua
筋入ウォーターホース　波纹橡皮水管

A popular type of hose for industrial use in plants, and refineries, for construction and general service. Both the inner and outer covers are flexible and rigid in construction and resistant to abrasion, pressure, and general wear.



Unit Per Mtr.

CODE	Nominal Size mm	Actual Size mm		Braid	Working Pressure kgf/cm²	Weight Per Mtr grm.	Mtr Per Coil
		I.D.	O.D.				
35 01 41	12	12.7	20.5	2	5	280	100
42	15	15.9	24.0	"	"	360	"
43	19	19.0	27.5	"	"	440	"
44	25	25.4	35.0	"	"	650	"
45	32	31.8	44.5	"	"	1,190	"
35 01 46	38	38.1	51.5	"	"	1,460	"
47	50	50.8	67.0	"	"	2,300	50

Water Rubber Hose

Wrapped & Fabric Construction

Manguera Corrugada de Goma para Agua / Construcción: Entre-tejida
布卷ウォーターホース　夹布橡皮水管

A high quality hose designed to withstand being dragged over any surface. It is also resistant to deterioration from weather and sunlight. Provided with an extra heavy tube cover and cotton duck carcass. Recommended for high pressure service. Furnished in standard lengths of 20 mtr.



Unit Per Mtr.

CODE	Nominal Size mm	Actual Size mm		Braid	Working Pressure kgf/cm²	Weight Per Mtr grm.	Mtr Per Coil
		I.D.	O.D.				
35 01 51	12	12.7	20.5	2	5	330	20
52	15	15.9	24.5	"	"	420	"
53	19	19.0	28.0	"	"	530	"
54	22	22.0	32.0	"	"	680	"
55	25	25.4	35.5	"	4	760	"
35 01 56	32	31.8	43.0	"	"	1,060	"
57	35	35.0	47.0	"	"	1,260	"
58	38	38.1	50.0	"	"	1,360	"
59	45	44.5	58.5	"	"	1,810	"

P. V. C. Water Suction/Delivery Hose

Plastic Coil Reinforced

Manguera de P.V.C. para Succiión y Distribución de Agua Reforzada con Bobina de Plástico
ウォーターデリバリー、サクションホース　P. V. C. 排水吸水管



Made of P. V. C. smooth inner and outer surface. The extreme clarity makes it most suitable for application where visibility of flow is an important requirement. Easy to handle and carry. Designed for both suction and delivery uses, but more suitable for delivery. The plastic coil reinforcement gives it durable strength.

Unit Per Mtr.

CODE	Nominal Size mm	Actual Size mm I.D.	Actual Size mm O.D.	Working Pressure kgf/cm²	Weight Per Mtr grm.	Mtr Per Coil
35 01 71	25	25.0	30.0	6.0	270	50
72	32	32.0	37.0	6.0	360	"
73	38	38.0	43.6	4.5	480	"
74	50	50.8	57.8	4.0	820	"
75	65	63.5	72.0	3.5	1,180	20
35 01 76	75	76.2	85.0	3.5	1,440	"
77	100	101.2	113.1	3.5	2,550	"
78	125	127.0	139.0	3.0	3,250	"
79	150	152.4	166.0	2.5	4,250	"

Water Discharge Hose

P. V. C. Synthetic Fiber Braided

Manguera de Descarga / Fibra Sintética Trenzada de P.V.C.

ビニール化繊排水ホース　P. V. C. 化学纤维管



P. V. C. and synthetic fibers do not rust, corrode or require cathodic protection. Soft pliable, rolls up easily, requires minimum storage space. Tough, puncture proof, long service life.

Caution:

1. Transferring of paint, thinner, ethylene, gasoline, alcohol and similar chemical substaces is not advisable.
2. Do not use near nails, glass or other pointed objects.

Test Results

Flexibility:	Scott Type Flexibility Tests Operating load x 1,000 cycles No change
Resistance to Hight Temperature:	800°C ×168 hrs. No sticking
Resistance to Low Temperature:	-40°C ×168 hrs. No cracking
Resistance to Weathering:	800 hrs. by Sunshine-Weather-O-Meter exposure: No change
Water Absorbency:	Less than 0.9%

Unit Per Mtr.

CODE	Nominal Size mm	Inside Diam mm	Wall Thickness mm	Pressure kgf/cm² Working	Pressure kgf/cm² Bursting
		Standard Type			
35 01 81	40	40	1.35	5.0	15.0
82	50	52	1.40	4.5	13.5
83	65	65	1.70	4.0	12.0
84	75	77	1,80	4.0	12.0
85	100	103	2.00	4.0	12.0
35 01 86	125	128	2.00	3.0	9.0
87	150	153	2.10	3.0	9.0
88	200	200	2.40	3.0	9.0
		Heavy Duty Type			
35 01 91	40	40.0	1.8	10.5	31.5
92	50	52.5	2.0	10.5	31.5
93	65	66.0	2.1	10.5	31.5
94	75	78.5	2.1	9.0	27.0
95	100	104.0	2.5	9.0	27.0
35 01 96	150	155.0	2.7	7.0	21.0

P. V. C. Hose, Cloth Insertion

Manguera de P.V.C., Inserción de Tela

ビニール布入ホース　P. V. C. 夹布管



Braided cotton fabric layered between the inner and outer vinyl covers for reinforcement. Furnished in 50 mtr coils.

Unit Per Mtr.

CODE	Nominal Size mm	Actual Size mm I.D.	Actual Size mm O.D.	Working Pressure kgf/cm²	Mtr Per Coil
35 02 01	15	15.0	22.0	10	50
02	19	19.0	27.0	"	"
03	25	25.0	33.0	7	"

P. V. C. Domestic Hose

Manguera Doméstica de P.V.C.

家庭用ビニールホース　P. V. C. 普通水管



Used for domestic general purpose. Available in blue, yellow or transparent colour. Fixed length is 50 mtrs.

35 02 06	P.V.C. domestic hose, I.D. 15×O.D. 19 mm	Mtr
07	P.V.C. domestic hose, I.D. 18×O.D. 22 mm	"

Plastic Transparent Hose

Manguera Transparente de Plástico

プラスチック透明ホース　塑胶透明水管



The extreme clarity makes it most suitable for application where visibility of flow is an important requirement. It can be easily flushed clean. It is resistant to sunlight and abrasion and is easy to handle. The hose can be twisted or knotted without any damage.

Unit Per Mtr.

CODE	Size I.D. mm	Size O.D. mm	Mtr Per Coil	CODE	Size I.D. mm	Size O.D. mm	Mtr Per Coil
35 02 11	2	4	100	**35 02 31**	14	17	50
12	3	5	"	**32**	15	18	"
13	4	6	"	**33**	16	19	"
14	4	7	"	**34**	19	23	"
15	5	7	"	**35**	22	26	"
35 02 16	5	8	100	**35 02 36**	25	29	50
17	6	8	"	**37**	25	30	"
18	6	9	"	**38**	30	36	"
19	7	9	"	**39**	32	38	"
20	7	10	"	**40**	38	44	"
35 02 21	8	10	100	**35 02 41**	50	58	50
22	8	11	"	**42**	63	73	30
23	8	12	"	**43**	75	86	"
24	9	11	"				
25	9	12					
35 02 26	10	12	100				
27	10	13	"				
28	10	14	"				
29	12	14	50				
30	12	15	"				

Steam Rubber Hose

Wrapped & Fabric Construction

Manguera de Goma para Vapor / Construida : Entre-tejida

スチームホース　橡皮蒸汽管

A high-quality hose well balanced in construction for its purpose. A heavy gauge tube of heat resistant compounds covered by cotton ducks and insulated to withstand extreme heat, etc. Made in 20 mtrs in length.



Unit Per Mtr.

CODE	Nominal Size mm	Actual Size mm		Braid	Working Pressure kgf/cm²	Mtr Per Coil
		I.D.	O.D.			
35 02 51	12	12.7	24.9	4	4	140
52	15	15.9	28.1	4	4	"
53	19	19.0	33.0	5	4	"
54	25	25.4	41.4	5	4	"
55	32	31.8	49.6	6	3	"
35 02 56	38	38.1	58.5	8	3	140
57	45	44.5	66.9	8	3	"
58	50	50.8	75.2	8	3	"
59	75	75.0	93.0	8	7 bar	170

Rubber Chemical Transfer Hose

Manguera de Goma para trasvases de Prooducots Químicos

ケミカルホース　橡皮化学品运输管

Made of chemical resistant rubber reinforced by wrapped fabric plies. Used for delivery service of acid, alkalis and corrosive chemical liquid.



Unit Per Mtr.

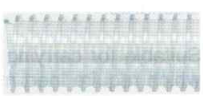
CODE	Nominal I.D. mm	Approx. O.D. mm	Weight Per Mtr kg	Working Pressure
35 02 71	19	30	0.6	5 kgf/cm²
72	25	37	0.7	"
73	32	44	0.9	"
74	38	51	1.3	"
75	45	59	1.5	"
35 02 76	50	66	1.8	5 kgf/cm²
77	55	74	2.2	"
78	65	80	2.6	"
79	75	98	3.8	"

P. V. C. Air Duct Hose

Manguera de P.V.C. para Ventilación

ビニールダクトホース　P. V. C 空气管

Increased flow capacity with smooth inner surface. Highly flexible and lightweight due to P. V. C. material. Suitable for a variety of uses from ventilation to dust collection. Also suitable for transport of powder and granule.



Unit Per Mtr.

CODE	Nominal Size mm	Actual Size mm		Working Per Mtr grm.	Mtr Per Coil
		I.D.	O.D.		
35 03 01	32	32.4	38.6	210	50
02	38	37.3	44.5	280	"
03	50	50.6	60.8	440	30
04	65	62.4	72.6	650	"
05	75	76.4	87.0	750	"
35 03 06	90	88.9	100.1	890	"
07	100	101.6	112.8	930	"
08	125	125.9	139.3	1,390	20
09	150	152.4	165.8	1,730	"
10	200	203.7	217.1	2,510	"

P.V.C. Tetoron Reinforced Hose

Manguera de P.V.C. Reforzada con Teflón

テトロンブレードビニール工業用ホース　P. V. C 增强管

The flexible, transparent, smooth internal surface of this hose lessens fluid-resistance. For use on various machine tools, and the transport of chemicals. Recommended for use with moderate temperatures, up to 65°C.



Unit Per Mtr.

CODE	Nominal I.D. mm	Actual O.D. mm	Working Pressure kgf/cm²	Weight Per Mtr grm.	Mtr Per Coil
35 03 21	4	9	16	70	100
22	6	11	16	90	"
23	8	13.5	14	120	"
24	9	15	14	150	"
25	10	16	10	160	"
35 03 26	12	18	10	185	"
27	15	22	10	265	50
28	19	26	8	325	"
29	25	33	8	475	"
30	32	41	7	670	40
35 03 31	38	48	7	875	"
32	50	62	7	1,360	"
33	63	80	5	2,250	20
34	75	92	5	2,980	"

P. V. C. Steel Coil Reinforced Hose

Manguera de P.V.C. Reforzada con Alambre de Acero

スチールコイルビニール工業用ホース

P. V. C 钢丝增强管



Features : Ample flexibility. High external pressure resistance. Good transparency and smooth internal surface.

Application : As an oil hose for machine tools, or as a pressure pipe or suction pipe for various pulverized materials. Recommended for use in moderate temperatures of up to 65°C.

Unit Per Mtr.

CODE	Nominal I.D. mm	Actual O.D. mm	Working Pressure kgf/cm²	Weight Per Mtr grm.	Mtr Per Coil
35 03 51	4	9	15	70	50
52	6	11	15	90	"
53	8	13.5	13	120	"
54	9	15	13	150	"
55	10	16	10	160	"
35 03 56	12	18	10	185	50
57	15	22	7	265	"
58	19	26	7	325	"
59	25	33	6	475	"
60	32	41	6	670	40
35 03 61	38	48	6	875	"
62	50	62	5	1,360	"
63	63	80	5	2,250	20
64	75	92	3	2,980	"

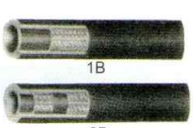
Rubber Hydraulic Hose

Reinforced with Synthetic Fiber

Manguera Hidráulica de Goma Reforzada con Fibra Sintética

作動油用ホース（低・中圧用）　橡皮油压管

For use with hydraulic machines of low or medium pressure. Made of oil resistant rubber reinforced by synthetic fiber. Recommended oil temperature is from -30°C up to 88°C.



Unit Per Mtr.

CODE	Nominal Size mm	Actual Size mm I.D.	Actual Size mm O.D.	Braid	Working Per Mtr grm.	Mtr Per Coil
Working Pressure 15 kgf/cm²						
35 04 01	6	6.3	12.3	1B	130	100
02	9	9.5	15.9	"	175	"
03	12	12.7	19.7	"	250	"
04	19	19.0	30.0	"	585	"
05	25	25.4	37.0	"	785	"
35 04 06	32	31.8	44.8	2B	1,075	"
07	38	38.1	51.1	"	1,230	"
08	50	50.8	65.4	"	1,720	50
Working Pressure 35 kgf/cm²						
35 04 11	6	6.3	13.0	1B	140	100
12	9	9.5	16.5	"	195	"
13	12	12.7	20.3	"	275	"
14	19	19.0	32.6	2B	755	"
15	25	25.4	39.2	"	960	"
35 04 16	32	31.8	46.0	"	1,100	20
17	38	38.1	52.3	"	1,320	"
18	50	50.8	66.2	"	1,905	"

Rubber Oil Delivery Hose

Reinforced with Synthetic Textile Cord

Manguera de Goma Descarga de Aceite Reforzada con Cordón Textil Sintético　油用ホース　橡皮输油管

Used for delivery service of fuel oils, gasoline, diesel oils and other petroleum oils. Made of oil resistant rubber reinforced with strong synthetic textile cords.



Unit Per Mtr.

CODE	Nominal I.D. mm	Approx. O.D. mm	Weight Per Mtr kg	Pressure Rating
35 04 26	6	14.3	0.178	20 bar
27	8	15.9	0.235	"
28	9.5	17.5	0.227	15 bar
29	12.5	21.5	0.350	"
30	16	24.7	0.480	"
35 04 31	19	28	0.4	10 kgf/cm²
32	25	35	0.6	"
33	32	42	0.8	"
34	38	49	0.9	"
35	45	56	1.2	"
35 04 36	50	62	1.9	10 kgf/cm²

Rubber Oil Suction & Delivery Hose

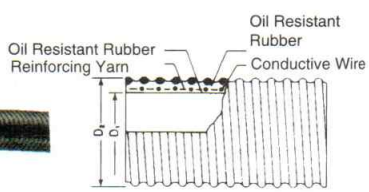
Reinforced with Yarn & Electro Conductive Wire

Manguera de Goma para Sussión y Distribución de Aceite Reforzada con Hikado Alambre Conductivo Eléctrico

大口径油用ホース　橡皮大口径管

Made of oil resistant rubber together with reinforcing yarn and electro conductive wire. Used for conveyance of crude oil, heavy oil, gasoline, etc.





Unit Per Mtr.

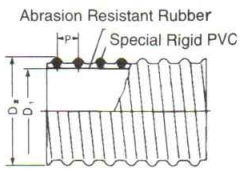
CODE	Nominal Size mm	Actual Size mm I.D.	Actual Size mm O.D.	Working Pressure kgf/cm²	Weight Per Mtr grm.
35 04 41	75	76.2	98.2	7	2,520
42	100	101.6	129	"	4,100
43	125	125.9	155	"	5,460
44	150	151.0	183	"	7,350
45	200	203.0	244	"	12,600

P. V. C. Abrasion Resistant Hose

Manguera Resistente a la Abrasión de P.V.C.

耐摩耗用ホース　P. V. C 耐摩用管





Unit Per Mtr.

CODE	Nominal Size mm	Actual Size mm I.D.	Actual Size mm O.D.	Weight Per Mtr grm.	Mtr Per Coil
35 04 51	38	38.0	46.2	490	50
52	50	50.6	59.8	840	"
53	65	62.4	73.0	1,060	20
54	75	76.4	88.8	1,520	"
55	90	88.9	104.3	1,900	"
35 04 56	100	101.6	117.6	2,330	"
57	125	125.9	142.9	3,360	"
58	150	152.4	171.0	4,570	"

Large Bore Hose

for General Chemical and Petroleum Cargo Use

Manguera de Gran Diámetro para Usos de Sustancias Químicas y de Petróleo

ケミカル・油用大口径ホース　原油用大口径管

Heavy duty, composite hoses for ship to shore, dockside and general shipboard use. Works in compliance with international standards including IMO standards, BS 5842 and US Coast Guard regulations. Made of polypropylene fabric and films with a weatherproof and abrasion resistant outer cover reinforced with internal and external wire spirals which are electrically bonded to the end connections giving full end-to-end electrical continuity for safety from static discharge.

Suitable for carrying a wide range of aggressive chemicals which require inert materials and can handle cargoes which involve factors of pressure and temperature with cryogenics such as LPG and LNG.

- Liquid and vapor hoses should be compatible with the cargo and suitable to the cargo temperature.
- Hoses subject to tank pressure or discharge pressure of pumps should be designed for a bursting pressure not less than 5 times the maximum pressure the hose will be subjected to during cargo transfer.

For Petroleum Use
(In compliance with IMO standard)

How to order: CODE
Hose for petroleum use, DIAM x LENGTH

Unit Per C/L

CODE	35 04 71	35 04 72	35 04 73
Nominal Size	4"	6"	8"
Working Pressure	10.5 kgf/cm²		
Working Temperature	−26°C ~ +82°C		
Minimum Bend Radius mm	400	500	740
Standard Length mtr	18	18	15
Weight kg/mtr	6.5	11.0	15.0

For Hazardous and Corrosive Chemical Use (In compliance with IMO standard)

How to order: CODE

Hose for hazardous and chemical use, KIND OF CHEMICAL, DIAM X LENGTH

Unit Per C/L

CODE	35 04 76	35 04 77	35 04 78
Nominal Size	4"	6"	8"
Working Pressure	10.5 kgf/cm²		
Working Temperature	−25°C ~ +60°C		
Minimum Bend Radius mm	400	500	740
Standard Length mtr	18	18	15
Weight kg/mtr	6.5	11.0	15.0

Note: When ordering, please specify what kind of chemical or material the hose will be used with.

Suction and Discharge Hose

(Built in Fitting)

Manguera para Succión y Descarga

バンドレスホース　吸入及排放软管（内置于附件）



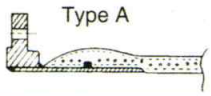
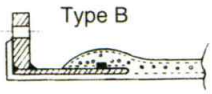
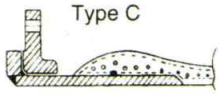
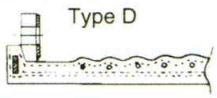
Designed for suction and discharge of air, water, oil, abrasion, chemical, heavy acid, etc. at working pressure of 100 psi, 150 psi, 200 psi, and 300 psi. These hoses are factory coupled, and there is no hose band used. Neither leakage nor flange separation will occur.

The hose details as to construction, flange, and usage are described as follows.

Hose Application & Size Table

W.P. / S & D HOSE	100 psi	150 psi	200 psi	300 psi	FLUIDS CARRIED
AIR	1"~ 20" (25A~ 500A)			1"~ 12" (25A~ 300A)	Compression Air, etc.
WATER	1"~ 20"			1"~ 12""	Cooling Water, Sea Water, etc.
OIL	1"~ 20"			1"~ 12"	Crude Oil, Heavy Oil, Kerosene, etc.
ABRASION	1"~ 20"			1"~ 12"	Cement, Sand, etc.
CHEMICAL	1"~ 20"			1"~ 12"	Caustic Soda, etc.
HEAVY ACID	1"~ 8" (25A~ 500A)				Hydrochloric Acid, Sulfuric Acid, etc.

Details of Built-in Fittings for Hose End

 Type A	Built-in Nipple Type (Example...Air, Water, Oil, etc.)
 Type B	Rubber Lining Type (Example...Water, Abrasion, Chemical, Heavy Acid, etc.)
 Type C	Lap Joint Flange Type (Example...Air, Water, Oil, etc.)
 Type D	Split Ring Flange Type (Example...Abrasion, Chemical, Heavy Acid, etc.)

Fittings: According to customer's requirements.

Hose Specification

Reinforcement	Synthetic cord fabric plies and helical hard steel wire reinforced
Colour	Black
Maximum Length	Over 1' thru 14'65" (20 mtrs) Over 16' thru 20'20" (6 mtrs)
Remark	The Hose for Rubber Lining Type (B) has Flat Face Flange

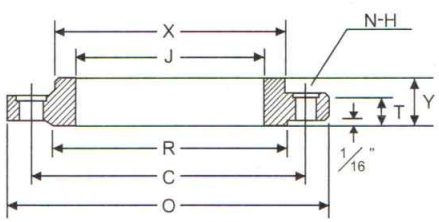
Hose Composition Material

Material / S&D HOSE	Tube	Cover
AIR	Natural rubber	Synthetic rubber, resistance to weathering
WATER	Natural rubber	
OIL	Synthetic rubber, resistance to oil	
ABRASION	Synthetic rubber, resistance to abrasion	
CHEMICAL	Synthetic rubber, resistance to acid	
HEAVY ACID	Special compounded synthetic rubber, resistance to heavy acid	

The following tables are provided to assist you in determining the proper flanges and hoses for safe use at high temperatures and pressures, or when conveying chemicals or toxic material.

Details of Hose Flange Applied

Details of the Flange used for these hoses are as follows: ANSI B 16.5 Forged Flange Slip on Type.



Class 150 lb

(Unit: Inch)

Nominal Pipe Size	Outside Dia. O	Thickness C	Diameter of Hub X	Length Through Hub Y	Bore B	Diameter of Bolt Circles	Diameter of Bolt Holes	Number of Bolts	Diameter of Bolt
2	6	0.75	3.06	1.00	2.44	4.75	0.75	4	5/8
2-1/2	7	0.88	3.56	1.12	2.94	5.50	0.75	4	5/8
3	7.5	0.94	4.25	1.19	3.57	6.00	0.75	4	5/8
3-1/2	8.5	0.94	4.81	1.25	4.07	7.00	0.75	8	5/8
4	9	0.94	5.31	1.31	4.57	7.50	0.75	8	5/8
5	10	0.94	6.44	1.44	5.66	8.50	0.88	8	3/4
6	11	1.00	7.56	1.56	6.72	9.50	0.88	8	3/4
8	13.5	1.12	9.69	1.75	8.72	11.75	0.88	8	3/4
10	16	1.19	12.00	1.94	10.88	14.25	1.00	12	7/8
12	19	1.25	14.38	2.10	12.88	17.00	1.00	12	7/8
14	21	1.38	15.75	2.25	14.14	18.75	1.12	12	1

Various Specifications of Hoses and Applications for the Fluids carried

Diversas especificaciones de mangueras y aplicaciones para los fluidos transportados

様々な仕様のホース と流体用途

各种规格的软管 流体软管的各种规格和应用

1. Air & Water Suction & Discharge Hose

SPECIFICATIONS

Working Temperture Range: −4°F ~ +140°C (-20°C ~ +60°C)

W.P. / Item / Nominal Size (in)	I.D. (mm)	Approx. O.D. (in)	Approx. O.D. (mm)	Approx. Weight (kg/m)	Approx. Weight (lbs/ft)	Min. Bend Radius (mm)	Min. Bend Radius (ft)
	150 psi (10 kgf/cm²)						
2	50.8	2-11/16	68	2.2	1.5	450	1.5
2-1/2	63.5	3-7/32	82	3.1	2.1	600	2.0
3	76.2	3-11/16	94	3.7	2.5	700	2.3
3-1/2	88.9	4-9/32	109	4.9	3.3	800	2.7
4	101.6	4-7/8	124	6.2	4.2	900	3.0
5	127	6	152	9.0	6.0	1,200	4.0
6	152.4	7-5/32	182	13.2	8.8	1,400	4.7
8	200	9-7/32	234	20.5	13.7	1,800	6.0
10	248	11-5/16	287	30.2	20.2	2,300	7.7
12	298	13-1/2	343	40.8	27.3	2,700	9.0
14	356	16	406	55.2	37.0	3,200	10.7

2. Oil Suction & Discharge Hose

SPECIFICATIONS

Working Temperture Range: −4°F ~ +176°C (-20°C ~ +80°C)

W.P. / Item / Nominal Size (in)	I.D. (mm)	Approx. O.D. (in)	Approx. O.D. (mm)	Approx. Weight (kg/m)	Approx. Weight (lbs/ft)	Min. Bend Radius (mm)	Min. Bend Radius (ft)
	150 psi (10 kgf/cm²)						
2	50.8	2-11/16	68	2.3	1.5	450	1.5
2-1/2	63.5	3-7/32	82	3.2	2.1	600	2.0
3	76.2	3-3/4	95	3.8	2.5	700	2.3
3-1/2	88.9	4-5/16	110	5.2	3.5	800	2.7
4	101.6	4-31/32	126	6.7	4.5	900	3.0
5	127	6-1/32	153	9.3	6.2	1,200	4.0
6	152.4	7-5/32	182	13.4	9.0	1,400	4.7
8	200	9-9/32	236	21.4	14.3	1,800	6.0
10	248	11-13/32	290	30.3	20.3	2,300	7.7
12	298	13-5/8	346	42.6	28.5	2,700	9.0
14	356	16-3/32	409	57.3	38.4	3,200	10.7

3. Abrasion Materials Suction & Discharge Hose

SPECIFICATIONS

Working Temperture Range: −4°F ~ +176°C (-20°C ~ +80°C)

W.P. / Item / Nominal Size (in)	I.D. (mm)	Approx. O.D. (in)	Approx. O.D. (mm)	Approx. Weight (kg/m)	Approx. Weight (lbs/ft)	Min. Bend Radius (mm)	Min. Bend Radius (ft)
	150 psi (10 kgf/cm²)						
2	50.8	2-25/32	71	2.7	1.8	550	1.8
2-1/2	63.5	3-11/32	85	3.6	2.4	700	2.3
3	76.2	3-29/32	99	4.4	2.9	900	3.0
3-1/2	88.9	4-1/2	114	5.9	4.0	1,000	3.3
4	101.6	5-5/32	131	7.7	5.2	1,100	3.7
5	127	6-7/32	158	10.6	7.1	1,400	4.7
6	152.4	7-3/8	187	14.9	10.0	1,700	5.7
8	200	9-1/2	241	23.4	15.7	2,200	7.3
10	248	11-5/8	295	32.8	22.0	2,800	9.3
12	298	13-27/32	352	46.0	30.8	3,300	11.0
14	356	16-3/8	416	62.1	41.6	3,900	13.0

4. Chemical Suction & Discharge Hose

SPECIFICATIONS

Working Temperture Range: −4°F ~ +140°C (-20°C ~ +60°C)

W.P. / Item / Nominal Size (in)	I.D. (mm)	Approx. O.D. (in)	Approx. O.D. (mm)	Approx. Weight (kg/m)	Approx. Weight (lbs/ft)	Min. Bend Radius (mm)	Min. Bend Radius (ft)
	150 psi (10 kgf/cm²)						
2	50.8	2-11/16	68	2.3	1.5	450	1.5
2-1/2	63.5	3-7/32	82	3.2	2.1	600	2.0
3	76.2	3-3/4	95	3.8	2.5	700	2.3
3-1/2	88.9	4-5/16	110	5.2	3.5	800	2.7
4	101.6	4-31/32	126	6.7	4.5	900	3.0
5	127	6-1/32	153	9.3	6.2	1,200	4.0
6	152.4	7-5/32	182	13.4	9.0	1,400	4.7
8	200	9-9/32	236	21.4	14.3	1,800	6.0
10	248	11-13/32	290	30.3	20.3	2,300	7.7
12	298	13-5/8	346	42.6	28.5	2,700	9.0
14	356	16-3/32	409	57.3	38.4	3,200	10.7

5. Heavy Acid Suction & Discharge Hose

SPECIFICATIONS

Working Temperture Range: −4°F ~ +122°C (-20°C ~ +50°C)

W.P. / Item / Nominal Size (in)	I.D. (mm)	Approx. O.D. (in)	Approx. O.D. (mm)	Approx. Weight (kg/m)	Approx. Weight (lbs/ft)	Min. Bend Radius (mm)	Min. Bend Radius (ft)
	150 psi (10 kgf/cm²)						
2	50.8	2-29/32	74	2.6	1.7	600	2.0
2-1/2	63.5	3-15/32	88	3.9	2.6	800	2.7
3	76.2	4	102	4.3	2.9	1,000	3.3

(to be continued)

W.P. / Item / Nominal Size (in)	I.D. (mm)	Approx. O.D. (in)	Approx. O.D. (mm)	Approx. Weight (kg/m)	Approx. Weight (lbs/ft)	Min. Bend Radius (mm)	Min. Bend Radius (ft)
	150 psi (10 kgf/cm²)						
3-1/2	88.9	4-19/32	117	5.9	4.0	1,100	3.7
4	101.6	5-1/4	133	7.3	4.9	1,200	4.0
5	127.0	6-5/16	160	9.8	6.6	1,500	5.0
6	152.4	7-7/16	189	13.9	9.3	1,800	6.0
8	200.0	9-9/16	243	22.2	14.9	2,400	8.0

Guide of How to Order

Above hoses are described only just for your reference and not coded, but when ordering, please specify exactly the following matters.

CODE	**35 - 05 - 01**
Fluid Carried	Air, Water, Oil Abrasion Chemical, Heavy Acid
×	
Nominal Size	1" ~ 20"
×	
Working Pressure	100 psi, 150 psi
×	
Hose End Fitting & Flange Type	Built-in Nipple Rubber Lining Type & Lap Joint Flange
×	
Working Temperature	-20°C ~ +60°C
×	
Length of Unit	20 Mtrs (1" ~ 14") 6 Mtrs (16" ~ 20")

Reels with Hose

for Petroleum/Grease/Air/Water

Rollos de mangueras para petróleo/grasa/aire
油・グリース・エア用リール付きホース
配有卷盘的油、润滑脂、空气用软管



Increased frame strength in a single pedestal, composite spool option. Improved spring makes it easy to pull out the last 10 feet. Full-flow swivel maximizes material flow with minimal pressure drop. Larger hose capacity (30 - 60 foot, 10 - 20 meters) with smaller profile to fit into tight spaces. Improved latch design prevents lockout and simplifies repositioning the arm.

SD Series

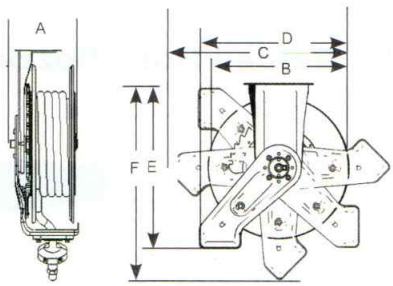
Compact design easily fits in small spaces. Steel spool stands up to demanding use and applications. Can be used either as an open or enclosed reel. Flexible positioning of the guide arm for mounting on bench or ceiling, wall or utility truck. Structurally reinforced frame made from high strength steel won't bend or flex. Baked-on enamel finish protects reel from corrosion for longer life. Now available in six colours (Metallic Blue, White, Red, Black, Dark Blue, or Yellow), but Metallic Blue is supplied unless any colour is not indicated in your order.

Steel Spool Hose Reels

Designed for daily use applications. Long-lasting spring provides constant spring torque through the entire range of motion. Open swivel ports ensure high fluid flow with minimal pressure loss. Enclosure kits available-ideal when appearance and protection is important.

Dimensions

Size 10		Size 20	
A	7.0" (177 mm)	A	7.0" (177 mm)
B	16.2" (412 mm)	B	18.1" (460 mm)
C	21.0" (533 mm)	C	23.4" (594 mm)
D	17.1" (435 mm)	D	19.2" (488 mm)
E	19.5" (495 mm)	E	21.8" (554 mm)
F	22.5" (571 mm)	F	25.2" (640 mm)



Specifications

Model	Size	Pressure psi (bar)	Hose ID	Hose Length ft (mtr)	Connection Size Inlet npsm (m)	Connection Size Outlet npt (m)
Air, Water, Anti-freeze, Windshield Washer Fluid						
HPL 23B	10	300 (20.7)	3/8"	35 (11)	1/2	3/8
HPL 25B	10	300 (20.7)	3/8"	50 (15)	1/2	3/8
HPL 33B	10	300 (20.7)	1/2"	35 (11)	1/2	1/2
HPL 65B	20	300 (20.7)	1/2"	50 (15)	1/2	1/2
Petroleum or Synthetic based Oils						
HPM 33B	10	2,000 (138)	1/2"	35 (11)	1/2	1/2
HPM 65B	20	2,000 (138)	1/2"	50 (15)	1/2	1/2
Grease						
HPH 15B	10	5,000 (345)	1/4"	50 (11)	3/8	1/4
HPH 23B	10	4,000 (276)	3/8"	35 (11)	3/8	1/4
HPH 55B	20	4,000 (276)	3/8"	50 (15)	3/8	1/4

Unit Per Pc.

CODE	Model	Size	CODE	Model	Size
35 06 31	HPL 23B	10	**35 06 36**	HPM 33B	10
32	HPL 25B	10	**38**	HPM 65B	20
33	HPL 33B	10	**41**	HPH 15B	10
35	HPL 65B	20	**43**	HPH 23B	10
			44	HPH 55B	20

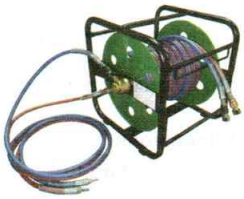
Name of Mfr.: Graco Inc.

Oxygen & Acetylene Gas Hose Reels

Enrolladores de manguera para oxigeno y acetileno
酸素・アセチレンガスホースリール
氧气和乙炔气体软管卷盘

Safely transports oxygen and acetylene gases for both welding and cutting applications from the cylinders to the working place. The hose serves as a flexible conduit, connecting

the gas supply to the torch or welding equipment. It is designed to withstand the high pressure and specific requirements of oxygen and acetylene gases, ensuring a reliable and controlled flow. Safety features are incorporated into the hose design to prevent leaks and maintain the integrity of the gas supply.



Unit Per Set

CODE	Hose Length	Dimension W × D × H (mm)	Weight (kg)
35 06 45	10 mtr	330 × 370×x 380	8.5
46	20 mtr		10.9
47	30 mtr		13.3

Plastic Garden Hose Nozzles

Lanza de Plástico para Manguera de Jardín
ガーデンホース用プラスチックノズル　水管喷嘴

Combination nozzle designed for spray or straight delivery by simply adjusting a round screw. Hose end is available in 15 mm size only.



35 10 01	Nozzle, garden hose, plastic hose end 15 mm	Pc.

Cast Aluminium Garden Hose Nozzles with Spray

Boquillas de Aluminio para Lanzas de Manguera von Rociador
アルミ鋳物ホースノズル　铝铸水管喷嘴

Made of cast aluminium. Spray flow can be adjusted by turning the nozzle. Two types of nozzles are available: a 9 - 15 mm adjustable hose end and a 25 mm fixed end.



35 10 04	Hose nozzle, adjustable, 9 mm and 15 mm hose end	Pc.
05	" fixed, 25 mm hose end	

Pistol Grip Hose Nozzles

Lanza Pistola　レバースプレー　手枪式水管喷嘴

Brass made and finished with chrome. Furnished with variable spray flow squeeze lever. Nozzle available in 15 mm dia. only.



35 10 08	Nozzle hose, pistol grip, 15 mm hose end	Pc.

Garden Hose Couplings

Acoplamientos para mangueras jardín
ガーデンホース継ぎ手　花园软水管接头



35 09 01/02	35 09 03	35 09 04	35 09 05	35 09 06
35 09 07	35 09 08	35 09 09		35 09 11

CODE	Size	Material	Type	Alligator No.
Hose Couplings				Unit Per Pc.
35 09 01	13 mm	PVC	Gardena	SM21010
02	16/19 mm			SM21015
03	13 mm Waterstop			SM21040
Tap Connectors				Unit Per Pc.
35 09 04	3/4" female thread	PVC	Gardena	SM21025
Male Couplings				Unit Per Pc.
35 09 05	3/4"	PVC	Gardena	SM21035
Nozzles				Unit Per Pc.
35 09 06	1/2"	PVC	Gardena	SM21050
Hose Connectors				Unit Per Pc.
35 09 07	Hose end: 2 ×13 mm	PVC	Gardena	SM21060
Connections				Unit Per Pc.
35 09 08	1/2"	PVC	Gardena	SM21070
Nozzle Pistol Grip				Unit Per Pc.
35 09 09	1/2"	PVC	Gardena	SM21052
Hose Saddles				Unit Per Pc.
35 09 10	-	PVC	Gardena	SM21090
Nozzle Short				Unit Per Pc.
35 09 11	38 mm	Brass	-	ST95138

Lock Type Air Hose Couplings

Racores de Manguera de Aire
ロック式エアホース継手　锁扣式空气管接头



The quick lock coupling feature makes it especially efficient and economical for every kind of air and pneumatic service. Press the two fittings together, give a quarter turn to one, and the connection is made. Made of cast brass, with hose ends on both sides. Furnished in sets only.

Unit Per Set

CODE	Hose Size		CODE	Hose Size	
	Nom. mm	Inch		Nom. mm	Inch
35 10 11	9	3/8	**35 10 13**	19	3/4
12	12	1/2	**14**	25	1

Universal Air Hose Couplings
with Hose End or Thread End

Coples de Manguera Universal para Aire con Punto para Manguera o con Punto de Rosca
ユニバーサルホース継手　万向空気管接头

Brass made couplings forming a positively locked connection that will not break or come apart in service. The locking jaws are heavy with large bulk surfaces which cannot bend or break loose. Couplings are interchangeable between various sizes and combinations according to DIN 3489. 42 mm distance between lugs.


Both hose end


Packing


One end Male Thread


One end Female Thread

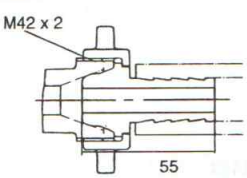
Unit Per Pc.

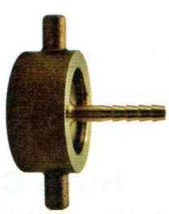
CODE	Size		Type
	Nom. mm	Inch	
35 10 21	9	3/8	Hose End
22	12	1/2	
23	19	3/4	
24	25	1	
35 10 26	-	PT 3/8	Male Thread End
27	-	PT 1/2	
28	-	PT 3/4	
29	-	PT 1	
35 10 31	-	PT 3/8	Female Thread End
32	-	PT 1/2	
33	-	PT 3/4	
34	-	PT 1	
35 10 36	Packing for universal coupling		

Cast Bronze Air Hose Couplings M42 x 2

Acoplamientos de Bronce para Manguera de Aire
エアホースカップリング　铸铜空气管接头

Female thread connection for use with the ship's male thread air outlet. Made of cast bronze with Metric Fine Thread (JIS B 0207) of M42 × 2 for respective hose end connection thread size.





Unit Per Pc.

CODE	Nominal Hose End mm	Connection Thread	CODE	Nominal Hose End mm	Connection Thread
35 10 51	6	M42 × 2	**35 10 55**	15	M42 × 2
52	8	M42 × 2	**56**	19	M42 × 2
53	9	M42 × 2	**57**	25	M42 × 2
54	12	M42 × 2			

Caps for M42 × 2 Air Hose Coupling



35 10 58	Cap for M42 x 2 air hose coupling, bronze	Pc.

Brass Screw Air Hose Couplings

Acoplamientos de Latón para Manguera de Aire
ネジ込みホース継手　铜螺牙式空气管接头

Brass air hose screw type couplings. Both ends are of exactly the same straight pipe thread size and cannot be connected to different diameter hoses. These couplings are furnished as a set only.



Unit Per Pr.

CODE	Nominal Hose End mm	Connection Thread	CODE	Nominal Hose End mm	Connection Thread
35 10 61	6	1/4"	**35 10 64**	12	1/4"
62	8	1/4"	**65**	19	1/4"
63	9	1/4"			

Air & Steam Hose Couplings

Acoplamientos para manguera de aire y vapor
エアー＆スチーム用ホース継手　空气及蒸汽用软管接头


35 10 71-73


35 10 76/77


35 10 78


35 10 81-84


35 10 86-90


35 10 91-94

CODE	Size	Material	Type	Alligator No.
Air Cocks Single				Unit Per Pc.
35 10 71	1/2", Lug size 42 mm	Cast iron	Thread: BSP female	SM245013
72	3/4", Lug size 42 mm			SM245019
73	1", Lug size 42 mm			SM245025
Air Cocks Double				Unit Per Pc.
35 10 76	3/4", Lug size 42 mm	Cast iron	Thread: BSP female	SM250019
77	1", Lug size 42 mm			SM250025
Air Hose Couplings - 3-way				Unit Per Pc.
35 10 78	42 mm	Cast iron	-	SM260115
Air Hose Couplings				Unit Per Pc.
35 10 81	10 mm	Cast iron	USA	SM310010
82	13 mm			SM310013
83	19 mm			SM310019
84	25 mm			SM310025

(to be continued)

CODE	Size	Material	Type	Alligator No.
Air Hose Adapters				Unit Per Pc.
35 10 86	1/4"	Cast iron	Thread: NPT female	SM315006
87	3/8"			SM315010
88	1/2"			SM315013
89	3/4"			SM315019
90	1"			SM315025
35 10 91	3/8"	Cast iron	Thread: NPT male	SM320010
92	1/2"			SM320013
93	3/4"			SM320019
94	1"			SM320025

Air & Steam Hose Couplings

Acoplamientos para manguera de aire y vapor
エアー＆スチーム用ホース継手　空气及蒸汽用软管接头



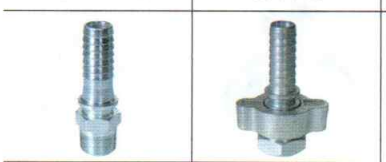
35 11 01-07 | 35 11 08-14 | 35 11 15-21



35 11 22 | 35 11 23-30 | 35 11 31-36



35 11 37-42 | 35 11 43 | 35 11 45/46



35 11 51-55 | 35 11 56-60

CODE	Size	Material	Type	Alligator No.
Water Hose Couplings				Unit Per Pc.
35 11 01	10 mm	Brass	End lug 40 mm	SM211010
02	13 mm			SM211013
03	16 mm			SM211016
04	19 mm			SM211019
05	25 mm			SM211025
06	32 mm			SM211032
07	38 mm			SM211038
Water Hose Adapter				Unit Per Pc.
35 11 08	1/4"	Brass	BSP female, Lug size 40 mm	SM212010
09	3/8"			SM212013
10	1/2"			SM212016
11	3/4"			SM212019
12	1"			SM212025
13	1-1/4"			SM212032
14	1-1/2"			SM212038

(to be continued)

CODE	Size	Material	Type	Alligator No.
35 11 15	1/4"	Brass	BSP female, Lug size 40 mm	SM213010
16	3/8"			SM213013
17	1/2"			SM213016
18	3/4"			SM213019
19	1"			SM213025
20	1-1/4"			SM213032
21	1-1/2"			SM213038
Waterhose Caps				Unit Per Pc.
35 11 22	40 mm	Brass	-	SM214010
Air Hose Couplings				Unit Per Pc.
35 11 23	6 mm (8 mm)	Cast iron	Long size 42 mm	SM230006
24	8 mm (9-1/2 mm)			SM230008
25	10 mm (12 mm)			SM230010
26	13 mm (15 mm)			SM230013
27	15 mm (17 mm)			SM230015
28	19 mm (21 mm)			SM230019
29	25 mm (27.5 mm)			SM230025
30	32 mm (34-1/2 mm)			SM230032
Air Hose Adapters				Unit Per Pc.
35 11 31	1/4"	Cast iron	BSP female, Lug size 42 mm	SM235006
32	3/8"			SM235010
33	1/2"			SM235012
34	3/4"			SM235019
35	1"			SM235025
36	1-1/4"			SM235030
35 11 37	1/4"	Cast iron	BSP female, Lug size 42 mm	SM240006
38	3/8"			SM240010
39	1/2"			SM240012
40	3/4"			SM240019
41	1"			SM240025
42	1-1/4"			SM240030
Air Hose Caps				Unit Per Pc.
35 11 43	42 mm	Cast iron	-	SM243110
Steam Hose Couplings				Unit Per Pr.
35 11 45	19 mm	-	-	SM670019
46	25 mm			SM670025
Steam Hose Couplings				Unit Per Pc.
35 11 51	19 mm	-	BSP male	SM675019
52	25 mm			SM675025
53	32 mm			SM675030
54	38 mm			SM675040
55	50 mm			SM675050
35 11 56	19 mm	-	BSP female	SM680019
57	25 mm			SM680025
58	32 mm			SM680030
59	38 mm			SM680040
60	50 mm			SM680050

Brass Hose Couplings 2/3

BSP Female Threaded

Acoplamientos hembra de latón para mangueras BSP
真鍮ホース継ぎ手　软管用铜接头



Unit Per Pc.

CODE	Size	Alligator No.	CODE	Size	Alligator No.
35 11 71	3/8"× 9 mm	GA200010	**35 11 78**	1-1/4"×32 mm	GA200032
72	1/2"×13 mm	GA200014	**79**	1-1/2"×32 mm	GA200038
73	3/4"×13 mm	GA200018	**80**	1-1/2"×38 mm	GA200040
74	3/4"×16 mm	GA200019	**81**	2"×50 mm	GA200050
75	3/4"×19 mm	GA200020	**82**	2-1/2"×63 mm	GA200065
35 11 76	1"×25 mm	GA200025	**35 11 83**	3"×75 mm	GA200075
77	1-1/4"×25 mm	GA200030			

Brass Hose Couplings 1/3

BSP Male Threaded

Acoplamientos hembra de latón para mangueras BSP
真鍮ホース継ぎ手　軟管用铜接头



Unit Per Pc.

CODE	Size	Alligator No.	CODE	Size	Alligator No.
35 11 86	3/8"× 9 mm	GA210010	**35 11 93**	1-1/4"×32 mm	GA210032
87	1/2"×13 mm	GA210014	**94**	1-1/2"×32 mm	GA210039
88	3/4"×13 mm	GA210018	**95**	1-1/2"×38 mm	GA210041
89	3/4"×16 mm	GA210019	**96**	2"×50 mm	GA210052
90	3/4"×19 mm	GA210020	**97**	2-1/2"×63 mm	GA210065
35 11 91	1"×25 mm	GA210026	**35 11 98**	3"×75 mm	GA210075
92	1-1/4"×25 mm	GA210030			

Quick-Connect Couplers

for All Purposes

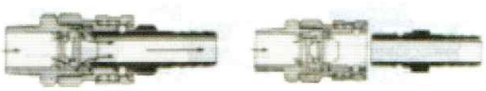
Enchufes Rapidos Multiusos　万能流体継手　快速接头

A general-purpose coupling which can close at either end of the connection. It is a convenient, compact coupling set which connects and disconnects easily, providing dependable service for fluid transfer of hydraulic, pneumatic, and vacuum systems.

The flow side coupling has a floating ball valve which will automatically stop the flow of liquid or gas when the coupling is disconnected.

1. Single End Shut Off Coupler

Enchufes Simple　万能流体継手片路開閉型　快速接头



Connect　　Disconnect

One way ball locking most ordinary type of sockets & plugs. When these sockets and plugs are disconnected, liquid or gas inside will stop flowing automatically on the socket side.

Pressure Rating & Application

Withstanding capacity of main body materials against pressure is as follows.

Material / Fluid Pressure	Steel	Brass	Stainless Steel
Working pressure	1.5 MPa (15 kgf/cm²)	1.0 MPa (10 kgf/cm²)	1.5 MPa (15 kgf/cm²)
Pressure resistance	2.0 MPa (20 kgf/cm²)	1.5 MPa (15 kgf/cm²)	2.0 MPa (20 kgf/cm²)
Major Applicable Fluid	Air	Air, Water	Air, Water

A. Hose End Type



SH Series Socket　　PH Series Plug

How to order: CODE

Coupler, quick-connect, single end shut off, MATERIAL, SOCKET or PLUG, HOSE END SIZE

Unit Per Pc.

Hose End Size	Part No.	Steel CODE	Brass CODE	S. Steel CODE
SH Series Socket				
1/4	20 SH	**35 12 01**	**35 12 11**	**35 12 21**
3/8	30 SH	**02**	**12**	**22**
1/2	40 SH	**03**	**13**	**23**
1/2	400 SH	**35 12 04**	**35 12 14**	**35 12 24**
3/4	600 SH	**05**	**15**	**25**
1	800 SH	**06**	**16**	**26**
PH Series Plug				
1/4	20 PH	**35 12 31**	**35 12 41**	**35 12 51**
3/8	30 PH	**32**	**42**	**52**
1/2	40 PH	**33**	**43**	**53**
1/2	400 PH	**35 12 34**	**35 12 44**	**35 12 54**
3/4	600 PH	**35**	**45**	**55**
1	800 PH	**36**	**46**	**56**

Name of Mfr.: Nitto Kohki Co., Ltd.

B. Male Thread Type



SM Series Socket　　PM Series Plug

How to order: CODE

Coupler, quick-connect, single end shut off, MATERIAL, SOCKET or PLUG, male thread end, THREAD SIZE

Unit Per Pc.

Male Pipe Thread	Part No.	Steel CODE	Brass CODE	S. Steel CODE
SM Series Socket				
R 1/8	10 SM	**35 13 01**	-	-
R 1/4	20 SM	**02**	**35 13 12**	**35 13 22**
R 3/8	30 SM	**03**	**13**	**23**
R 1/2	40 SM	**04**	**14**	**24**
R 3/4	600 SM	**08**	-	-
R 1/2	400 SM	**35 13 05**	**35 13 15**	**35 13 25**
R 3/4	600 SM	**06**	**16**	**26**
R 1	800 SM	**07**	**17**	**27**
PM Series Plug				
R 1/8	10 PM	**35 13 31**	**35 13 41**	-
R 1/4	20 PM	**32**	**42**	**35 13 52**
R 3/8	30 PM	**33**	**43**	**53**
R 1/2	40 PM	**34**	**44**	**54**
R 1/2	400 PM	**35 13 35**	**35 13 45**	**35 13 55**
R 3/4	600 PM	**36**	**46**	**56**
R 1	800 PM	**37**	**47**	**57**

Name of Mfr.: Nitto Kohki Co., Ltd.

C. Female Thread Type



SF Series Socket　　PF Series Plug

How to order : CODE

Coupler, quick-connect, single end shut off, MATERIAL, SOCKET or PLUG, female thread end, THREAD SIZE

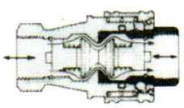
Unit Per Pc.

Female Pipe Thread	Part No.	Steel CODE	Brass CODE	S. Steel CODE
SF Series Socket				
Rc 1/4	20 SF	**35 14 01**	**35 14 11**	**35 14 21**
Rc 3/8	30 SF	**02**	**12**	**22**
Rc 1/2	40 SF	**03**	**13**	**23**
Rc 1/2	400 SF	**35 14 04**	**35 14 14**	**35 14 24**
Rc 3/4	600 SF	**05**	**15**	**25**
Rc 1	800 SF	**06**	**16**	**26**
PF Series Plug				
Rc 1/4	20 PF	**35 14 31**	**35 14 41**	**35 14 51**
Rc 3/8	30 PF	**32**	**42**	**52**
Rc 1/2	40 PF	**33**	**43**	**53**
Rc 1/2	400 PF	**35 14 34**	**35 14 44**	**35 14 54**
Rc 3/4	600 PF	**35**	**45**	**55**
Rc 1	800 PF	**36**	**46**	**56**

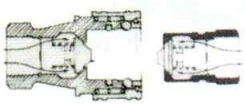
Name of Mfr.: Nitto Kohki Co., Ltd.
Note: 1) Part Nos. 20, 30, and 40 are interchangeable..
2) Part Nos. 400, 600 and 800 are interchangeable..
3) Above 1) and 2) can not be connected across each group due to the difference of the coupling body size.

2. Double End Shut Off Coupler Standard Pressure

Enchufes Doble/Presión Estándar
万能流体継手両路開閉型　快速接头



Connect



Disconnect

This is a double path switching type coupler having an automatic valve mechanism at both the socket and the plug. Both are sealed instantly on disconnection. A variety of packing materials are permitted in accordance with the type of fluid.

Pressure Rating & Application

Withstanding capacity varies according to the sizes of the main body materials against pressure.

Material / Size / Pressure MPa (kgf/cm²)	Brass				Steel, Stainless Steel			
	1/8 1/4 3/8	1/2 3/4 1	1-1/4 1-1/2	2	1/8 1/4 3/8	1/2 3/4 1	1-1/4 1-1/2	2
Working Pressure	5.0 (51)	3.0 (31)	2.0 (20)	1.5 (15)	7.5 (76)	4.5 (46)	3.0 (31)	2.0 (20)
Pressure Resistance	7.5 (76)	4.5 (46)	3.0 (31)	2.3 (24)	10.0 (102)	6.5 (66)	4.5 (46)	3.0 (31)
Major Applicable Fluid	Air, Water, Gasoline, Heavy Oil, Kerosene				S.S.: Salt Water Acid, Alkali S.: Operating Oil			

Socket & Plug



S Series Socket



P Series Plug

How to order: CODE

Coupler, quick-connect, double end shut off for standard pressure, MATERIAL, SOCKET or PLUG, female thread end, THREAD SIZE

Unit Per Pc.

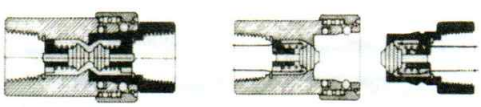
Female Pipe Thread	Part No.	Steel CODE	Brass CODE	S. Steel CODE
S Series Socket				
Rc 1/8	1S-A	**35 15 01**	**35 15 11**	**35 15 21**
Rc 1/4	2S-A	**02**	**12**	**22**
Rc 3/8	3S-A	**03**	**13**	**23**
Rc 1/2	4S-A	**04**	**14**	**24**
Rc 3/4	6S-A	**05**	**15**	**25**
Rc 1	8S-A	**35 15 06**	**35 15 16**	**35 15 26**
Rc 1-1/4	10S-A	**07**	**17**	**27**
Rc 1-1/2	12S-A	**08**	**18**	**28**
Rc 2	16S-A	**09**	**19**	**29**
P Series Plug				
Rc 1/8	1P-A	**35 15 31**	**35 15 41**	**35 15 51**
Rc 1/4	2P-A	**32**	**42**	**52**
Rc 3/8	3P-A	**33**	**43**	**53**
Rc 1/2	4P-A	**34**	**44**	**54**
Rc 3/4	6P-A	**35**	**45**	**55**
Rc 1	8P-A	**35 15 36**	**35 15 46**	**35 15 56**
Rc 1-1/4	10P-A	**37**	**47**	**57**
Rc 1-1/2	12P-A	**38**	**48**	**58**
Rc 2	16P-A	**39**	**49**	**59**

Name of Mfr.: Nitto Kohki Co., Ltd.
Note: Respective sockets can be connected with only respective corresponding numerical plugs as 4S-A with 4P-A.

3. Double End Shut Off Coupler High Pressure of 210 kgf/cm²

Enchufe Doble/Ultra Alta Presión
高圧継手両路開閉型　高压快速接头

Recommended for high pressure, hydraulic circuit. Made of special steel for high pressure service. Fluid in both socket and plug are stopped automatically by an inner valve when disconnected.



Pressure Rating & Application

Withstanding capacity varies according to the sizes of the main body material against pressure.

Material / Size / Pressure	Special Steel
	1/4, 3/8, 1/2, 3/4, 1
Working pressure	20.6 MPa (210 kgf/cm²)
Pressure resistance	31.0 MPa (316 kgf/cm²)
Major Applicable Fluid	Operating Oil

High Pressure Socket & Plug



HS Series Socket



HP Series Plug

How to order: CODE

Coupler, quick-connect, double end shut off for high pressure, special steel, SOCKET or PLUG, female thread end, THREAD SIZE

Unit Per Pc.

CODE	Part No.	Female Pipe Thread	CODE	Part No.	Female Pipe Thread
35 16 01	Socket 2HS	Rc 1/4	**35 16 11**	Plug 2HP	Rc 1/4
02	Socket 3HS	Rc 3/8	**12**	Plug 3HP	Rc 3/8
03	Socket 4HS	Rc 1/2	**13**	Plug 4HP	Rc 1/2
04	Socket 6HS	Rc 3/4	**14**	Plug 6HP	Rc 3/4
05	Socket 8HS	Rc 1	**15**	Plug 8HP	Rc 1

Name of Mfr.: Nitto Kohki Co., Ltd.

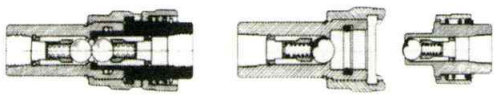
Note: Respective sockets can be connected with only respective corresponding numerical plugs as 2HS with 2HP.

4. Double End Shut Off Coupler Ultra High Pressure of 700 kgf/cm²

Enchufe Doble/Ultra Alta Presión

超高圧専用継手両路開閉型　　高压快速接头

For use on high pressure hydraulic tool oil fittings. Ring lock device has extra durability against shock or vibration.



Connect　　Disconnect

Pressure Rating & Application

Withstanding capacity of these couplers against fluid pressure is as follows.

Working Pressure	68.6 MPa (700 kgf/cm²)
Pressure Resistance	98.0 MPa (1,000kgf/cm²)
Major Applicable Fluid	Operating Oil

Ultra High Pressure Socket & Plug



700R Series Socket　　700R Series Plug

How to order: CODE

Coupler, quick-connect, double end shut off for ultra high pressure, special hard steel, SOCKET or PLUG, female thread end, THREAD SIZE

Unit Per Pc.

CODE	Part No.		Female Pipe Thread
35 16 21	Socket	700R-3S	Rc 3/8
22	Socket	700R-4S	Rc 1/2
23	Plug	700R-3P	Rc 3/8
24	Plug	700R-4P	Rc 1/2

Name of Mfr.: Nitto Kohki Co., Ltd

Line Couplers

Branch Piping Couplers for Air

Distribución Aire, Enchufe Rápido

空気用簡易集合配管具　　空气分配管箱

A branch piping coupler is useful for simultaneous connection of multiple hose to a single air supply source. Three types are available, Branch type (Type T), Star type (Type S), and Line type (Type L). Centralized piping can be set-up in any desired location.



T Type　　S Type　　L Type

Unit Per Set

CODE	Type	Body Mounting		Accessory Socket
		Socket	Plug	
35 16 50	200T	20SM (1/4)×2	20PM (1/4)×1	-
51	200S	20SM (1/4)×4 40SM (1/2)×1	400PM (1/2)×1	400SH (1/2)×1
53	200L	20SM (1/4)×4 40SM (1/2)×1	400PM (1/2)×1	400SH (1/2)×1

Applicable Plug Type: 20 series: 20PH, 20PM, 20PF
30 series: 30PH, 30PM, 30PF
40 series: 40PH, 40PM, 40PF

Name of Mfr.: Nitto Kohki Co., Ltd.

Rotary Line Cuplas

Distribución Aire , Rotatorio

ロータリーラインカップラー　　旋转式空气分接头

Branching coupler with a rotary mechanism allows simultaneous connection of two or three outlet hoses from a single air source. Air inlet socket moves freely in every direction 360°. A swivel mechanism also permits the hoses to swivel freely.



RT Type　　RE Type

Unit Per Set

CODE		35 16 56	35 16 57
Type		RT (2-branches)	RE (3-branches)
Size	Inlet	1/4" (20PF)	R 1/2 (Male)
	Outlet	1/4" socket	
Material	Body	Brass (Chrome-plated)	
	Coupler	Steel (Chrome-plated)	
Working Pressure		1.5 MPa (15 kgf/cm²)	
Pressure Resistance		2.0 MPa (20 kgf/cm²)	
Applicable Plug Type		20 series: 20PH, 20PM, 20PF 30 series: 30PH, 30PM, 30PF 40 series: 40PH, 40PM, 40PF	

Name of Mfr.: Nitto Kohki Co., Ltd.

Purge System Hi Couplers and Line Couplers

Coples Altos y Coples para Línea de Sistemas de Purga

パージ式クイックカップラー・ラインパックカップラー

驱氧式 Hi 接头

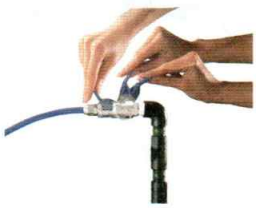
Push-to-connect operation with valve opening and closing by the purge system lever action, which eliminates unpleasant shock and noise on disconnection.

The lever will never turn to open until plug is connected by means of safety measure.

Purge System Hi Cuplas

Made of chrome plated brass. Can be connected with PH, PM and PF series plugs sized from 1/4" to 3/4".





Unit Per Pc.

CODE	Model	Size Male Thread	Working Pressure	Max. Pressure	Applicable Plug Type
35 16 61 **62** **63**	PV-20SM PV-30SM PV-40SM	R1/4" R3/8" R1/2"	1.0MPa (10 kgf/cm²)	1.5MPa (15 kgf/cm²)	20, 30, 40 series
35 16 64 **65**	PV-400SM PV-600SM	R1/2" R3/4"			400, 600, 800 series

Note: Applicable Plug Type
20 series : 20PH, 20PM, 20PF
30 series : 30PH, 30PM, 30PF
40 series : 40PH, 40PM, 40PF
400 series : 400PH, 400PM, 400PF
600 series : 600PH, 600PM, 600PF
800 series : 800PH, 800PM, 800PF

Name of Mfr.: Nitto Kohki Co., Ltd.

* Method of operation

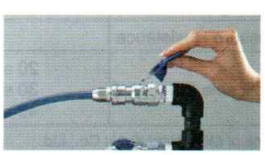
1. Push-to-connect operation.
(In this stage, the valve in the socket is not open.)



2. Turning down the lever opens the valve and allows the fluid to flow.
(The turned-down lever works as a sleeve stopper and prevents disconnection.)



3. When the lever is pulled up, residual air pressure in the plug is purged without an unpleasant popping noise and a hose whip back motion on disconnection.
(In this stage, the socket valve is still closed.)



Purge System Line Cuplas

Línea del sistema de purga Cuplas

パージシステムライン・カプラス　　清洗系统管路 Cuplas

Made of chrome plated brass. Can be connected with PH, PM and PF series plugs sized from 1/4" to 3/4".





Unit Per Set

CODE		35 16 71
Type		RE-PV-30 (3-branches)
Size	Inlet	R 1/2
	Outlet	3/8" Socket (PV-30SM)
Body material		Brass (Chrome plated)
Working pressure		1.0 MPa (10 kgf/cm²)
Pessure resistance		1.5 MPa (15 kgf/cm²)
Applicable Plug Type		20 series: 20PH, 20PM, 20PF 30 series: 30PH, 30PM, 30PF 40 series: 40PH, 40PM, 40PF

Name of Mfr.: Nitto Kohki Co., Ltd.

Cam and Groove Couplings

Acoplamientos para Leva y Ranura

エバータイトカップリング　　凸轮及槽式连接器

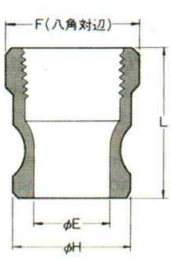
They are quick, tight, leakproof connections to pipe, tubing, hose or tanks and provide quick liquid and material hose connections that seal tight and stay tight. Sizes from 1/2" to 8" are available. They are made of aluminium alloy, brass, stainless steel and other metals for use with liquids, vapors, gases and air-blown dry products. Suitable for use with single connections and where changes in connection to a number of tanks or outlets may be required.

Rated Pressure of Material

Material	Nom. Size Inch	Rated Pressure (kgf/cm²)	Test Pressure (kfg/cm²)	Rated Temperature °C
Aluminium Alloy, Brass	1/2 – 2	18	21	107
	2-1/2	11		
	3	9		
	4	7		
Stainless Steel	1/2 – 2	18	21	232
	2-1/2	16		
	3	14		
	4	11		

Type A: Plug (Male Coupler) with Female Thread





Specification

Nom Size		Size mm			
Inch	mm	E	F	H	L
1/2	15	14	35	32	41
3/4	20	20	35	32	41
1	25	24	41	37	50
1-1/4	32	29	48	45	56
1-1/2	40	37	58	53	57
2	50	46	69	63	62
2-1/2	65	56	84	76	92
3	80	72	99	92	71
4	100	98	129	120	81
5	125	121	149	146	85
6	150	149	191	176	86
8	200	203	260	241	111

How to order: CODE

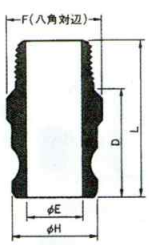
Coupling, cam & groove, Type A, plug (male coupler) with female thread, MATERIAL, SIZE

Unit Per Pc.

Nom. Size		CODE		
Inch	mm	Aluminium Alloy	Brass	Stainless Steel
1/2	15	**35 17 01**	**35 17 15**	**35 17 31**
3/4	20	**02**	**16**	**32**
1	25	**03**	**17**	**33**
1-1/4	32	**04**	**18**	**34**
1-1/2	40	**05**	**19**	**35**
2	50	**35 17 06**	**35 17 20**	**35 17 36**
2-1/2	65	**07**	**21**	**37**
3	80	**08**	**22**	**38**
4	100	**09**	**23**	**39**
5	125	**10**	**24**	**40**
6	150	**35 17 11**	**35 17 25**	**35 17 41**
8	200	**12**	**26**	**42**

Type F : Plug (Male Coupler) with Male Thread





Specification

Nom Size		Size mm				
Inch	mm	D	E	F	H	L
1/2	15	38	14	35	32	59
3/4	20	38	20	35	32	59
1	25	46	24	41	37	72
1-1/4	32	54	29	48	45	80
1-1/2	40	56	37	58	53	79
2	50	62	46	69	63	90
2-1/2	65	70	56	84	76	102
3	80	71	72	99	92	103
4	100	81	98	129	120	119
5	125	82	121	149	146	124
6	150	83	149	196	176	127
8	200	111	203	260	241	169

How to order: CODE

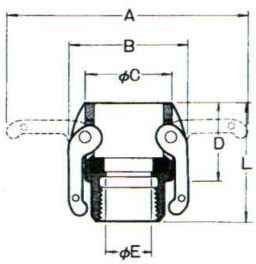
Coupling, cam & groove, Type F, plug (male coupler) with male thread, MATERIAL, SIZE

Unit Per Pc.

Nom. Size		CODE		
Inch	mm	Aluminium Alloy	Brass	Stainless Steel
1/2	15	**35 17 51**	**35 17 65**	**35 17 81**
3/4	20	**52**	**66**	**82**
1	25	**53**	**67**	**83**
1-1/4	32	**54**	**68**	**84**
1-1/2	40	**55**	**69**	**85**
2	50	**35 17 56**	**35 17 70**	**35 17 86**
2-1/2	65	**57**	**71**	**87**
3	80	**58**	**72**	**88**
4	100	**59**	**73**	**89**
5	125	**60**	**74**	**90**
6	150	**35 17 61**	**35 17 75**	**35 17 91**
8	200	**62**	**76**	**92**

Type D: Socket (Female Coupler) with Female Thread





Specification

Nom Size		Size mm					
Inch	mm	A	B	C	D	E	L
1/2	15	116	54	41	32	16	51
3/4	20	116	54	41	32	22	51
1	25	125	61	47	41	25	62
1-1/4	32	181	83	58	49	35	69
1-1/2	40	189	91	65	46	38	72
2	50	199	101	75	52	49	78
2-1/2	65	210	112	91	56	61	89
3	80	254	138	108	59	76	91
4	100	282	166	140	59	94	94
5	125	307	191	165	63	121	103
6	150	409	255	198	74	146	114
8	200	474	320	264	102	203	152

How to order: CODE

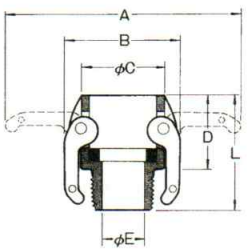
Coupling, cam & groove, Type D, socket (female coupler) with female thread, MATERIAL, SIZE

Unit Per Pc.

Nom. Size		CODE		
Inch	mm	Aluminium Alloy	Brass	Stainless Steel
1/2	15	**35 18 01**	**35 18 15**	**35 18 31**
3/4	20	**02**	**16**	**32**
1	25	**03**	**17**	**33**
1-1/4	32	**04**	**18**	**34**
1-1/2	40	**05**	**19**	**35**
2	50	**35 18 06**	**35 18 20**	**35 18 36**
2-1/2	65	**07**	**21**	**37**
3	80	**08**	**22**	**38**
4	100	**09**	**23**	**39**
5	125	**10**	**24**	**40**
6	150	**35 18 11**	**35 18 25**	**35 18 41**
8	200	**12**	**26**	**42**

Type B: Socket (Female Coupler) with Male Thread





Specification

Nom Size		Size mm					
Inch	mm	A	B	C	D	E	L
1/2	15	116	54	41	32	14	52
3/4	20	116	54	41	32	19	52
1	25	125	61	47	41	25	63
1-1/4	32	181	83	58	46	32	71
1-1/2	40	189	91	65	46	38	69
2	50	199	101	75	52	51	78
2-1/2	65	210	112	90	57	61	89
3	80	254	138	108	58	76	90
4	100	282	166	140	59	94	98
5	125	307	191	165	63	120	106
6	150	409	255	198	73	146	116

How to order: CODE

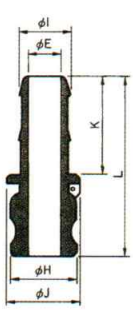
Coupling, cam & groove, Type B, socket (female coupler) with male thread, MATERIAL, SIZE

Unit Per Pc.

Nom. Size		CODE		
Inch	mm	Aluminium Alloy	Brass	Stainless Steel
1/2	15	**35 18 51**	**35 18 65**	**35 18 81**
3/4	20	**52**	**66**	**82**
1	25	**53**	**67**	**83**
1-1/4	32	**54**	**68**	**84**
1-1/2	40	**55**	**69**	**85**
2	50	**35 18 56**	**35 18 70**	**35 18 86**
2-1/2	65	**57**	**71**	**87**
3	80	**58**	**72**	**88**
4	100	**59**	**73**	**89**
5	125	**60**	**74**	**90**
6	150	**35 18 61**	**35 18 75**	**35 18 91**

Type E: Plug (Male Coupler) with Hose End





Specification

Nom Size		Size mm					
Inch	mm	E	H	I	J	K	L
1/2	13	9	22	14	24	38	65
3/4	20	14	32	21	34	51	87
1	25	20	37	27	41	60	103
1-1/4	32	25	45	34	49	57	110
1-1/2	40	32	53	41	57	60	114
2	50	41	63	53	72	70	130
2-1/2	65	57	76	67	86	80	144
3	80	68	92	79	100	100	164
4	100	89	120	105	133	108	178
5	125	114	146	134	160	127	196
6	150	142	176	157	187	146	224
8	200	188	241	207	255	150	266

How to order: CODE

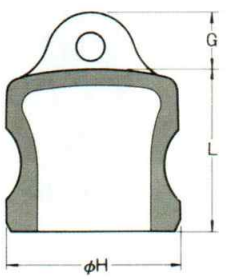
Coupling, cam & groove, Type E, plug (male coupler) with hose end, MATERIAL, SIZE

Unit Per Pc.

Nom. Size		CODE		
Inch	mm	Aluminium Alloy	Brass	Stainless Steel
1/2	13	**35 19 00**	**35 19 14**	**35 19 30**
3/4	20	**01**	**15**	**31**
1	25	**02**	**16**	**32**
1-1/4	32	**03**	**17**	**33**
1-1/2	40	**04**	**18**	**34**
2	50	**35 19 05**	**35 19 19**	**35 19 35**
2-1/2	65	**06**	**20**	**36**
3	80	**07**	**21**	**37**
4	100	**08**	**22**	**38**
5	125	**09**	**23**	**39**
6	150	**35 19 10**	**35 19 24**	**35 19 40**
8	200	**11**	**25**	**41**

Dust Plug





Specification

Nom Size		Size mm		
Inch	mm	G	H	L
1/2	13	9	24	36
3/4	20	12	32	20
1	25	13	37	33
1-1/4	32	14	45	40
1-1/2	40	16	53	41
2	50	19	63	46
2-1/2	65	11	76	51
3	80	11	92	51
4	100	13	120	52
5	125	14	146	55
6	150	16	176	60
8	200	12	241	92

How to order: CODE

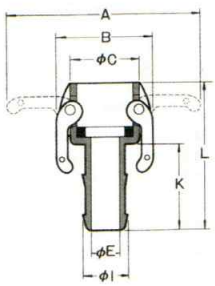
Coupling, cam & groove, dust plug, MATERIAL, SIZE

Unit Per Pc.

Nom. Size		CODE		
Inch	mm	Aluminium Alloy	Brass	Stainless Steel
1/2	13	**35 19 50**	**35 19 64**	**35 19 80**
3/4	20	**51**	**65**	**81**
1	25	**52**	**66**	**82**
1-1/4	32	**53**	**67**	**83**
1-1/2	40	**54**	**68**	**84**
2	50	**35 19 55**	**35 19 69**	**35 19 85**
2-1/2	65	**56**	**70**	**86**
3	80	**57**	**71**	**87**
4	100	**58**	**72**	**88**
5	125	**59**	**73**	**89**
6	150	**35 19 60**	**35 19 74**	**35 19 90**
8	200	**61**	**75**	**91**

Type C: Socket (Female Coupler) with Hose End





Specification

Nom Size		Size mm						
Inch	mm	A	B	C	E	I	K	L
1/2	13	114	42	32	8	15	35	65
3/4	20	116	54	41	14	21	51	83
1	25	125	61	47	20	27	57	98
1-1/4	32	181	83	58	25	34	59	105
1-1/2	40	189	91	65	32	41	61	107
2	50	199	101	75	45	53	70	122
2-1/2	65	210	112	90	57	67	79	135
3	80	254	138	108	67	79	102	161
4	100	282	166	140	89	105	108	167
5	125	307	191	165	114	134	127	189
6	150	409	255	198	142	157	146	214
8	200	474	320	264	188	207	150	252

How to order: CODE

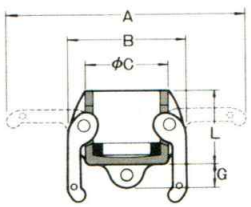
Coupling, cam & groove, Type C, socket (female coupler) with hose end, MATERIAL, SIZE

Unit Per Pc.

Nom. Size		CODE		
Inch	mm	Aluminium Alloy	Brass	Stainless Steel
1/2	13	**35 20 00**	**35 20 14**	**35 20 30**
3/4	20	**01**	**15**	**31**
1	25	**02**	**16**	**32**
1-1/4	32	**03**	**17**	**33**
1-1/2	40	**04**	**18**	**34**
2	50	**35 20 05**	**35 20 19**	**35 20 35**
2-1/2	65	**06**	**20**	**36**
3	80	**07**	**21**	**37**
4	100	**08**	**22**	**38**
5	125	**09**	**23**	**39**
6	150	**35 20 10**	**35 20 24**	**35 20 40**
8	200	**11**	**25**	**41**

Dust Cap





Specification

Nom Size		Size mm				
Inch	mm	A	B	C	G	L
1/2	13	114	42	32	9	47
3/4	20	116	54	41	10	34
1	25	125	61	47	12	41
1-1/4	32	181	83	58	11	47
1-1/2	40	189	91	65	12	46
2	50	199	101	75	12	52
2-1/2	65	210	112	90	14	56
3	80	254	138	108	15	59
4	100	282	166	140	12	59
5	125	307	191	165	13	63
6	150	409	255	198	16	68
8	200	474	320	264	12	105

How to order: CODE

Coupling, cam & groove, dust cap, MATERIAL, SIZE

Unit Per Pc.

Nom. Size		CODE		
Inch	mm	Aluminium Alloy	Brass	Stainless Steel
1/2	13	**35 20 50**	**35 20 64**	**35 20 80**
3/4	20	**51**	**65**	**81**
1	25	**52**	**66**	**82**
1-1/4	32	**53**	**67**	**83**
1-1/2	40	**54**	**68**	**84**
2	50	**35 20 55**	**35 20 69**	**35 20 85**
2-1/2	65	**56**	**70**	**86**
3	80	**57**	**71**	**87**
4	100	**58**	**72**	**88**
5	125	**59**	**73**	**89**
6	150	**35 20 60**	**35 20 74**	**35 20 90**
8	200	**61**	**75**	**91**

Spool Adaptor

Part SA spool adaptor connects two lengths of hose with coupler ends. 1/2" to 6".



Unit Per Pc.

CODE	Nom. Size	Alligator No.	CODE	Nom. Size	Alligator No.
Aluminium Alloy					
35 20 12	1/2"	SM997015	**35 20 29**	2"	SM997050
13	3/4"	SM997020	**42**	2-1/2"	SM997065
26	1"	SM997025	**43**	3"	SM997075
27	1-1/4"	SM997032	**44**	4"	SM997100
28	1-1/2"	SM997040			

(to be continued)

Unit Per Pc.

CODE	Nom. Size	Alligator No.	CODE	Nom. Size	Alligator No.
Brass					
35 20 45	1/2"	SM996015	**35 20 62**	2"	SM996050
46	3/4"	SM996020	**63**	2-1/2"	SM996065
47	1"	SM996025	**76**	3"	SM996075
48	1-1/4"	SM996032	**77**	4"	SM996100
49	1-1/2"	SM996040	**78**	6"	SM996150
Stainless Steel					
35 20 79	1/2"	SM995015	**35 20 96**	2"	SM995050
92	3/4"	SM995020	**97**	2-1/2"	SM995065
93	1"	SM995025	**98**	3"	SM995075
94	1-1/4"	SM995032	**99**	4"	SM995100
95	1-1/2"	SM995040	**35 21 00**	6"	SM995150

Cam & Groove Rubber Gasket Buna N



Unit Per Pc.

CODE	Size mm	Alligator No.	CODE	Size mm	Alligator No.
35 21 01	13	SM980013	**35 21 07**	65	SM980065
02	19	SM980019	**08**	75	SM980075
03	25	SM980025	**09**	100	SM980100
04	32	SM980032	**10**	125	SM980125
05	40	SM980040	**11**	150	SM980150
35 21 06	50	SM980050			

Cam & Groove PTFE Gaskets



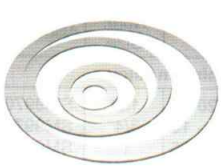
Unit Per Pc.

CODE	Nom. Size	Actual Size mm	Alligator No.
35 21 13	3/4"	23 × 35 × 5	SM988020
14	1"	27 × 40 × 6	SM988025
15	1-1/2"	56 × 41 × 6	SM988040
16	2"	67 × 50 × 6	SM988050
17	2-1/2"	79 × 60 × 6	SM988065
35 21 18	3"	97 × 78 × 6	SM988075
19	4"	125 × 101 × 6	SM988100

Cam & Groove PTFE Gaskets



Envelope Open



Envelope Closed

Unit Per Pc.

CODE	Size	Alligator No.	CODE	Size	Alligator No.
Envelope Open			**Envelope Closed**		
35 21 21	1/2"	SM985013	**35 21 31**	1/2"	SM987013
22	3/4"	SM985019	**32**	3/4"	SM987019
23	1"	SM985025	**33**	1"	SM987025
24	1-1/4"	SM985032	**34**	1-1/4"	SM987032
25	1-1/2"	SM985038	**35**	1-1/2"	SM987038
35 21 26	2"	SM985050	**35 21 36**	2"	SM987050
27	2-1/2"	SM985065	**37**	2-1/2"	SM987065
28	3"	SM985075	**38**	3"	SM987075
29	4"	SM985100	**39**	4"	SM987100

Cam & Groove Handle Rings and Pins



Unit Per Pc.

CODE	Size	Alligator No.	CODE	Size	Alligator No.
Brass			**Stainless Steel**		
35 21 41	1"	SM990026	**35 21 51**	1/2"	SM990015
42	1-1/4"	SM990033	**52**	3/4"	SM990020
43	1-1/2"	SM990039	**53**	1"	SM990025
44	2"	SM990051	**54**	1-1/4"	SM990032
45	2-1/2"	SM990066	**55**	1-1/2"	SM990038
35 21 46	3"	SM990076	**35 21 56**	2"	SM990050
47	4"	SM990101	**57**	2-1/2"	SM990065
48	5"	SM990126	**58**	3"	SM990075
49	6"	SM990151	**59**	4"	SM990100
			60	5"	SM990125
			35 21 61	6"	SM990150

Cam & Groove Pins

Made of stainless steel.



Unit Per Pc.

CODE	Size	Alligator No.	CODE	Size	Alligator No.
35 21 71	1/2"	SM994013	**35 21 77**	2-1/2"	SM994065
72	3/4"	SM994020	**78**	3"	SM994075
73	1"	SM994025	**79**	4"	SM994100
74	1-1/4"	SM984032	**80**	5"	SM994125
75	1-1/2"	SM994038	**81**	6"	SM994150
35 21 76	2"	SM994050			

Any of these Adaptors will quick connect to.....



Part A Male coupler /female thread. 1/2" to 8".



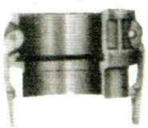
Part F Male coupler /male thread. 1/2" to 8".



Part E Male coupler /hose end. 3/4" to 8".

		
Part E reducer or increaser (illustrated). Sizes 3" to 4".	**Part AW** male adaptor/socket or butt weld.1/2" to 10".	**Part AS** male adaptor/straight female pipe thread for dry products 3" to 10".

....any of these couplers of the same size

		
Part B female coupler/male thread. 1/2" to 6".	**Part D** female coupler/female thread. 1/2" to 8".	**Part C** female coupler/hose end. 1/2" to 8".
		
Part B reducer female coupler/ male thread. Sizes 2" to 4". Aluminium, brass.	**Part DW** female coupler/socket or butt weld. 1/2" to 10". All metals.	**Part DS** female coupler/female straight pipe thread for dry products 3" to 10". All metals.

Coupling Assemblies

Spool Adaptor 	Part SA spool adaptor connects two lengths of hose with coupler ends. 1/2" to 6". In all metals except in larger sizes. (Spool couplers are also available.)
Gaskets 	Gaskets are of buna composition unless another material is specified. Other available gasket materials include Neoprene, pure gum, butyl, teflon, viton, E.P.T., Thiokol or any other material to meet specifications.
Handles 	Handles are stainless steel or forged bronze with stainless steel pins. Cadmium plated rings are supplied on all sizes except 1/2", 3/4", 1", 6", 8", or 10".
Brass Chain	Brass chain, with two "S" hooks for attaching dust caps or dust plugs to adaptors or couplers, is available in any length desired.

Quick Disconnect Couplings

for Oil pressure and Liquid

Acoplamientos de desconexion rápida

簡単脱着カップリング　　便于装卸式联轴器

A quick connect and disconnect couplings suitable for flowing large spills of general hydraulic oil, water and chemicals by the possible large flow amount. There are three types of material; carbon steel, Brass or Stainless steel (SUS-304).



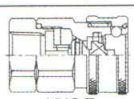
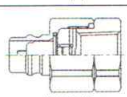
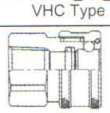
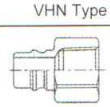
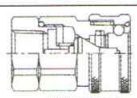
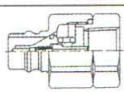
Maximum Usable Pressure of the Seal Material

Material		Working Temp. Range	Max. working pressure MPa (Stillness Pressure)				
Body	Seal		04	06	08	12	16
Carbon Steel	NBR	-30 to +93℃	45.0 (21.0)	32.0 (21.0)	28.0 (21.0)	25.0 (21.0)	14.0 (14.0)
Brass	NBR	-30 to +93℃	7.0	7.0	7.0	7.0	7.0
Stainless Steel	NBR	-30 to +93℃	7.0	7.0	7.0	7.0	7.0

Coupler Side Main Seal Form

Material		Form	Features
Body	Seal		
Carbon Steel	NBR	 Single O ring	It exhibits stable performance specially when under dynamic pressure.
Brass	NBR	 U Packer	It exhibits superior sealing performance than that of a single o-ring at less than the maximum usable pressure of 7.0 MPa.
Stainless Steel	NBR	 U Packer	

Carbon Steel

	Coupler	Nipple
With Valve	 VHC Type	 VHN Type
Without Valve	 OHC Type	 OHN Type
With PH Valve	 PHC Type	 PHN Type

Remark: PH valve enables connection even with residual pressure. Connection is possible at 17.7 N even under the residual pressure of 7.0 MPa. It can be connected when residual pressure is present, but cannot be disconnected under the circumstances.

Carbon Steel Coupler and Nipple Combination List

Type	VHN	OHN	PHN
VHC	○	○	○
OHC	×	○	×
PHC	○	×	×

Remark: o = Applicable, × = Not applicable

Carbon Steel Couplers

Unit Per Pc.

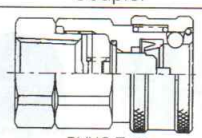
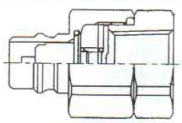
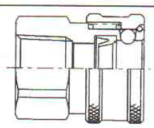
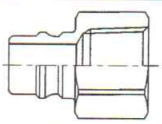
CODE	Part No.	Working Pressure MPa	Thread Size	Weight grm
VHC - Female Thread (with Valve)				
35 23 01	VHC4-4F-SO	45.0	Rc 1/4	95
02	VHC6-6F-SO	32.0	Rc 3/8	155
03	VHC8-8F-SO	28.0	Rc 1/2	205
04	VHC12-12F-SO	25.0	Rc 3/4	390
05	VHC16-16F-SO	14.0	Rc 1	550
VHC – Male Thread (with Valve)				
35 23 06	VHC4-4M-SO	45.0	Rc 1/4	98
07	VHC6-6M-SO	32.0	Rc 3/8	158
08	VHC8-8M-SO	28.0	Rc 1/2	218
09	VHC12-12M-SO	25.0	Rc 3/4	400
10	VHC16-16M-SO	14.0	Rc 1	560
OHC - Female Thread (without Valve)				
35 23 11	OHC4-4F-SO	45.0	Rc 1/4	70
12	OHC6-6F-SO	32.0	Rc 3/8	112
13	OHC8-8F-SO	28.0	Rc 1/2	158
14	OHC12-12F-SO	25.0	Rc 3/4	286
15	OHC16-16F-SO	14.0	Rc 1	425
OHC - Male Thread (without Valve)				
35 23 16	OHC4-4M-SO	45.0	Rc 1/4	75
17	OHC6-6M-SO	32.0	Rc 3/8	120
18	OHC8-8M-SO	28.0	Rc 1/2	160
19	OHC12-12M-SO	25.0	Rc 3/4	274
20	OHC16-16M-SO	14.0	Rc 1	-
PHC - Female Thread (with PH Valve)				
35 23 21	PHC6-6F-SO	32.0	Rc 3/8	-
22	PHC8-8F-SO	28.0	Rc 1/2	-
23	PHC12-12F-SO	25.0	Rc 3/4	-
24	PHC16-16F-SO	14.0	Rc 1	-
PHC - Male Thread (with PH Valve)				
35 23 26	PHC6-6M-SO	32.0	Rc 3/8	-
27	PHC8-8M-SO	28.0	Rc 1/2	-
28	PHC12-12M-SO	25.0	Rc 3/4	-
29	PHC16-16M-SO	14.0	Rc 1	-

Carbon Steel Nipples

Unit Per Pc.

CODE	Part No.	Working Pressure MPa	Thread Size	Weight grm
VHN - Female Thread (with Valve)				
35 23 31	VHN4-4F	45.0	Rc 1/4	62
32	VHN6-6F	32.0	Rc 3/8	90
33	VHN8-8F	28.0	Rc 1/2	130
34	VHN12-12F	25.0	Rc 3/4	235
35	VHN16-16F	14.0	Rc 1	395
VHN – Male Thread (with Valve)				
35 23 36	VHN4-4M	45.0	Rc 1/4	68
37	VHN6-6M	32.0	Rc 3/8	102
38	VHN8-8M	28.0	Rc 1/2	142
39	VHN12-12M	25.0	Rc 3/4	245
40	VHN16-16M	14.0	Rc 1	405
OHN - Female Thread (without Valve)				
35 23 41	OHN4-4F	45.0	Rc 1/4	27
42	OHN6-6F	32.0	Rc 3/8	44
43	OHN8-8F	28.0	Rc 1/2	64
44	OHN12-12F	25.0	Rc 3/4	142
45	OHN16-16F	14.0	Rc 1	218
OHN - Male Thread (without Valve)				
35 23 46	OHN4-4M	45.0	Rc 1/4	28
47	OHN6-6M	32.0	Rc 3/8	52
48	OHN8-8M	28.0	Rc 1/2	80
49	OHN12-12M	25.0	Rc 3/4	112
50	OHN16-16M	14.0	Rc 1	170
PHN - Female Thread (with PH Valve)				
35 23 51	PHN6-6F	32.0	Rc 3/8	-
52	PHN8-8F	28.0	Rc 1/2	-
53	PHN12-12F	25.0	Rc 3/4	-
54	PHN16-16F	14.0	Rc 1	-
PHN - Male Thread (with PH Valve)				
35 23 56	PHN6-6M	32.0	Rc 3/8	-
57	PHN8-8M	28.0	Rc 1/2	-
58	PHN12-12M	25.0	Rc 3/4	-
59	PHN16-16M	14.0	Rc 1	-

Brass

	Coupler	Nipple
With Valve	 BVHC Type	 BVHN Type
Without Valve	 BOHC Type	 BOHN Type

Brass Coupler and Nipple Combination List

Type	BVHN	BOHN
BVHC	○	○
BOHC	×	○

Remark: o = Applicable, × = Not applicable

Brass Couplers

Unit Per Pc.

CODE	Part No.	Working Pressure MPa	Thread Size	Weight grm
BVHC - Female Thread (with Valve)				
35 23 61	BVHC4-4F-U	7.0	Rc 1/4	95
62	BVHC6-6F-U	7.0	Rc 3/8	155
63	BVHC8-8F-U	7.0	Rc 1/2	205
64	BVHC12-12F-U	7.0	Rc 3/4	390
65	BVHC16-16F-U	7.0	Rc 1	550
BVHC – Male Thread (with Valve)				
35 23 66	BVHC4-4M-U	7.0	Rc 1/4	98
67	BVHC6-6M-U	7.0	Rc 3/8	158
68	BVHC8-8M-U	7.0	Rc 1/2	218
69	BVHC12-12M-U	7.0	Rc 3/4	400
70	BVHC16-16M-U	7.0	Rc 1	560
BOHC - Female Thread (without Valve)				
35 23 71	BOHC4-4F-U	7.0	Rc 1/4	70
72	BOHC6-6F-U	7.0	Rc 3/8	112
73	BOHC8-8F-U	7.0	Rc 1/2	158
74	BOHC12-12F-U	7.0	Rc 3/4	286
75	BOHC16-16F-U	7.0	Rc 1	425

(to be continued)

Unit Per Pc.

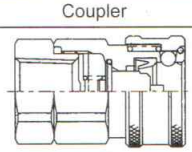
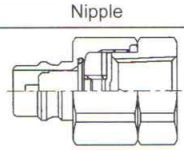
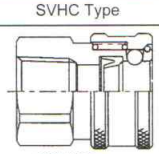
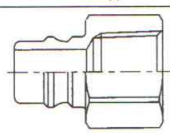
CODE	Part No.	Working Pressure MPa	Thread Size	Weight grm
BOHC - Male Thread (without Valve)				
35 23 76	BOHC4-4M-U	7.0	Rc 1/4	75
77	BOHC6-6M-U	7.0	Rc 3/8	120
78	BOHC8-8M-U	7.0	Rc 1/2	160
79	BOHC12-12M-U	7.0	Rc 3/4	274
80	BOHC16-16M-U	7.0	Rc 1	-

Brass Nipples

Unit Per Pc.

CODE	Part No.	Working Pressure MPa	Thread Size	Weight grm
BVHN - Female Thread (with Valve)				
35 23 81	BVHN4-4F	7.0	Rc 1/4	62
82	BVHN6-6F	7.0	Rc 3/8	90
83	BVHN8-8F	7.0	Rc 1/2	130
84	BVHN12-12F	7.0	Rc 3/4	235
85	BVHN16-16F	7.0	Rc 1	395
BVHN – Male Thread (with Valve)				
35 23 86	BVHN4-4M	7.0	Rc 1/4	68
87	BVHN6-6M	7.0	Rc 3/8	102
88	BVHN8-8M	7.0	Rc 1/2	142
89	BVHN12-12M	7.0	Rc 3/4	245
90	BVHN16-16M	7.0	Rc 1	405
BOHN - Female Thread (without Valve)				
35 23 91	BOHN4-4F	7.0	Rc 1/4	27
92	BOHN6-6F	7.0	Rc 3/8	44
93	BOHN8-8F	7.0	Rc 1/2	64
94	BOHN12-12F	7.0	Rc 3/4	142
95	BOHN16-16F	7.0	Rc 1	218
BOHN - Male Thread (without Valve)				
35 23 96	BOHN4-4M	7.0	Rc 1/4	28
97	BOHN6-6M	7.0	Rc 3/8	52
98	BOHN8-8M	7.0	Rc 1/2	80
99	BOHN12-12M	7.0	Rc 3/4	112
35 24 00	BOHN16-16M	7.0	Rc 1	170

Stainless Steel (SUS-304)

	Coupler	Nipple
With Valve	 SVHC Type	 SVHN Type
Without Valve	 SOHC Type	 SOHN Type

Stainless Steel Coupler and Nipple Combination List

Type	SVHN	SOHN
SVHC	○	○
SOHC	×	○

Remark: o = Applicable, × = Not applicable

Stainless Steel Couplers

Unit Per Pc.

CODE	Part No.	Working Pressure MPa	Thread Size	Weight grm
SVHC - Female Thread (with Valve)				
35 22 01	SVHC4-4F-U	7.0	Rc 1/4	95
02	SVHC6-6F-U	7.0	Rc 3/8	155
03	SVHC8-8F-U	7.0	Rc 1/2	205
04	SVHC12-12F-U	7.0	Rc 3/4	390
05	SVHC16-16F-U	7.0	Rc 1	550
SVHC – Male Thread (with Valve)				
35 22 06	SVHC4-4M-U	7.0	Rc 1/4	98
07	SVHC6-6M-U	7.0	Rc 3/8	158
08	SVHC8-8M-U	7.0	Rc 1/2	218
09	SVHC12-12M-U	7.0	Rc 3/4	400
10	SVHC16-16M-U	7.0	Rc 1	560
SOHC - Female Thread (without Valve)				
35 22 11	SOHC4-4F-U	7.0	Rc 1/4	70
12	SOHC6-6F-U	7.0	Rc 3/8	112
13	SOHC8-8F-U	7.0	Rc 1/2	158
14	SOHC12-12F-U	7.0	Rc 3/4	286
15	SOHC16-16F-U	7.0	Rc 1	425
SOHC - Male Thread (without Valve)				
35 22 16	SOHC4-4M-U	7.0	Rc 1/4	75
17	SOHC6-6M-U	7.0	Rc 3/8	120
18	SOHC8-8M-U	7.0	Rc 1/2	160
19	SOHC12-12M-U	7.0	Rc 3/4	274
20	SOHC16-16M-U	7.0	Rc 1	-

Stainless Steel (SUS-304) Nipples

Unit Per Pc.

CODE	Part No.	Working Pressure MPa	Thread Size	Weight grm
SVHN - Female Thread (with Valve)				
35 22 21	SVHN4-4F	7.0	Rc 1/4	62
22	SVHN6-6F	7.0	Rc 3/8	90
23	SVHN8-8F	7.0	Rc 1/2	130
24	SVHN12-12F	7.0	Rc 3/4	235
25	SVHN16-16F	7.0	Rc 1	395
SVHN – Male Thread (with Valve)				
35 22 26	SVHN4-4M	7.0	Rc 1/4	68
27	SVHN6-6M	7.0	Rc 3/8	102
28	SVHN8-8M	7.0	Rc 1/2	142
29	SVHN12-12M	7.0	Rc 3/4	245
30	SVHN16-16M	7.0	Rc 1	405
SOHN - Female Thread (without Valve)				
35 22 31	SOHN4-4F	7.0	Rc 1/4	27
32	SOHN6-6F	7.0	Rc 3/8	44
33	SOHN8-8F	7.0	Rc 1/2	64
34	SOHN12-12F	7.0	Rc 3/4	142
35	SOHN16-16F	7.0	Rc 1	218
SOHN - Male Thread (without Valve)				
35 22 36	SOHN4-4M	7.0	Rc 1/4	28
37	SOHN6-6M	7.0	Rc 3/8	52
38	SOHN8-8M	7.0	Rc 1/2	80
39	SOHN12-12M	7.0	Rc 3/4	112
40	SOHN16-16M	7.0	Rc 1	170

Conversion Table

[Length]	m	km	in	ft	yd	mile
m	1	1×10^{-3}	39.37	3.28	1.093	6.214×10^{-4}
km	1×10^{3}	1	3.937×10^{4}	3,280	1,093	0.621
in	0.0254	2.54×10^{-5}	1	1/12	1/36	1.58×10^{-5}
ft	0.305	3.048×10^{-4}	12	1	1/3	1.894×10^{-4}
yd	0.914	9.144×10^{-4}	36	3	1	5.682×10^{-4}
mile	1,609	1.609	63,360	5,280	1,760	1

[Mass (Weight)]	g	kg	t	lb	oz
g	1	1×10^{-3}	1×10^{-6}	2.204×10^{-3}	0.0352
kg	1×10^{3}	1	1×10^{-3}	2.204	35.27
t	1×10^{6}	1×10^{3}	1	2,204	35,270
lb	453.6	0.4536	4.536×10^{-4}	1	16
oz	28.35	0.02835	2.835×10^{-5}	1/16	1

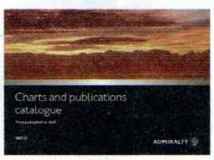
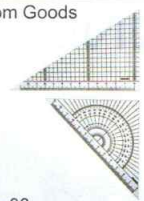
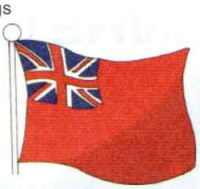
[Volume]	cm^3 (cc or ml)	m^3	l	in^3	qt	pt	fl-oz	ft^3	gal
cm^3 (cc or ml)	1	0.000001	0.001	0.061	0.00088	0.0018	0.035	-	0.00022
m^3	1,000,000	1	1,000	61,024	880	1,760	35,195	35.314	220
l	1,000	0.001	1	61.024	0.880	1.760	35.195	0.035	0.220
in^3	16.387	0.000016	0.016	1	0.014	0.029	0.577	0.00058	0.0036
qt	1,136.52	0.0011	1.137	69.355	1	2	40	0.033	0.25
pt	568	0.00057	0.568	34.677	0.5	1	20	0.017	0.125
fl-oz	28.413	0.000028	0.028	1.734	0.025	0.05	1	0.0008	0.00625
Ft^3	28,316	0.0283	28.316	1,728	29.922	59.844	958	1	7,481
gal	4,546	0.0045	4.546	277	4	8	160	0.134	.1

[Pressure]	bar	kgf/cm^2	lbf/cm^2	mmHg (0°C)	Pa (SI)
bar	1	1.020	14.50	750.1	100,000
kgf/cm^2	0.9807	1	14.22	753.6	98,066
lbf/cm^2	0.0689	0.0703	1	51.72	6,895
mmHg (0)	0.00133	0.0013	0.0193	1	133.3
Pa (SI)	1×10^{-5}	1.02×10^{-5}	1.45×10^{-4}	10.2×10^{-4}	1

[Stress]	Pa (SI)	MPa	kgf/mm^2	kgf/cm^2
Pa (SI)	1	1×10^{-6}	1.01972×10^{-7}	1.01972×10^{-5}
MPa	1×10^{6}	1	1.01972×10^{-1}	1.01972×10
kgf/mm^2	9.80665×10^{6}	9.80665	1	1×10^{2}
kgf/cm^2	9.80665×10^{4}	9.80665×10^{-2}	1×10^{-2}	1

[Force]	kW	kgf · m/sec	HP
kW	1	102.0	1.341
kgf · m/sec	0.009807	1	0.01315
HP	0.7457	76.04	1

37
Nautical Equipment

Bells/Horns  P. 37-1	Marine Radios/ Telephones  P. 37-1 ~ 10	Marine Clocks/Stopwatches  P. 37-10 ~ 11	Navigational Instruments  P. 37-11 ~ 12
Meteorological Instruments  P. 37-13 ~ 14	Sounding Equipment  P. 37-14	Sextant/Binoculars  P. 37-14 ~ 16	Navigation Lights and Searchlights  P. 37-16 ~ 19
Camera Monitoring System  P. 37-19		Day Signals  P. 37-19	Nautical Publications/Charts  P. 37-20 ~ 29
Chart Room Goods  P. 37-29 ~ 30	Flags  P. 37-30 ~ 36	Window Wipers  P. 37-36 ~ 37	GMDSS Radio Equipment  P. 37-37 ~ 42
Navigation Control Equipment  P. 37-42 ~ 46		Nautical Recording Paper  P. 37-46	

Signal Bells

Campanas de Señales　号鐘　船钟



Made of cast brass with a highly polished finish. The size is determined by measuring the bell mouth opening. The required size is over 300 mm diameter for the vessels of length greater than 20 mtr.

37 01 01	Bell, signal, cast brass	200 mm	Pc.
02	"	300 mm	"
03	"	400 mm	"

Air Horns

Bocinas de Aire (Niebla)
エアーホーン　汽笛



Required installation under the international regulations for preventing collisions at sea,1972 (COLREGs). The fundamental frequency of the horns shall be between 130 – 350 Hz for a vessel greater than 75 mtrs but less than 200 mtrs in length, and 70 – 200 Hz for a vessel 200 mtrs or more in length.

Manually operated and electromagnetic types are available.

How to order: CODE

Air horn, for vessels of 75 – 200 mtr in length, LENGTH of VESSEL, TYPE of OPERATION

Unit Per Set

CODE	Fundamental Frequency	Sound Level	Power Source	Size mm		Weight kg
				Length	Horn Dia	
Hull Length: from 75 mtr to 200 mtr						
37 01 85 **86** **87**	135 Hz	138 dB	AC 100V 1P AC 220V 1P DC 24V	1,127	580	32.0
37 01 88 **89** **90**	165 Hz	138 dB	AC 100V 1P AC 220V 1P DC 24V	963	580	31.0
37 01 91 **92** **93**	200 Hz	138 dB	AC 100V 1P AC 220V 1P DC 24V	655	240	19.5
Hull Length: more than 200 mtr						
37 01 95 **96** **97**	128 Hz	143 dB	AC 100V 1P AC 220V 1P DC 24V	1,215	580	40.0

Handheld Marine Radios

Radios Portátiles Marinos
携帯型双方向無線電話装置　船用对讲机



A compact, lightweight, handheld marine transceiver providing full communications capabilities aboard large commercial vessels. For use in the pilothouse, on deck during operations, or at the head of the tow.

Unit Per Set

CODE	37 01 34	37 01 31
Model	DT844 (VHF)	DT885FF (UHF)
Frequency Range	156-163 MHz	450 - 470 MHz
Channels	INT/USA/CAN mode plus private	Marine UHF
Channel Spacing	25 kHz	6.25 KHz /12.5 kHz / 25 kHz
Battery Type	1,800 mAh Li-ion battery pack	
Power Supply Voltage	7.4 VDC	
Duty Cycle (5/5/90)	10 hours (Analogue)	14 hours (Analogue) 17 hours (DMR)
Approval	ATEX II 2G Ex ib IIB T4 Gb	
Water Ingress	IP68 2 metres, 4 hours submersible	
Size (W × H × D)	60 x 138 x 38 mm	
Weight	435 grm with battery and aerial	
Transmitter:		
Power Output	High - 3.9W, Low - 1W	2W
Modulation Limiting	±5.0 KHz	±5.0 KHz /±2.5 KHz
Receiver:		
Digital Sensitivity	-	-116 dBm (0.2 uV) for 5% BER
Analogue Sensitivity	-120 dBm (0.2 uV) for 12dB SINAD	-116 dBm (0.2 uV) for 12dB SINAD
Audio Output	1W	
Standard Accessories	*Li-ion battery pack *Drop in charger *Spring loaded belt clip *High efficiency antenna *Quick start user guide	

Battery Chargers for Handheld Marine Radio

Cargadores de Batería para Radio Portátil Marino
無線電話用充電機　对讲机备用电池



Battery charger operates between 110-230V, charge time is approximately 3 hours. Please specify the manufacturer and model when ordering.

37 01 19	Battery chargers for Handheld Marine Radio	Pc.

Two-way VHF Radiotelephone Apparatus

Aparaatos de Radiotelefonía VHF, de Doble-vía
双方向 VHF 無線電話装置　双向 VHF 无线电话装置



According to the 1983 amendment to the SOLAS regulations 1974 in Chapter III Regulation 6, at least 3 two-way radiotelephones shall be provided on every cargo ship of 500 gross tons or more. The two-way radiotelephone enables communication between the survival craft, the ship, and the rescue boat.

Precautions shall be taken to prevent the inadvertent selection of VHF channel 16 on equipment capable of being operated on that frequency. A watertight model is required for satisfying GMDSS requirements (1988 amendment).

Specifications for Reference

Frequency Range	VHF 156.750 - 156.850 MHz
Size & Weight	165 × 64 × 45.5 mm, 600 grm

37 01 33	Two-way VHF radiotelephone conforms to GMDSS	Pc.

Battery Chargers

for GMDSS VHF Two-way Radiotelephone

Cargadores de Batería para Radiotelefonía de Doble-vía GMDSS VHF

GMDSS 無線電話用充電機　电池充电器

37 01 35	Battery charger for two-way radiotelephone GMDSS AC 110V	Pc.
36	AC 220V	"

Guidance of Frequency Range

Frequency	Range
HF (High Frequency)	3 - 30 MHz
VHF (Very High Frequency)	30 - 300 MHz
UHF (Ultra High Frequency)	300 - 3,000 MHz

Handheld Marine Radios Intrinsically Safe – USTC Certified

Radios Marinos Portátiles Intrinsecamente Seguros

防爆型無線電話裝置

防爆型掌上無線通訊器 USTC 認證



Intrinsically safe radio conforms to all aspect of USTC (U.S. Testing Company) certification for portable used in hazardous locations. If further exceeds this by being fully submersible to 5 meters depth for up to one hour. Meeting MIL STD 810C/D/E rating for tough, enduring performance, the radio conforms to stringent standards, enabling it to withstand the everyday rigorous of shock, vibration and the corrosive action of dust and moisture, ensuring of many years of trouble-free use even in a salt water environment. Very simple to use, with the majority of its features accessed by a single key depression. Latest compandor noise reduction technology delivers loud and crisp audio no matter what environment you are in.

Unit Per Set

CODE	**37 01 15**	**37 01 16**
Model	DX544-IS VHF	DX585M-IS UHF
Protection	Intrinsically safe	
Frequency Range	156 – 163 MHz	450-470 MHz
Channels	INT/USA/CAN mode plus private	99 Channel
Channel Spacing	25 KHz	25 KHz /12.5 KHz
Battery Pack	CNB450E-IS 2,200 mAh Lithium-ion	
Water Ingress	IP68 2 metres, 4 hours submersible	
Size mm	H97 × W59.5 × D37	
Weight grm	269	269
Approval	Intrinsically Safe Certified to UL913 by SGS: - ANSI/UL913 5th Ed - Class I, II, III, Division 1, Groups C-G, T3 - Class I, Division 2, Groups A-D	

(to be continued)

Accessories	*Li-ion battery pack *Drop in charger *Spring loaded belt clip *High efficiency antenna *Quick start user guide
Name of Mfr.	Entel UK Ltd.

Intrinsically Safe Marine UHF Transceivers

400MHz 2W Waterproof

Transmisores navales UHF intrínsecamente seguros

本質安全防爆適合型舶用 UHF トランシーバー

本质安全防爆适用型船用 UHF 收发器



The Maritime Safety Committee (MSC) adopted the following amendment to SOLAS regulation II-2/10 regarding fire fighters' communication: "For ships constructed on or after 1 July 2014, a minimum of two two-way portable radiotelephone apparatus for each fire party for fire-fighter's communication shall be carried on board. Those two-way portable radiotelephone apparatus shall be of an explosion-proof type or intrinsically safe. Ships constructed before 1 July 2014 shall comply with the requirements of this paragraph not later than the first survey after 1 July 2018."

The JHS-431 is a 2 Watt UHF intrinsically safe transceiver designed for on-board communications in ship operations, loading/unloading, and mooring. The JHS-431's intrinsically safe structure meets ATEX Directive 94/9/EC for use when transporting flammable, dangerous materials by Tanker, LPG carrier, LNG carrier and/or LO carrier, and meets above SOLAS amendment by MSC.

3 more communication channels can be installed as a pre-set option.

Unit Per Pc.

CODE	**37 01 17**
Model	JHS-431
Frequencies	CH1 457.525MHz OP1 467.525MHz CH2 457.550MHz OP2 467.550MHz CH3 457.575MHz OP3 467.575MHz
Emission Type	F3E
Output Power	2W (Low : 0.2W)
Tone Squelch	Up to 2 frequencies
Battery	Li-ion battery (7.4V DC, 1,850 mAh)
Protection Rate	IP67
Intrinsically Safe	ATEX Directive 94/9/EC Gas: II2GD Ex ib IIA T3 Dust:II2GD Ex tD A21 T160°C
Antenna Impedance	50Ω unbalanced
Dimensions	Body: W62.5 x D36.4 x H97.7 mm Antenna: L 174 mm
Weight	285 grm
Standard Accessories	1 each Battery pack, Instruction manual and Inspection data

Name of Mfr.: Japan Radio Co., Ltd.

Communication Systems

Sistema de Comunicación a Manos Libres
ヘッドバンド式通信システム　頭帯式通訊系統

L'COM Communication

L'COM Comunicación
L'COM コミュニケーション
L' COM 通讯公司



Communication is getting difficult in a noisiness area

The MSA L'COM Communication system is a complete module with headband system for wearing without helmet.

- 2 x 32 Ω speakers in parallel, max power 100 mW.
- 100Hz-10 kHz electro-dynamic microphone.
- Omnidirectionnal microphone.
- Position of speaker and microphone close to ear, ear remain free.
- Loud and clear communication is possible.

Connection with a wide range of brand and types of radios is possible.

37 01 45	Communication system, headband type, L'com communication (specify brand and type of radio in use)	Set

Name of Mfr.: MSA The Safety Company

Micro Communication

Microcomunicación　マイクロ・コミュニケーション　微型通信

The MSA Micro Communication system is a complete module with clip in system for wearing with helmet in combination with or without full face mask.

<Basic Specifications>
- 32 Ω speaker [one speaker], max power 100 mW.
- Connection in the helmet close to ear [Left or right].
- Possibility to adapt a pouch for use without helmet.

MICRO Built-in Microphone

MICRO Micrófono incorporado
MICRO 内蔵マイク　内置麦克风



- Module integrating both Loudspeaker and electret Microphone.
- 50 Hz-12 kHz electro-dynamic microphone.
- Omnidirectional microphone.

MICRO External Microphone

MICRO Micrófono externo
MICRO 外部マイク　MICRO 外置麦克风



- Module integrating Loudspeaker and external microphone [with flexible arm].
- 50 Hz-12 kHz canceling noise boom microphone.

Connection with a wide range of brand and types of radios is possible.

37 01 49	Communication System, helmet mounted type, Micro built-in microphone (specify brand and type of radio in use)	Set

(to be continued)

37 01 50	Communication System, helmet mounted type, Micro external microphone (specify brand and type of radio in use)	Set

Name of Mfr.: MSA The Safety Company

Osteo Communication

Osteo Comunicación
オステオ・コミュニケーション　Osteo 通信



By simultaneous use of a SCBA and a radio, communication is getting difficult in a noisiness area.
The MSA Osteo Communication system is a complete module with headband system for wearing with helmet in combination with or without full face mask.

- Module integrating loudspeaker.
- 32 Ω speaker (one speaker), max power 100 mW.
- Bone conductive microphone, accelerometer 1 mV/mG.
- Bandwidth 20 Hz to 20 kHz.
- Voice transmission by skull vibration.
- Connection in the helmet close to ear (Left or right) for the speaker module and attachment to the cradle net for the Bone microphone.
- Possibility to adapt a pouch for use without helmet.
- Loud and clear communication is possible.

Connection with a wide range of brand and types of radios is possible.

37 01 46	Communication System: helmet mounted type, Osteo communication (specify brand and type of radio in use)	Set

Name of Mfr.: MSA The Safety Company

Ear Muffs with Communication

Casco Auricular para la Comunicacón
通信機能付きイアーマフ　附通訊功能耳機



Highly efficient ear muffs for protection of loud noises of all pitches in factories and areas where air compressors and turbines are used. The challenge is to balance personal attenuation devices with comfort and the ability of communication, so that workers will wear their hearing protectors all the time.

MSA Sordin's Connected by Cable is a comfortable hearing protection line equipped with a noise cancelling microphone and a down lead for connection to a two-way radio.

Product features:
- Can be connected to mobile phones in combination with a separate adapter. Supplied with a 2.5 mm stereo plug.
- Also available for direct connection to communication radios such as Motorola, Kenwood, Icom, etc. and DECT phones.
- Noise cancelling boom microphone permits two-way communication with minimal interference from background noise.
- All electronic features are controlled using three distinct push buttons.
- Certified to EN 352-1 (headband version).
- Certified to EN 352-3 (helm mounted version).
- SNR 28dBA (headband version), 27dBA (helm mounted version).

Unit Per Pr.

CODE	Description	Colour	Part No.
37 01 47	Headset, model CC with headband SNR 28 - H/M/L 32/26/18	Blue	SOR41000
48	Headset , model CC, Helm mounted version SNR 27 - H/M/L 30/24/17	Blue	SOR41502

Name of Mfr.: MSA The Safety Company

Ship Borne Telephones

Teléfonos Comunicaciones para Buque　船舶用電話機　船用電話機

As a wide range of multi-purpose telephone sets for the marine communication fields are available from different manufacturers, the most common types are listed below.

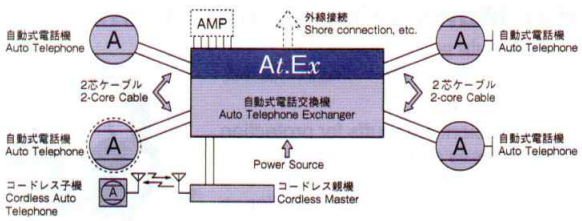
A. Marine Auto Telephones

Teléfonos Automáticos para Buque
船用自動式電話機 船用自動式電話機

These sets are built sturdy based on the design to achieve high reliability while also meeting all the requirements for the marine telephone sets to be connected with the marine electronic telephone exchange.

These telephone sets are designed to be compatible with the DP (Dial Pulse) /PB (Push Button) dials to meet the requirements of the various telephone lines. The received indication (Tone-ring & Lamp) is furnished on all models.

These telephone sets have been granted the approval of the JATE (Japan Approvals Institute for Telecommunication Equipment) standards to allow access, via the marine electronics telephone exchange, to the land line including the via-INMARSAT, cellular marine telephone and shore telephone sets.




Non-water-proof Desk/Wall type


Drip-proof Wall Type


Deck-watertight (IP56) Wall Type


Non-water-proof Built-in Type


Non-water-proof Built-in Type (on Wall)


Drip-proof Portable Type


Deck-watertight (IP55) Flush Type

How to order: CODE

Marine auto telephone, TYPE of TELEPHONE, MODEL

Non-water-proof Desk/Wall Type

No Impermeable Tipo Sobremesa/pPared
非防水卓上 / 壁掛形　不防水台式 / 壁挂式

Unit Per Set

CODE	Model	Noisy Place Use	Round Termi-nal	2-wire (for Independent Line)	Wgt kg
37 21 01	ODA1185-1	-	-	o	0.7
02	ODA1185-1N	o	-	o	0.7

Colour: Ivory White for all models.

Drip-proof Wall Type

Tipo de Pared Antigoteo　防滴壁掛形　防滴水墙型

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Sub Re-ceiver	Head-set	Wgt kg
37 21 05	ODA1310-1	o	-	-	-	1.5
06	ODA1310-1N	o	o	-	-	1.5
07	ODA1310-1SR	o	-	o	-	1.6
08	ODA1310-1SN	o	o	o	-	1.6
09	ODA1310-1H	o	-	-	o	1.5
10	ODA1310-1HN	o	o	-	o	1.5

Colour: N7 for all models.

Deck-watertight (IP56) Wall Type

Hermético a la cubierta (IP56) Tipo de pared
防水壁掛形　地面防水 (IP56) 壁挂式

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Wgt kg	Remarks
37 21 11	ODA-1385-1N	o	o	3.8	Colour: N3

Non-water-proof Built-in Type

Tipo Empotrado no Estanco
非防水埋込形　非防水内置式

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Illumination with Dial	Wgt kg
37 21 12	ODA-1780-1K	o	-	-	1.4
13	ODA-1780-1NK	o	o	-	1.4
14	ODA-1780-2K	o	-	o	1.5
15	ODA-1780-2NK	o	o	o	1.5

Colour: N3 for all models.

Non-water-proof Built-in Type (on Wall)

No Estanco Tipo Empotrado (en Pared)
非防水埋込形　非防水嵌入式（壁挂式）

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Wgt kg	Remarks
37 21 16	ODA-1781-1K	o	-	2.3	Colour: N3
17	ODA-1781-1NK	o	o	2.3	

Drip-proof Portable Type

Tipo Portátil Antigoteo　防滴携帯形　防滴手提式

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Headset	Wgt kg
37 21 18	ODA-1980-1K	o	-	-	4.3
19	ODA-1980-1NK	o	o	-	4.3
20	ODA-1980-1HK	o	o	o	4.3

Colour: N3 for all models.

Deck-watertight (IP55) Flush Type

Hermético a la cubierta (IP55) Tipo empotrado

防水埋込形　地面防水（IP55）嵌入式

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Wgt kgs	Remarks
37 21 75	ODA-1782-1N	o	o	2.2	Colour: N3

B. Marine Common Battery Telephones

Teléfono Marítimo con Batería Común

船用共電式電話機　船舶用共电式電話

This equipment utilizes the ship's power supply of 24 volts DC to activate the voice communication circuits. With a press of the quick access button, you can communicate with the opposite party.

1. Marine Common Battery Telephones (Direct)

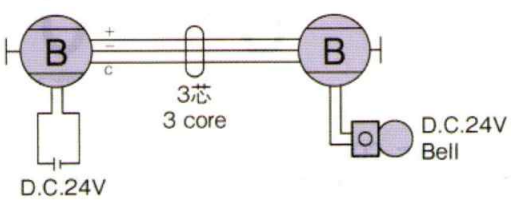
Teléfonos para Buques con Batería

船用共電直通式電話機　船用共电直通式电话机

1) 1:1 Communication system

Sistema de Comunicación　直通電話式　直通電話式

This system is used for the limited communicating purposes between two units. Automatic connection is made when one handset is picked up, and causing the second unit to ring. The received indication (Tone-ring & Lamp) is furnished on all models.





Non-water-proof Desk/Wall type



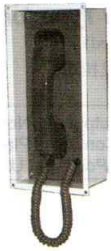
Drip-proof Wall Type



Non-water-proof Wall Type



Non-water-proof Built-in Type



Non-water-proof Built-in Type (on Wall)



Drip-proof Portable Type

How to order: CODE

Marine community battery telephone, direct, TYPE of TELEPHONE, MODEL

Non-water-proof Desk/Wall Type

No Impermeable Tipo Sobremesa/pPared

非防水卓上 / 壁掛形　不防水台式 / 壁挂式

Unit Per Set

CODE	Model	Output to Contact Point	Noisy Place Use	Wgt kg	Remarks
37 21 21	ODC-2180-1	-	-	0.9	-
22	ODC-2180-1N	-	o	0.9	
23	ODC-2180-1A	o	-	0.9	Wall-mount
24	ODC-2180-1AN	o	o	0.9	

Colour: Ivory white for all models.

Drip-proof Wall Type

Tipo de Pared Antigoteo　防滴壁掛形　防滴水墙型

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Sub Re-ceiver	Head-set	Wgt kg
37 21 25	ODC2310-1	o	-	-	-	1.3
26	ODC2310-1N	o	o	-	-	1.3
27	ODC2310-1SR	o	-	o	-	1.3
28	ODC2310-1SN	o	o	o	-	1.3
29	ODC2310-1H	o	-	-	o	1.3
30	ODC2310-1HN	o	o	-	o	1.3

Colour: N7 for all models.

Non-water-proof Wall Type

No Impermeable Tipo de Pared　非防水壁掛形　非防水壁式

Unit Per Set

CODE	Model	Noisy Place Use	Wgt kg	Remarks
37 21 31	ODC-2381-1	-	0.7	-
32	ODC-2381-1N	o	0.7	
33	ODC-2381-3	-	1.3	With Terminal
34	ODC-2381-3N	o	1.3	

Colour: Ivory white for all models.

Non-water-proof Built-in Type

Tipo Empotrado no Estanco　非防水埋込形　非防水内置式

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Wgt kg
37 21 35	ODC-2780-1K	o	-	1.4
36	ODC-2780-1NK	o	o	1.4

Colour: N3 for all models.

Non-water-proof Built-in Type (on Wall)

No Estanco Tipo Empotrado (en Pared)
非防水埋込形　非防水嵌入式（壁挂式）

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Wgt kg	Remarks
37 21 37	ODC-2783-1K	o	-	2.3	Colour:N3
38	ODC-2783-1NK	o	o	2.3	

Drip-proof Portable Type

Tipo Portátil Antigoteo　防滴携帯形　防滴手提式

Unit Per Set

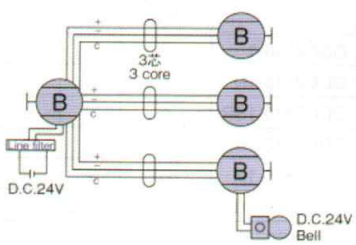
CODE	Model	Output of Contact Point	Noisy Place Use	Headset	Wgt Kg
37 21 39	ODC-2980-1K	o	-	-	4.6
40	ODC-2980-1NK	o	o	-	4.6
41	ODC-2980-1HK	o	-	o	4.6
42	ODC-2980-1HNK	o	o	o	4.6

Colour: N3 for all models.

2) 1:2 and 1:3 Communication systems

Teléfono de Marcación Directa para Padres e Hijos
直通親子式電話機　直拨式亲子电话

Two or three extensions can be connected to a main telephone set. The extension set can be contacted by pressing the push button at the main telephone set. The main set can be contacted by simply lifting the extension handset.



1:2 Master Telephones

Teléfonos Principales　親電話機　主电话


Drip-proof Wall Type


Non-water-proof Built-in Type


Non-water-proof Built-in Type (on Wall)

How to order: CODE

Marine community battery telephone, direct, 1:2, TYPE of TELEPHONE, MODEL

Drip-proof Wall Type

Tipo de Pared Antigoteo　防滴壁掛形　防滴水墙型

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Wgt kg
37 21 43	ODC2312-1	o	-	1.3
44	ODC2312-1N	o	o	2.6

Colour: N7 for all models

Non-water-proof Built-in Type

Tipo Empotrado no Estanco
非防水埋込形　非防水内置式

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Wgt kg
37 21 45	ODC-2781-1K	o	-	1.4
46	ODC-2781-1NK	o	o	1.4

Colour: N3 for all models.

Non-water-proof Built-in Type (on Wall)

No Estanco Tipo Empotrado (en Pared)
非防水埋込形　非防水嵌入式（壁挂式）

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Wgt kg
37 21 47	ODC-2784-1K	o	-	2.3
48	ODC-2784-1NK	o	o	2.3

Colour: N3 for all models.

1:3 Master Telephones

Teléfonos principales　親電話機　主电话


Drip-proof Wall Type


Non-water-proof Built-in Type


Non-water-proof Built-in Type (on Wall)

How to order: CODE

Marine community battery telephone, direct, 1:3, TYPE of TELEPHONE, MODEL

Drip-proof Wall Type

Tipo de Pared Antigoteo　防滴壁掛形　防滴水墙型

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Wgt kg
37 21 49	ODC2313-1	o	-	1.3
50	ODC2313-1N	o	o	1.3

Colour: N7 for all models

Non-water-proof Built-in Type

Tipo Empotrado no Estanco

非防水埋込形　非防水内置式

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Wgt kg
37 21 51	ODC-2782-1K	o	-	1.5
52	ODC-2782-1NK	o	o	1.5

Colour: N3 for all models.

Non-water-proof Built-in Type (on Wall)

No Estanco Tipo Empotrado (en Pared)

非防水埋込形　非防水嵌入式（壁挂式）

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Wgt kg
37 21 53	ODC-2785-1K	o	-	2.4
54	ODC-2785-1NK	o	o	2.4

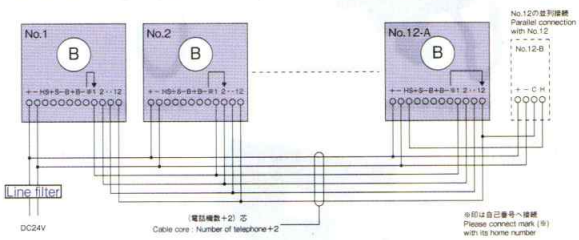
Colour: N3 for all models.

2. Marine Common Battery Telephones (Multi-link)

Teléfonos de Batería con 12 Extensiones de Línea

船用共電選択式電話機　船用共电选择式电话机

This equipment allows up to 12 telephone extension sets. These extension sets can be contacted by turning the rotary switch and pressing push button at this unit. Even if one extension set is busy, remaining five sets can be contacted at the same time. In addition, the following special functions are provided : With two common battery telephone (or multi-link type) sets connected in parallel, both telephone sets can be contacted from outside telephone set at the same time.





Non-water-proof Desk/Wall Type



Drip-proof Wall Type



Non-water-proof Wall Type



Non-water-proof Built-in type



Drip-proof Portable Type



Deck-watertight (IP55) Flush Type

How to order: CODE

Battery telephone, multi-link TYPE of TELEPHONE, MODEL

Non-water-proof Desk/Wall Type

No Impermeable Tipo Sobremesa/pPared

非防水卓上 / 壁掛形

Unit Per Set

CODE	Model	Noisy Place Use	Sub Receiver	Wgt kg	Remarks
37 21 55	ODC-3180-1	-	-	1.0	-
56	ODC-3180-1N	o	-	1.0	
57	ODC-3180-1A	-	-	1.0	Wall-mount
58	ODC-3180-1AN	o	-	1.0	

Colour: Ivory white for all models.

Drip-proof Wall Type

Tipo de Pared Antigoteo

防滴壁掛形　防滴水墙型

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Sub Re-ceiver	Head-set	Wgt kg
37 21 59	ODC3310-1	o	-	-	-	1.3
60	ODC3310-1N	o	o	-	-	1.3
61	ODC3310-1SR	o	-	o	-	1.4
62	ODC3310-1SN	o	o	o	-	1.4
63	ODC3310-1H	o	-	-	o	1.3
64	ODC3310-1HN	o	o	-	o	1.3

Colour: N7 for all models.

Non-water-proof Wall Type

No Impermeable Tipo de Pared

非防水壁掛形　非防水壁式

Unit Per Set

CODE	Model	Noisy Place Use	Wgt kg	Remarks
37 21 65	ODC-3381-1	-	0.9	-
66	ODC-3381-1N	o	0.9	
67	ODC-3381-3	-	1.4	With Terminal
68	ODC-3381-3N	o	1.4	

Colour: Ivory white for all models.

Non-water-proof Built-in Type

Tipo Empotrado no Estanco

非防水埋込形　非防水内置式

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Illumination with Dial	Wgt kg
37 21 69	ODC-3780-1K	o	-	-	1.5
70	ODC-3780-1NK	o	o	-	1.5
71	ODC-3780-2K	o	-	o	1.7
72	ODC-3780-2NK	o	o	o	1.7

Colour: N3 for all models.

Drip-proof Portable Type

Tipo Portátil Antigoteo

防滴携帯形　防滴手提式

Unit Per Set

CODE	Model	Output of Contact Point	Wgt kg	Remarks
37 21 73	ODC-3980-1K	-	5.3	Colour: N3 for all models
74	ODC-3980-1NK	-	5.3	

Deck-watertight (IP55) Flush Type

Hermético a la cubierta (IP55) Tipo empotrado
防水埋込形　地面防水（IP55）嵌入式

Unit Per Set

CODE	Model	Output of Contact Point	Noisy Place Use	Illumination with Dial	Wgt kg
37 21 76	ODC3782-1N	o	o	-	2.3

Colour: N3

Intrinsically Safe Auto Telephones

Teléfono automático intrínsecamente seguro
本質安全防爆自動式電話　本质安全型防爆自动电话

This telephone system is composed of telephones and safety maintaining unit. This telephone set located in explosive hazardous area can be connected to the telephone lines of marine telephone exchange, PABX (Private Automatic Branch Exchange) or analog telecom network via Buffer Unit.

With its safe security system, the equipment can be operated for a long period of time in a dangerous environment such as oil carrier ships, LNG/LPG carrier ships, chemical carrier ships. Specified to the intrinsically safe explosion proof construction grade that satisfies the ia standard, assuming two accidents, in compliance with the IEC specification, meets the requirement of the Ex ia IIBT4 class of equipment in terms of explosion proof and inflammable nature. The authentication of the IECEx has acquired.

Ex. Protection:
ODA-1371-1A & 1AH-B (Ex ia II BT4 Ga Ta= −20°C~+55°C
ODZ-9441-1A ([Ex ia] II B Ta= −20°C~+60°C)



Intrinsically Safe Auto telephone ODA-1371-1A-B



Intrinsically Safe Auto telephone Buffer Unit ODZ 9641-1A



Head Set ODZ 9210-1

Specifications
Power Supply: 24V DC/48V DC 0.5A, Colour: N3.5,
Analogue Telephone Line, Dial: PB/DP,
Relay Contact Output: Dry contact: 250VAC 5A/30VDC 5A,
Continue C Contact,
Flicker C Contact

Unit Per Set

CODE	Model	Dimensions mm	Wgt kg	Remarks
37 21 77	ODA-1371-1A-B	W240 × H265 × D132	2.8	Without Head Set
78	ODA-1371-1AH-B			With Head Set
79	ODZ-9441-1A	W300 × H400 × D155	8.3	-
80	ODZ-9210-2	Head Set	-	-

Name of Mfr.: Nippon Hakuyo Electronics Ltd.

Marine Battery-less Telephones

Teléfonos navales sin pilas
船用バッテリーレス電話機　船用无电池电话机

These telephones do not require a source of electric power for calling and communication. Rotating handle will generate electric power to ring the other station, and accumulated power is used to amplify acoustic sounds to make conversation loud and clear.

They are roughly classified into two systems; Direct Telephone and Selective Telephone. The latter allows maximum 12/24 telephones to configure (one conversation link). And they are possible to connect to Intrinsically Safe Types, shown in the layout drawing below. Each telephone has relay inside terminal so that optional devices such as bells can be equipped.



Desk Type



Wall Type



Wall type w/receptacle



Flush Type



Portable Type

Direct Telephones

Teléfonos directos　直通電話機　直拨电话

Unit Per Set

CODE	Type	Model No.	Dimensions W × H × D mm	Weight kg	Colour
37 21 81	Desk type	ODS4181-1	130 × 280 × 130	2.4	N3
82	Wall type	ODS4381-1	230 × 246 × 119	1.9	N7
83	Wall type w/ receptacle for head set	ODS4381-1H	230 × 246 × 119	1.9	N7
84	Flush type	ODS4781-1	125 × 280 × 148	1.7	N4
85	Portable type	ODS4981-1	290 × 162 × 168	3.8	N4

Name of Mfr.: Nippon Hakuyo Electronics Ltd.

Selective Telephones 12 Stations

Teléfonos Selectivos 12 Estaciones
選択式電話 12 ステーション　选择性电话 12 台

Unit Per Set

CODE	Type	Model No.	Dimensions W × H × D mm	Weight kg	Colour
37 21 86	Desk type	ODS5181-1	130 × 280 × 130	2.4	N3
87	Wall type	ODS5381-1	230 × 246 × 119	1.9	N7
88	Wall type w/ receptacle for head set	ODS5381-1H	230 × 246 × 119	1.9	N7
89	Flush type	ODS5781-1	125 × 280 × 148	1.8	N3
90	Flush type w/dial illumination	ODS5781-1D			
91	Portable type	ODS5981-1	290 × 162 × 168	3.8	N3

Name of Mfr.: Nippon Hakuyo Electronics Ltd.

Selective Telephones 24 Stations

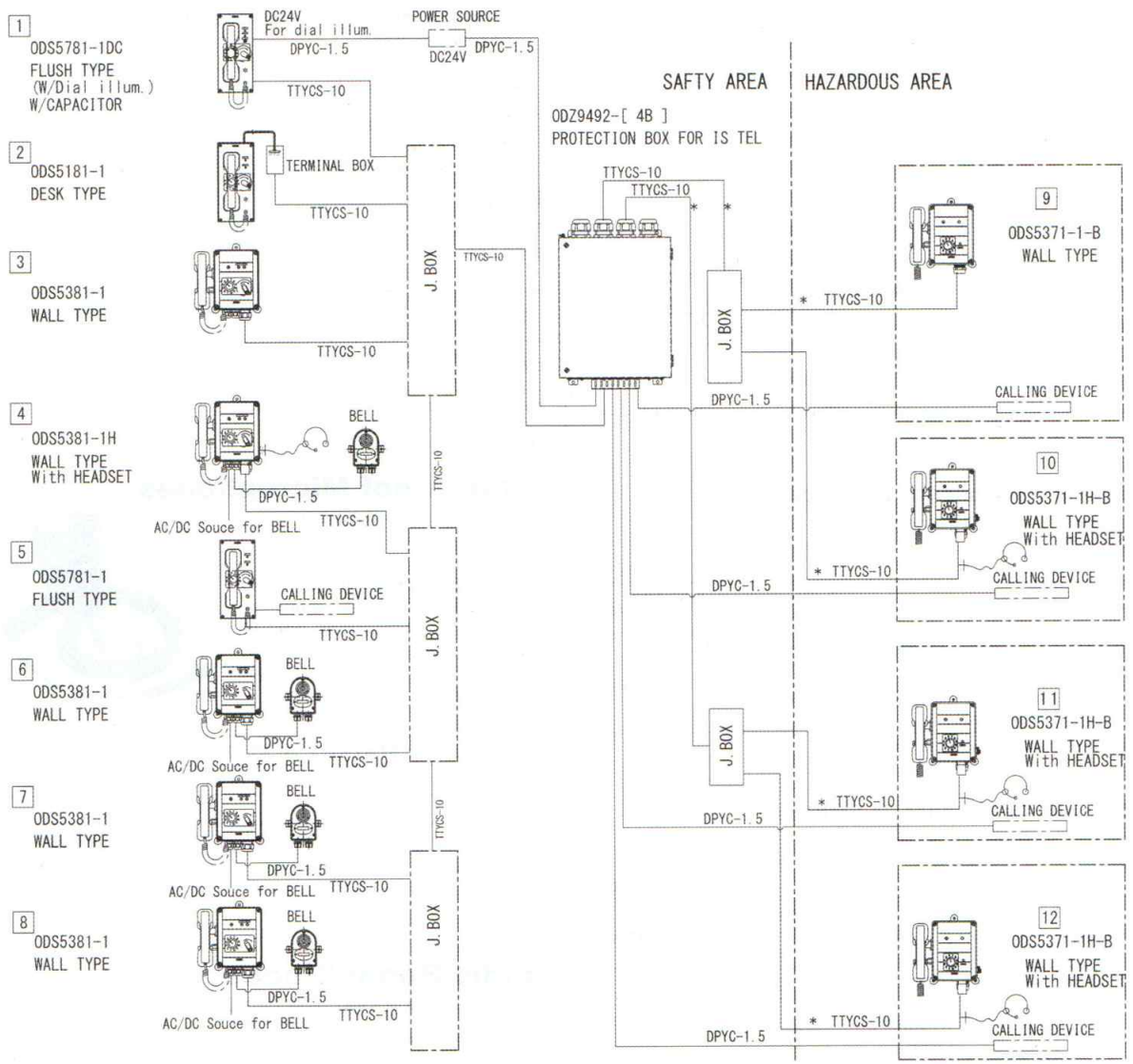
Teléfonos Selectivos 24 Estaciones
選択式電話 24 ステーション　选择性电话 24 台

Unit Per Set

CODE	Type	Model No.	Dimensions W × H × D mm	Weight kg	Colour
37 21 92	Desk type	ODS5181-2	130 × 280 × 130	2.4	N3
93	Wall type	ODS5381-2	230 × 246 × 119	1.9	N7
94	Wall type w/ receptacle for head set	ODS5381-2H	230 × 246 × 119	1.9	N7
95	Flush type	ODS5781-2	125 × 280 × 148	1.8	N3
96	Flush type w/dial illumination	ODS5781-2D			
97	Portable type	ODS5981-2	290 × 162 × 168	3.8	N3

Name of Mfr.: Nippon Hakuyo Electronics Ltd.

INTRINSICALY SAFE BATTERY LESS TELEPHONE SYSTEM (Example) (12stations)



Marine Intrinsically Safe Construction Battery-less Telephones

Marine Intrinsically Safe Construction Teléfonos sin batería
舶用本質安全防爆構造バッテリーレス電話機
海洋本质安全建筑无电池电话



These telephones are of Intrinsically Safe construction. They can be used in hazardous areas and allow to connect to the telephones in the safety areas, shown in the layout drawing shown on the previous "Marine Battery-less Telephone". IS Barrier shall be equipped intermediate for safety connection between two areas (Marine battery less telephones and Marine intrinsically safe construction battery less telephones). This system is roughly classified into two systems; Direct Telephone and Selective (12/24 stations) Telephone.

As they do not have devices to tell the reception, other devices such as Air horn, Whistle, and/or Beacon should be equipped.

The authentication of the IECEx has acquired.

IECEx Certificate No.: IECEx TIIS 16.0003X
Ex Protection: Exia II BT4 Ga Ta=55°C

Direct Telephones

Teléfonos directos　直通電話機　直拨电话

Unit Per Set

CODE	Type	Model No.	Dimensions W × H × D mm	Weight kg	Colour
37 21 98	Wall type	ODS4372-1-B	226 × 279 × 122	2.7	N3.5
99	Wall type w/ receptacle for head set	ODS4372-1H-B	226 × 279 × 138	2.9	

Name of Mfr.: Nippon Hakuyo Electronics Ltd.

Selective Telephones 12 Stations

Teléfonos Selectivos 12 Estaciones
選択式電話 12 ステーション　选择性电话 12 台

Unit Per Set

CODE	Type	Model No.	Dimensions W × H × D mm	Weight kg	Colour
37 22 00	Wall type	ODS5372-1	226 × 279 × 130	2.7	N3.5
01	Wall type w/ receptacle for head set	ODS5372-1H	226 × 279 × 122		

Name of Mfr.: Nippon Hakuyo Electronics Ltd.

Selective Telephones 24 Stations

Teléfonos Selectivos 24 Estaciones
選択式電話 24 ステーション　选择性电话 24 台

Unit Per Set

CODE	Type	Model No.	Dimensions W × H × D mm	Weight kg	Colour
37 22 02	Wall type	ODS5372-2-B	226×279×130	2.7	N3.5
03	Wall type w/ receptacle for head set	ODS5372-2H-B	226×279×122		

Name of Mfr.: Nippon Hakuyo Electronics Ltd.

Safety Protection Unit for Intrinsically Safe Battery-less Telephones

Unidad de protección de seguridad para teléfonos sin batería intrínsecamente seguros
舶用本質安全防爆構造バッテリーレス電話機用安全保持装置
用于本质安全无电池电话的安全保护装置



This unit intervenes between I.S. Battery-less Telephones in hazardous areas and telephones in safety areas to establish safety connection.

For calling device Relay contact Ratings: AC/DC 6A
Power supply for barrier: DC 24V, max. 0.5A

Ex. Protection: [Exia] II B Ta=60°C

Please specify the model number as below.
Model ODZ9492-[① ②]

① Maximum number of telephones possible to equip at hazardous area:
1: equip 1 unit, 2: equip 2 units, 3: equip 3 units,
4: equip 4 units

② Maximum number of telephones possible to equip at safe area in total
A: 8 stations, B: 16 stations, C: 24 stations

Example)

1 × telephone in hazardous area, 8 telephone system in safe area should be "ODZ9492-1A"

Unit Per Set

CODE	Type	Model No.	Dimensions W × H × D mm	Weight kg	Colour
37 22 04	Protection Box	ODZ9692-[① ②]	400 × 500 × 150	11	N3.5

Name of Mfr.: Nippon Hakuyo Electronics Ltd.

Waterproof Microphones

Micrófonos resistentes al Agua
防水型マイクロホン　防水型扩音器



Waterproof type microphone to be used for ship's radio amplifier. Available as microphone only or with curl cord with capacity 40 Ω or 600 Ω. Please specify the length of curl cord if required.

Unit Per Pc.

CODE	37 01 81	37 01 82	37 01 83	37 01 84
Curl Cord	With	Without	With	Without
Impedance	40 Ω		600 Ω	
Frequency	100 - 8,000 Hz		100 - 8,000 Hz	
Switch Circuit Capacity	AC 125V 5A DC 115V 0.5A		AC 125V 5A DC 115V 0.5AC	

Radio Room Clocks

Relojes para Cuarto de Radio　無線室用時計　电台钟

For use in radio rooms. The diameter of the dial is 200 mm with the numerals 1 - 12 on the outer edge and the numerals 13 - 00 on the inner side showing international time. Seconds

are marked clearly in red between the hour numerals. There are two 3 minute silent periods at 15 and 45 minutes past the hour marked in red for emergency signals, and two 3 minute silent periods at 0 and 30 minutes in green for distress signals. The clock has 2 hour hands, one to be set in Greenwich Mean Time and the other to indicate local time.



A Vapour-Proof type(IP54) with Stainless Steel Casing is also available.

37 02 01	Clock, radio room, quartz 200 mm dia.	Pc.
02	Clock, radio room, stainless steel casing, vapour-proof	Pc.

Marine Clocks

Relojes Marinos　船用時計　船用钟

A quartz, battery operated clock. The case is backed with rubber to provide resistance to shock and dust.



A Vapour-Proof type(IP54) with Stainless Steel Casing is also available.

37 02 04	Clock, marine, quartz 200 mm	Pc.
05	Clock, marine, stainless steel casing, vapour-proof	Pc.

Stopwatches

Cronómetros　ストップウォッチ　秒表

Precision stopwatches which can time to the accuracy of 1/5 and 1/10 of a second on an analogue watch and 1/100 of a second on a digital watch.



Analogue



Digital

Unit Per Pc.

Analogue		Digital	
CODE	Second	CODE	Second
37 02 11	1/5	**37 02 13**	1/100
12	1/10		

Stopwatches and Time Printers

Cronómetros e Impresoras de Tiempo

プリンター接続可能ストップウォッチ　时间记数秒表

A 1/100 second digital stopwatch with a built- in printer to record the measurements. The main unit retains a memory even if the measurements are taken and printed out. It has an auto-start function that automatically starts measuring at the set time. The printer runs on 4 x R6P (UM-3) dry batteries. Furnished with two 38 mm wide rolls of printing paper.

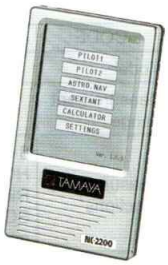


37 02 16	System stopwatch digital 1/100 second	Pc.
37 02 18	Roll paper for digital stopwatch printer 38 mm wide × 2.5 mtr L　2's	Pkt
19	"　5's	"

Navigation Calculators

Calcuadoras de Navegación　天文航法計算機　天文航法计算器

Digital navigation calculators for assessing the ship's position by simple operation with built-in programs. Easy-to-understand dialogue system telling what input data are required, and what output data are displayed.



Major navigation functions are ;

* Simple operation with built-in programs.
* Course and Distance computation.
* Dead Reckoning computation.
* Great Circle computation.
* ETA computation.
* Current computation.
* LOP computation.
* Meridian Passage computation.
* Convenient conversions for to HMS and to HHH.
* Long term Nautical Almanac for the Sun, Moon, Venus, Mars, Jupiter, Saturn and 63 stars. The built-in Almanac is usable until 2100, and it is good with accuracy better than 0'.2.
* Twilight Time mode computes times of rise or set, civil twilight and azimuth for the Sun and rise or set, age and azimuth for the Moon.
* Prediction/Identification mode computes azimuth and altitude for all celestial bodies and displays any usable bodies above the horizon.

Specifications

Operation	Touch panel with stylus
Power source	3 pieces of size AAA battery (dry cell)
Operating time	Standard approx. 8 hours for continuous operation
Operating temperature	0°C - 45°C (32)
Display	Liquid crystal display (LCD), 240 × 320 dots
Dimensions	72 mm (W) × 125 mm (D) × 14 mm (H), or 2.83 in. (W) × 4.42 in. (D) × 0.53 in. (H)
Weight	165 g (without battery) or 582 oz. (with battery)
Standard accessories	Stylus and neck strap

37 02 27	Navigation calculator	Pc.

Digital Planimeters

Planímetros Digitales　デジタル面積計　数字式面积仪

A very precise instrument for quick and accurate determination of area on blueprints, maps, photographs, drawings, etc. Simply follow the outline of the area. The revolution of the measuring wheel in either direction is sensed by the electro shaft-encoder which generates pulses which are processed by the custom-made LSI.



Planix 7



Planix 10S marble

Unit Per Pc.

CODE	37 02 31	37 02 32
Model	PLANIX 7	PLANIX 10S Marble
Measurement Range	300 mm x 3 mtr	300 mm x 10 mtr
Measurement Functions	8 digits output/input HOLD, MEMO, BATTE, READY, cm^2, in^2, SCALE, m^2, km^2, ft^2, acre	Area, line length, and side length, with the following measuring units : mm, cm, m, km, in, ft, acre/yd, user-defined units
Display	Dot LCD 8 digits × 1 line, with zero suppression	LCD 16 digits × 2 lines
Resolution	One digit corresponds to 0.1 cm^2 or 0.01 in^2	±0.05 mm
Accuracy	Better than ±0.2% (±2/1,000 pulses)	±0.1% (100 x 100 mm area measurement)
Power	Internal nickel metal hydride (Ni-Mh) battery or AC adaptor	Internal nickel metal hydride (Ni-MH) battery or AC charger/adaptor
Operating Hours	30 hours (after 15 hours recharge)	20 hours (after 15 hours recharge)
Dimensions (Body)	150 × 240 × 39 mm	250 × 110 × 40 mm
Dimensions (storage case)	183 × 260 × 64 mm	183 × 260 × 64 mm
Weight	650 grm	630 grm
Accessories	Storage case, AC adaptor	Storage case, AC charger/adaptor, gauge template

Name of Mfr. : Tamaya

Automatic Chart Plotters

Instrumentos Automáticos de Dibujo para Carta Náutica

自動海図プロッター　自动图表绘图机



Automatic chart plotter continuously lights up ship's precise position on ordinary charts according to longitude and latitude signals from the GPS (Global Positioning System) or other position reference systems, contributing to ship operation labor-savings as well as safe navigation.

A convenient operation panel lets you register any chart for use in the system. The panel includes display functions for longitude, latitude, heading and speed. Additional interfaces receive data from an onboard gyrocompass and speed log for a high-accuracy position indication.

Also the automatic plotter has route planning and memory card storage functions.

When ordering, please ask for brochures or consult with a sales engineer from the local distributor for further information.

Specifications

Accuracy	±0.3 mm
Diameter of Light Mark	10 mm
Liquid Crystal Display	Alphanumeric, 16 characters × 2 lines
Display Information	Longitude, Latitude, Heading and Speed
Power Consumption	300 VA

37 02 36	Automatic chart plotter	AC 110 volt	Set
37	"	AC 220 volt	"

Clinometers

Clinómetros　傾斜計　倾斜仪

A clinometer is required for positioning a vessel on a proper trim. It also indicates the correct heel angle and is helpful in determining the appropriate locations for cargo and equipment.

Wall-mounted dial type and tube type(bubbles/balls) are available. With tube type clinometers you can check the inclination of the ship from the position of the air bubbles/balls in the glass tube.

There are types with maximum measurement angles of 40° (dial type), 5°, 15° (tube type with a bubble), and 40° (tube type with a ball).



Dial Type



Tube Type (Bubble)



Tube Type (Ball)

Unit Per Pc.

CODE	Type	Specification
37 02 41	Dial Type	Heavy glass front, 200 mm dial, graduated 0 – 40 on each side of the vertical plane in 5 integrals, 80 mm pointer and two maximum indicators with reset device and stop to hold movable pointer when not in use. Weight 1.5 kg.
37 02 42	Tube Type (Bubble)	Single tube clinometer with a bubble type. Size: 200 × 550 × 20 mm, The tube is graduated 0 - 5°. Weight 1.7 kg.
37 02 43	Tube Type (Ball)	Single tube clinometer with a ball type. Size: 200 × 350 × 40 mm. The tube is graduated 0 - 40°. Weight 1.5 kg.

Azimuth Circles

Círculos Azimutales

アジマスサークル　方位仪



The Azimuth Circle is mounted on the repeater compass. By means of a prism and reflection mirror, sunlight is projected in the form of a line on to the compass card through a slit, thus making it possible to observe the sun. The most common types are listed below. When ordering, please specify the name of the manufacturer.

How to order: CODE

Azimuth circle, MANUFACTURER'S NAME & MODEL of repeater compass

Unit Per Pc.

CODE	Manufacturer	Model	Size mm			Graduation
			I.D	O.D	H	
37 03 21	Tokyo Keiki	-	246	260	120	Nil
22	Yokogawa-Navitek	KX-603				Graduated
23	Others	-	-			-

Marine Aneroid Barometers

Barómetros Marinos
船舶用アネロイド気圧計　船用气压表



Specially designed for marine use. It will withstand the vessels vibration without losing accuracy. Available in 150 mm and 200 mm dial size.

37 02 46	Barometer, aneroid, marine use 150 mm dia.	Pc.
47	" 200 mm dia.	Pc.

Hygrometers

Hygrómetros　乾湿計　干湿计

Wet & Dry Bulb Hygrometer

Higrómetro de Bulbo Seco y Húmedo
乾湿計　干湿球湿度计



Consisting of dry and wet alcohol filled glass thermometers fixed on a panel. By differential indication between these thermometers, humidity can be read from the table mounted on a panel. Range –10 to 50°C in 1° integrals. Panel size 280 × 80 mm.

37 02 51	Hygrometer, wet & dry	Pc.

Dial Thermo-Hygrometers

Termohigrómetros de Esfera
丸型温湿度計 圆形温湿度计



Wall mounted bimetallic dial thermometer with hair hygrometer. Standard dial diameter is 100 mm. Best for cabin use.

37 02 56	Dial thermo-hygrometer wall-mount 100 mm	Pc.

Sling Psychrometers (Hygrometers)

Sling Psychrometers (Higrómetros)
振廻式乾湿計　旋转式干湿度计



Two similar balanced thermometers mounted on brass panel with chain. A metal handle enables the instrument to be whirled. Furnished with psychrometeric table and leather case. Range –20 to 50°C in 1/2° div. Case size is 200 × 40 × 40 mm.

37 02 61	Psychrometer, sling type, complete	Set

Hair Hygrometers (Lambreht's Polymeters)

Higrómetros Capilares　毛髪湿度計　毛发湿度计



This instrument, known as a polymeter, measures temperature, humidity, vapour tension and dew point. A mercury filled glass thermometer is attached. The humidity element is a bundle of human hair. The dial which indicates selective humidity is 80 mmø. Temperature range –20 to 50°C in 1° div. and Humidity scale 0 to 100 % 0.18 kg in weight. 263 mm in length.

37 02 66	Hair hygrometer (polymeter) with mercury thermometer	Pc.

Digital Thermo-Hygrometers

Termohigrómetros digitales　デジタル式温湿度計　数字式温度湿度计

A compact, portable thermo-hygrometer that monitors atmospheric temperature and humidity by single unit.



Pen Type



Pocketable Type

Unit Per Pc.

CODE		37 02 58	37 02 59
Type		Pen Type	Pocketable Type
Measuring Range	Temp.	-10°C – 50°C	-20°C – 60°C
	Humi.	5.0 – 95.0 %rh	0 – 100.0 %rh
Display		LCD	
Power Requirement		1 × Lithium battery CR2032	2 × LR03 type alkaline battery
Size		W167 × H33 × D15 mm	W56 × H168× D30.5 mm
Weight		49 grm	75 grm

Digital Hand Anemometers

Anemómetros Manuales Digitales
デジタル手持ち風速計　数字式手持风速计



Portable digital anemometer with temperature measurement function. It can be used for wind force measurement in a wide range of fields, measuring range is 0.4 – 30.0 m/s, temperature range is -20°C - 60°C. Measurement accuracy will be ±3% +0.3m/s (wind force) and ±1.5°C (temperature).

37 02 71	Anemometer, hand, with dial gauge up to 22 m/s	Pc.

Digital Anemometers

Anemómetro digital　デジタル式風速計　数字式风速计

A portable digital anemometer with integrated vane or with remote vane extended by curled cord.



With Integrated Vane



With Remote Vane extended by Curled Cord

Unit Per Pc.

CODE	37 02 73	37 02 74
Type	With integrated vane	With remote vane extended by curled cord
Measuring Range	1.1 - 20.0 m/s -15 - 50.0°C	0.70 - 25.00 m/s -10.0 - 50.0°C
Power Requirement	1 × Lithium battery CR2032	1 × 9V (6F22) battery
Size	W144 × H47 × D26 mm	W71 × H181 × D38 mm
Curled Cord	-	L: 500 mm
Weight	95 grm	360 grm

Barographs

Barógrafos 自記気圧計
自动记录气压计



A newly designed self recording barometer. Very compact with a wide recording range. Can be installed in an indoor or outdoor instrument shelter. Provides an inked record of the station pressure for 24 hours or 7 days. Furnished with 7 days revolution recording paper for one year (55 sheets) and gear for one day drum rotation. One day recording paper is available upon request.

37 02 86	Barograph, 940-1, 045 mb, with recording paper for one year	Set
87	Recording paper 7 days for barograph 55 sheets	Pad
88	Recording paper 1 day for barograph 400 sheets	"

Specifications

Sensor	14 cell, 2 in. dia. aneroid
Sensitivity	±0.2 millibar
Accuracy	±0.2% of range
Lag Time	0.1 sec.
Temperature Compensation	Bimetallic Strip
Chart Scales	940 to 1,045 millibars 705 to 785 mm/Hg
Chart Drive	8-day spring wound
Drum Rotation	1 day & 7 day by gear change
Weight	3.5 kg
Size	325L × 155W × 240H mm

Sounding Leads

Plomadas おもり 测深锤



Designed for measuring sea depth. Has a hole at one end for connecting rope. Furnished without attached line.

Unit Per Pc.

CODE	Lead Weight (kg)	Description
37 03 01	3.2	Hand Lead
02	12.7	Deep Sea Lead

Sounding Rods

Varillas de Sondeo 测深棒 测深杆



A graduated square or round straight or jointed folding brass rod with attached ring; used for measuring the depth of liquid contained in a space. When ordering, specify the shape of the rod, the length, and the number of folds.

How to order: CODE

Sounding rod, NUMBER of FOLDING, SHAPE of ROD, LENGTH, GRADUATION

Unit Per Pc.

CODE	No.of Folding	Shape of Rod	Length	Graduation
37 03 06	Straight	Round	1 mtr	Metric
07	3	"	"	"
08	4	"	"	"
09	5	Square	"	Metric & inch
10	6	Round	3 ft	"

Nautical Sextants

Sextantes Náuticos 航海用六分儀
航海用六分仪



A sextant is an instrument for measuring the angle between two objects by bringing into coincidence to the eye of the observer, rays of light received directly from one object and reflected from the other. Its principal use is to measure the altitudes of celestial bodies above the visible sea horizon. Available in various types. When ordering, please specify the type of telescope (magnifying & lens diameter).

Unit Per Set

CODE	**37 03 33**	**37 03 34**
Star Telescope	7 × 35 mm	7 × 50 mm
	Prismatic Monocle	
Illumination	With Light	
Radius	162 mm	
Graduation	-5° ~ 125° into 1° on the arc	
Weight	2.0 kg	2.2 kg
Case	Plastic	Wooden

Binoculars

Binoculares 双眼鏡 望远镜

A wide variety of binoculars are available. The most popular types in the marine field are listed below. Furnished with a case.

Remark: These products are dual use items, and may therefore be restricted in supply by some authorities.

How to order: CODE

Binocular, MAGNIFICATION, LENS DIAM mm, FEATURES

Unit Per Pr.

CODE	Magnification & Lens Diam.	Features
37 03 41	7 × 35	CF, WP
42	7 × 50	CF, WP
43	7 × 50	IF
44	7 × 50	IF, WP
45	7 × 50	IF, WP, with Scale

Remark: CF=Center Focus, IF=Individual Focus, WP=Water Proof

All-Weather Stand Type Binoculars

Prismáticos con Soporte para Todo Tipo de Clima

全天候型スタンド式双眼鏡　全天候支架式望远镜



An airtight, waterproof, large binocular suitable for bridge use. Can be fixed with bolts onto a deck plate or bridge counter top. Specify the required magnification and lens diameter when ordering. The most common model is: Magnification 15, Lens Diameter 80 mm.

37 03 48	Binocular, stand type, 15 × 80 IFwater-proof	Pr.

Internal Gyro-stabilized Binoculars

Binoculares con giroestabilización interna

内蔵双眼鏡　内置陀螺稳定望远镜



This waterproof binocular makes the target easier to acquire and track even if it is moving at a high rate of speed, because of the prism, installed on a freely rotating gimbaled frame equipped with a highspeed gyro motor. The observer will have little problem keeping the target centered in the field of view.

Simply switch the power on and wait a moment until the gyro motor reaches operating speed. Focusing is achieved by adjusting each eyepiece. Foldback rubber eye cups permit eyeglass wearers to use this gyro-stabilized binoculars and still see a full field of view. To allow for individual differences in the distance between the eyes, an interpupilary control is provided. Finally simply lift the locking lever to free the gimbaled erecting prism assembly.

It can be operated with either 4AA batteries or 1 lithium battery, and also operated on 12-32 volt DC power sources when used with the supplied DC regulator, where auxiliary power is available.

Figure 1.

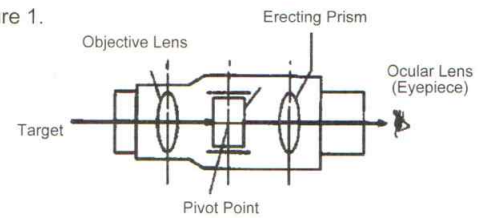
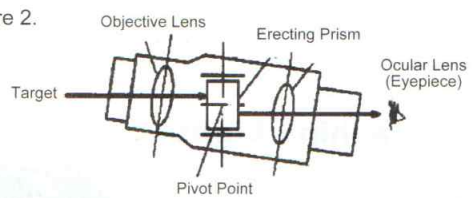


Figure 2.



Unit Per Pr.

CODE	**37 03 51**	**37 03 52**
Model	S-1240	S-1640
Magnification	12X	16X
Objective Lens (Diameter)	40 mm	40 mm
Exit Pupil	3.3 mm	2.5 mm
Eye Relief	17 mm	12 mm
Field of View - Actual	4.7°	3.4°
Field of View - Apparent	56.4°	54.4°
Field fo View - 1,000 mtr	82 mtr	60 mtr
Relative Brightness	11.1	6.25
Eyepiece Focusing Adjustment	± 5 diopters	
Interpupilary Adjustment	60 - 70 mm	
Stabilization Freedom	± 5° in any direction	
Size (L × W × H) mm	210 × 200 × 90	
Weight	1.8 kg	
Battery	4AA alkaline or 1 2CR5 lithium battery	
External Power Source	12 - 32V (Use with supplied Deregulator)	
Name of Mfr.	Fuji Photo Optical Co., Ltd.	

(to be continued)

Digital Binoculars with HD Video Recording

Binoculares digitales con grabadora de vídeo en disco duro

デジタル録画機能付き双眼鏡

带数字录像功能的望远镜



Designed to combine the magnification capabilities of binoculars with the recording capabilities of a camcorder.

- 1,920x1,080 Full HD 60i/24i recording with 7MP still image capture.
- 3D viewing directly through EVF, no need for 3D glasses.
- 10x Seamless Zoom with AutoFocus.
- Optical Steady Shot image stabilization with Active Mode.

Unit Per Pr.

CODE	**37 03 53**
Protection	IPX4 (Rain), IP5X (Dust)
Memory Card	SD/SDHC/SDXC/Memory Stick
Dimension	148.5 × 72.5 × 157.5 mm
Weight	765 grm

Night Vision Binoculars

for Anti-piracy

Binoculares de visión nocturna antipiratería

海賊対策用暗視双眼鏡　反海盗用夜视望远镜

An optical instrument that you can see a night view even in a moonless, cloudy night.

Remark: The products are dual use items, and may therefore be restricted in supply by some authorities.



Bushell Night Vision

- Night vision: Generation 1
- Infrared illuminator: Built-in
- Water resistant
- Great for close-range viewing (Security). Long-range viewing (Wildlife observation)
- Magnification × objective lens: 2.5 × 42



Yukon Night Vision

- Day and night operation
- Higher resolution than Gen. 1
- Effective over 300 yards
- Brightness adjustment control
- Stealth IRTM operation with invisible, powerful dual IR illuminators
- Direct video output capability
- Magnification × objective lens: 5 × 42

Unit Per Pr.

CODE	Model	Capacity Magnification × Objective Lens
37 03 55	Bushell night vision	2.5 × 42
56	Yukon night vision	5 × 42

Navigation Lights

Luces de Navegación　航海灯　桅灯（双灯）

All lights suit to the requirements of "MSC253(83)" and "Convention on the International Regulations for Preventing Collisions at Sea, 1972" of IMCO (Inter-governmental Maritime Consultative Organization). Available with a polycarbonate lens and polycarbonate case. Each type of lights suits to the regulations as bellow.

Navigation Light Classification

Class	No. of Light	Application
Class1 A-2	Double & Single	For vessels of 50 mtr or more in length
Class1 or 2 B-1	Double & Single	For vessels of 20 mtr or more but less than 50 mtr in length
Class1 or 2 B-2	Single	For vessels of less than 20 mtr in length
Class1, 2 or 3 B-3	Single	

Class 1 (A-2) Polycarbonate Lens & Case

Lente y Funda de Policarbonato
ポリカーボネート製レンズ＆ケース　聚碳酸酯镜片和外壳


Masthead Light


Side Light


White Light


Red Light

How to order CODE

ITEM, class A-2, polycarbonate lens & case, NUMBER of LIGHTS

Unit Per Pc.

CODE	Item	No. of Light	Project Angle	Visibility (n.m)	Bulb (Watt)	Weight (kg)
37 04 21	Masthead Light, Clear	Double	225	Over 6	60	2.3
22	Side Light, Green (Starboard)	"	112.5	Over 3	"	2.4
23	Side Light, Red (Port)	"	112.5	"	"	2.4
24	Stern Light, Clear	"	135	"	40	2.4
25	Towing Light	Single	135	"	"	1.4
26	White Light (Anchor Light)	"	360	"	"	1.4
27	Red Light (Not Under Command Light)	"	360	"	60	1.4
28	Green Light	"	360	"	"	1.4

Navigation Lamps



Lámparas de Navegación
ナビゲーションランプ　桅灯（双灯）

Specially designed for use with navigation lights. Made of electrolysis glass with special constructed filament to withstand varying voltages. Can be used also with direct current. Low voltage bulbs can run on battery (emergency) power.

How to order: CODE

Lamp, navigation, BASE SIZE, VOLTAGE, WATTAGE

Unit Per Pc.

24V		110-115V		220V	
CODE	Watts	CODE	Watts	CODE	Watts
E-26 Screw Base					
79 04 01	40	79 04 03	40	79 04 05	40
02	60	04	60	06	60
B-22 Bayonet Base					
79 04 11	40	79 04 13	40	79 04 15	40
12	60	14	60	16	60

Green Flashing Lights



Luces Verdes de Destello
綠色閃光　绿色闪光灯

Signal lights for large ships not less than 200 mtrs in length. All these lights conform to the Maritime Traffic Safety Law.

One all-round green flashing light, with 2 mile range visibility, flashes at regular intervals at a frequency of between 180 and 200 flashes per minute. Available with a glass or polycarbonate lens.

How to order: CODE

Green flashing light, MATERIAL of LENS and CASE, VOLTAGE, TYPE of SOCKET

Unit Per Pc.

CODE	37 04 61	37 04 64	37 04 62	37 04 63
Lens	Polycarbonate		Glass	
Case	Polycarbonate		Brass plate	
Voltage	100/110/115V	220V	100/110/115V	220V
Socket	E-26		B-22	
Watt	60W		100W	
Weight	1.2 kg		4.9 kg	

Red Flashing Lights



Luces Rojas de Destello
赤色閃光燈　红色闪光灯

Signal lights for cargo ships carrying dangerous cargoes (the explosive and organic peroxide cargo ships over 300 G.T., high pressure gas and ignitable liquid bulk cargo ships over 1,000 G.T.). These lights conform to the Maritime Traffic Safety Law.

One all-round red flashing light, with 2 mile range visibility, flashes at regular intervals at a frequency of between 120 and 140 flashes per minute. Available with a glass or polycarbonate lens.

How to order: CODE

Red flashing light, MATERIAL of LENS and CASE, VOLTAGE, TYPE of SOCKET

Unit Per Pc.

CODE	37 04 66	37 04 69	37 04 67	37 04 68
Lens	Polycarbonate		Glass	
Case	Polycarbonate		Brass plate	
Voltage	100/110/115V	220V	100/110/115V	220V
Socket	E-26		B-22	
Watt	60W		100W	
Weight	1.2 kg		4.9 kg	

Spare Bulbs for Flashing Light

Bombillas de Repuesto para Luz Intermitente
閃光燈用予備電球　　闪光灯备用灯泡

Clear glass bulbs suitable for both green and red flashing lights of the aforementioned types.

How to order: CODE

Spare bulb for flashing light, VOLTAGE, WATTAGE, TYPE of SOCKET

Unit Per Pc.

CODE	Voltage	Wattage	Socket
37 04 71	100V	60W	E-26
72		100W	B-22
73	115V	60W	E-26
74		100W	B-22
76	220V	60W	E-26
75		100W	B-22

Marine Searchlights

Proyectores Marinos
サーチライト
船用探照灯



SW 450 / 2000



DS 463 HGS / 525 HGS

Multi-purpose search-light, suitable for many types of ocean-going vessels. Used with a halogen lamp. Made of seawater resistant aluminium with toughened front glass.

How to order: CODE

Marine searchlight, MODEL, POWER SOURCE VOLTAGE, WATTAGE, RANGE

Unit Per Set

CODE	37 04 81	37 04 82	37 04 85	37 04 86
Model	SW 450 / 2000		DS 463 HGS	DS 525 HGS
Power Source	AC 110V	AC 220V	AC 110 or 220 V	
Wattage	2,000W		2,000W	
Range	1,730 mtr	1,430 mtr	1,300 mtr	1,500 mtr
Diam. of Reflector	450 mm		360 mm	420 mm
Lamp Holder	GY-16		GY-16	

(to be continued)

Material	Seawater resistant aluminium	Seawater resistant aluminium	
Fixing Method	Mounting bracket	Flange base (Diam: 260 mm)	
Weight	36.3 kg	22 kg	26 kg
Name of Mfr.	WISKA	Pesch Seematz	

Xenon Searchlights

Proyector de Xenón
キセノンサーチライト　氙素探照灯



A compact searchlight "U-beam" mounted with a 150W high performance xenon short-arc lamp of high luminous intensity and low energy consumption. The searchlight radiates a powerful white beam with a luminous intensity of 1,500,000 candela and colour temperature of 6,000°K, similar to sunlight.
Two beam angle types are available. Use of the remote control allows for easy, simultaneous control of the horizontal and elevational angle of the lamp head.

How to order: CODE

Xenon Searchlight, BEAM ANGLE, LUMINOUS INTENSITY cd., POWER SOURCE VOLTAGE

Unit Per Set

CODE	37 04 91	37 04 92
Beam Angle	5	10
Center Luminous Intensity cd.	1.5 millon	1 million
Lamp Model	UXR-150MA	UXR-150A/W
Depression/elevation Angle	Upward : 5 Downward : 35	
Material	Anti - corrosion aluminium	
Power Source	DC 24V, 7.8A	
Weight	9 kg	

Suez Canal Searchlights

Proyector Canal de Suez
スエズ運河サーチライト
苏伊士运河探照灯



Complying with the "Rules of Navigation" established by The Suez Canal Authority, which states that ships which go through the canal during the night must be equipped with The Suez Canal Searchlight. The lamp must have a luminous intensity of a single light beam not less than 3×10^6 (3 million) candela, which is equivalent to a high efficiency lamp of 2,000 watts for vessels up to 30,000 S.C. tons gross and 3,000 watts for vessels over 30,000 S.C. tons gross.

The searchlights must have a certificate issued by one of the Classification Societies such as N.K., Lloyd, etc. and must be equipped with a 2 lamp carrier that can be turned into position to let the lamp focus directly on the reflector. Available in a floor mounting type or ceiling mounting type. The most popular model is the floor mounting, manual operated type as listed below. This type is also available for use with incandescent lamps or halogen lamps.

Specifications

Kind of Lamp		Incandescent lamp	Halogen lamp
Lamp	Voltage	100V, 110V, 115V, 220V, 230V	
	Watt	2,000W, 3,000W	2,000W
Reflector		550 mm	640 mm
Form of Control		Manual Operation	
Elevation Angle		Up above 30 deg. down below 30 deg.	Up above 20 deg. down below 20 deg.
Horizontal Turning Angle		360 deg.	
Height from the floor to the center of lamp		650 mm	
Temperature range		−25°C to 45°C	
Material		Stainless Steel 1.4301 (V2A)	
Weight		40 kg	

How to order: CODE

Searchlight, Suez Canal, KIND of LAMP, POWER SOURCE VOLTAGE, WATTAGE

Unit Per Pc.

Incandescent Lamp Type			Incandescent Lamp Type		
CODE	Voltage	Wattage	CODE	Voltage	Wattage
37 05 01 02	100V	2,000W 3,000W	**37 05 11**	100V	2,000W
37 05 03 04	115V	2,000W 3,000W	**37 05 12**	115V	2,000W
37 05 05 06	220V	2,000W 3,000W	**37 05 13**	220V	2,000W
37 05 07 08	230V	2,000W 3,000W	**37 05 14**	230V	2,000W

Incandescent Lamps

for Suez Canal Searchlight

Lámparas Incandescentes

スエズ運河サーチライト用白熱電球　白炽灯



Spare incandescent lamps for the incandescent lamp searchlight mentioned above. When ordering, specify the voltage and wattage of the lamp.

Unit Per Pc.

CODE	37 05 21	37 05 22	37 05 23	37 05 24	37 05 25	37 05 26
Type	A 100V 2,000W	A 115V 2,000W	Z 220V 2,000W	Z 100V 3,000W	Z 115V 3,000W	Z 220V 3,000W
Rated Voltage	100V	110-115V	220V	100V	110-115V	220V
Lamp Capacity	2,000 W			3,000 W		
Base	G 150					

Halogen Lamps

for Suez Canal Searchlight

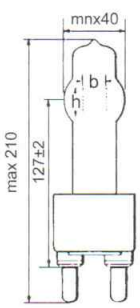
Lámparas Halógenas

スエズ運河サーチライト用ハロゲンランプ

卤素灯

Spare halogen lamps for the halogen lamp type searchlights mentioned above. When ordering, specify the voltage of the lamp.

6994Z
6994Z-CYX



Unit Per Pc.

CODE	37 05 31	37 05 32	37 05 33
Type	100V 2,000W	120V 2,000W	220V 2,000W
Rated Voltage	100V	110-120V	220V
Lamp Capacity	2,000W		
Base	G 38		

Marine LED Searchlights

Proyectores LED Marinos

LED サーチライト　LED 探照灯



Multi-purpose LED search light, suitable for many types of ocean-going vessels, designed as a replacement of traditional halogen lamp. Made of aluminium base, waterproof (IP65). Compliance with ROHS and CE. Wide input voltage: AC 90-260V, 50/60Hz.

How to order: CODE

Marine LED searchlight, MODEL, POWER SOURCE VOLTAGE, WATTAGE, RANGE

Unit Per Pc.

CODE	37 05 34
Material	Aluminum + Tempered Glass
Power Source	AC 90-260V 50/60HZ
Power Consumption	500W
Operating Temperature	-20°C - 60°C
Lifespan	50,000 Hours
Nominal Light Flux	≥ 65,000LM
Beam Angle	25°/ 60°/ 90°
Dimension (mm)	Ø368 H510 × L414 × W285
Weight	13 kg

Remote Control LED Searchlights

Proyectores LED con Mando a Distancia

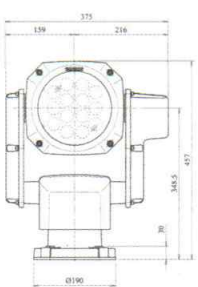
リモートコントロール LED サーチライト

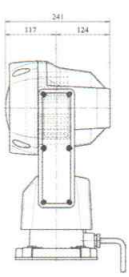
遥控 LED 探照灯

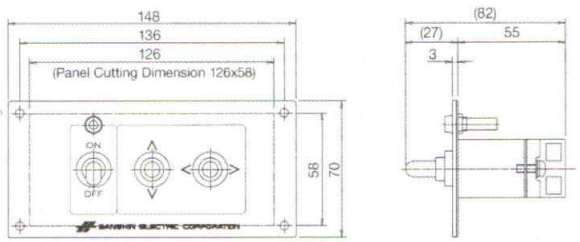
The remote-control LED Searchlight is vibration-resistant and has high energy savings compared to traditional halogen lamps. Protection Class: IP56.

RGL40E



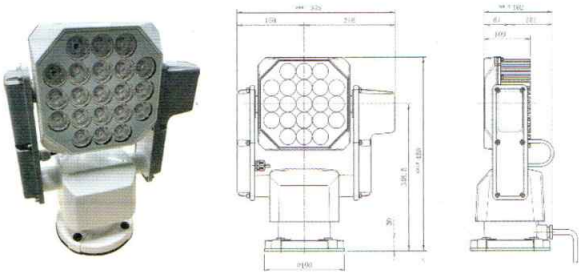


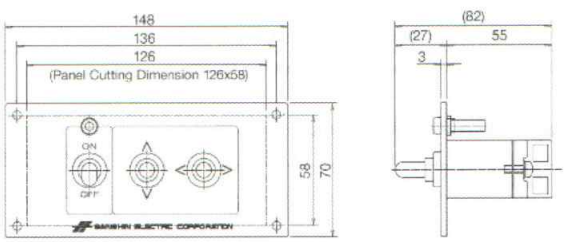




CPF195 Remote Control Panel

RGL80E





CPF195J Remote Control Panel

Unit Per Pc.

CODE	Type	Main Voltage	Power	Turning Angle	Max. Luminous Intensity	Service Life hours	Weight kg
37 05 35	RGL40E	DC 24V	40W	Left and right 170°	250,000 cd	40,000	13
37 05 36	RGL80E	AC 100/220V	80W		1,000,000 cd.	10,000	13.7

Camera Monitoring System

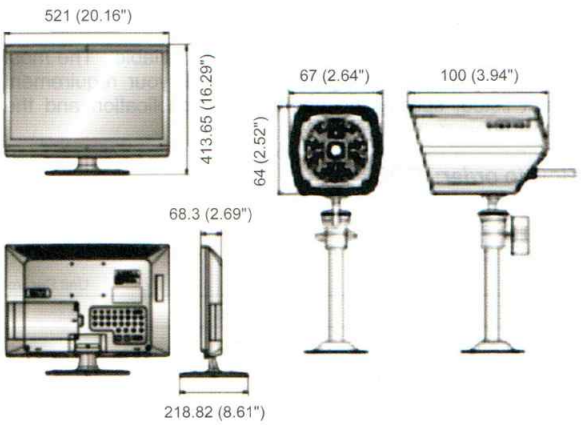
with Infrared Illuminators

Sistema de observación con cámara con iluminación infrarroja
赤外線発光式監視カメラステム
红外灯监控摄像系统



Camera monitoring system provides maximum protection for any spot 24 hours a day, 7 days a week. Simple to set up, you can monitor any time from anywhere around the world. All four cameras are waterproof to IP66, compact and highly durable to achieve clear stable video, even in harsh outdoor conditions. Single cable to each camera cover all wiring needs including power so you have the freedom to place them anywhere, even if there is no electrical outlet in the area. The four night vision cameras are equipped with 30 infrared LEDs which allow them to detect and show objects as far as 50 feet, even in the darkest conditions. The built in 500 GB hard drive allows for extended recording time and is expandable to 1 TB for maximum data capacity. Please contact your local supplier about more details.

Dimensions



Main Feature:

- Smartphone ready.
- 4×infra red night vision cameras – 600TV lines of high super resolution.
- H.264 high performance compression.
- 8 channel digital video recorder.
- Vivid 22" LCD display.
- 500 GB of storage USB 2.0.

Accessories;

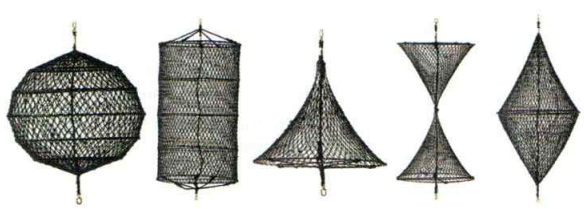
4 pcs.	Camera & bracket	1 pc.	Power cable
4 pcs.	60ft. extension cable	1 pc.	Remote control
1 pc.	User manual	1 pc.	Quick guide
1 pc.	VGA cable	1 pc.	Mouse
1 pc.	Network setup guide	1 pc.	Ethernet cable
2 pcs.	Battery		

37 05 43	Camera monitoring system with infrared illuminators Samsun model SME-4220	Set

Day Signals

Señales Diurnas　昼間標識　信号球

Equipment required on board by the International Regulations for Preventing Collisions at Sea, 1972. The standard size is 610 mm (24") in diameter in a net folding type.



Black Ball　Black Cylindrical Shape　Black Conical Shape　Double Conical Shape (Black DrumType)　Diamond Shape

37 05 81	Black ball	Net diam. 610 mm	Pc.
82	Black cylindrical shape,	Net diam. 610 mm	"
83	Black conical shape,	Net diam. 610 mm	"
84	Double conical shape,	Net diam. 610 mm	"
85	Diamond shape,	Net diam. 610 mm	"

Nautical Publications

Publicaciones Náuticas 海事出版物 航海日志

Publications from various countries are available. The most popular publications are listed below. If your requirement is not listed, specify the name of the publication and the published year.

How to order: CODE
TITLE, PUBLISHED YEAR

British Publications

Unit Per Vol

CODE	Titles
Nautical Almanac	
37 06 01	Brown's Nautical Almanac
03	GP100 The Astronomical Almanac
04	GP200 Astronomical Phenomena
05	AP1602 The UK Air Almanac
Misc . Publications	
37 06 66	Guide to Port Entry
69	Norie's Nautical Tables
74	International Medical Guide for Ships
76	Ships Captain's Medical Guide
78	Ship's Routeing
81	International Health Regulations
82	Vaccination Certificate Requirements and Health Advice
83	Tanker Safety Guide Chemicals
84	Mooring Equipment Guidelines 4th Edition OCIMF
86	The Ships Atlas 19th edition
87	Reeds Marine Distance Tables
89	Tank Cleaning Guide Dr. Verways
90	Storck Guide: Stowage & Segregation Guide to IMDG Code

American Publications

Unit Per Vol

CODE	Stock No.	Titles
NGA List of Lights		
37 07 21	PUB110	Greenland, the East Coasts of North and South America
37 07 22	PUB111	The West Coasts of North and South America and Pacific Ocean
37 07 23	PUB112	Western Pacific and Indian Oceans, Persian Gulf and Red Sea
37 07 24	PUB113	The West Coasts of Europe, Africa, the Mediterranean and Black Sea
37 07 25	PUB114	British Isles, English Channel and North Sea
37 07 26	PUB115	Norway, Iceland, and Arctic Ocean
37 07 27	PUB116	Baltic Sea with Kattegat, Belts and Sound and Gulf of Bothnia
NGA Sight Reduction Tables for Marine Navigation		
37 07 31	PUB229 Vol. 1	0° - 15° Latitude
32	PUB229 Vol. 2	15° - 30°Latitude
33	PUB229 Vol. 3	30° - 45° Latitude
34	PUB229 Vol. 4	45° - 60° Latitude
35	PUB229 Vol. 5	60° - 75° Latitude
36	PUB229 Vol. 6	75° - 90° Latitude
NGA Sight Reduction Tables for Air Navigation		
37 07 38	PUB249 Vol. 1	Selected Stars
37 07 39	PUB249 Vol. 2	Latitudes 0° - 40°, Declination 0° - 29°
37 07 40	PUB249 Vol. 3	Latitudes 39° - 89°, Declination 0° - 29°
NGA Atlas of Pilot Charts		
37 07 41	PUB105	South Atlantic Ocean
42	PUB106	North Atlantic Ocean
43	PUB107	South Pacific Ocean
44	PUB108	North Pacific Ocean
45	PUB109	Indian Ocean
NGA Sailing		
37 07 48	PUB120 to 200	Sailing Directions

Note: As to NGA Sailing Directions, specify NGA stock number or title when ordering.

NGA Misc. Publications		
37 07 53	PUB117	Radio Navigational Aids
56	PUB102	International Code of Signals
59	PUB150	World Port Index

Note : NGA – National Geospatial-Intelligence Agency

Japanese Publications

Unit Per Vol

CODE	Stock No.	Titles
Tide Tables		
37 07 86	No.781	Vol-1 Japan & its Vicinities
87	No.782	Vol-2 Pacific & Indian Ocean
98	CORN 501	Check List for Life Saving Appliances
Misc. Publications		
37 07 88	No.411	Light Lists
89	No.681	Nautical Almanac

Panama Publications

Unit Per Vol

CODE	Stock No.	Titles
37 07 90	MROPC	Maritime Regulations for transiting the Panama Canal

Egyptian Publications

Unit Per Vol

CODE	Stock No.	Titles
37 07 97	-	Suez Canal Rules of Navigation

ITU Publications

Unit Per Vol

CODE	ITU Article No.	Titles
37 07 91	ITU 05 CD	List of Ship Stations and Maritime Mobile Service Identity Assignments
37 07 93	ITU 04 CD	List of Coast Stations and Special Services Stations LIST IV
37 07 95	ITU MM CD	Manual for use by the Maritime Mobile & Maritime Mobile-Satellite Services
37 07 96	ITU RR CD	Radio Regulations Vol 1-4 (CD)

Note: ITU – International Telecommunication Union

(to be continued)

CODE	Ref No.	Title	Unit
IMO Publications			
37 16 77	IE100E	IBC Code	Vol
37 16 01	IG110E	SOLAS (Consolidated edition)	"
37 17 90	KA112E	International Health Regulations	"
37 17 91	I114E	Quantification Addendum: International Medical Guide for Ships 3rd Edition	"
37 06 74	I115E	International Medical Guide for Ships 3rd Edition	"
37 16 73	IB116E	Guide to Maritime Security and the ISPS Code	"
37 16 02	ID117E	ISM Code	"
37 16 78	K128E	Casualty Investigation Code	"
37 16 03	IB155E	FSS Code (Fire Safety Systems)	"
37 16 80	K191E	Polar Code	"
37 16 07	IN200E	IMDG Code (International Maritime Dangerous Goods Code) (Two Vols)	"
37 16 11	IL210E	IMDG Code Supplement	"
37 16 81	K240E	International Grain Code (1991 Edition)	"
37 16 13	IK260E	IMSBC Code and Supplement	"
37 17 92	IC265E	2011 ESP Code	"
37 16 82	KA266E	BLU Code (including BLU Manual) (2011 Edition)	"
37 16 83	IA275E	Code of Safe Practice for Ships Carrying Timber Deck Cargoes, 2011 (2012 Edition)	"
37 17 93	KC282E	The International Convention for Safe Containers, 1972 (CSC 1972)	"
37 16 84	IC284E	IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units (CTU Code) (2014 Edition)	"
37 16 85	E288E	OSV Code (2000 Edition)	"
37 16 72	IC292E	CSS Code - Code of Safe Practice for Cargo Stowage and Securing	"
37 16 16	E500E	Int. Convention for the Prevention of Pollution of the Sea by Oil (OILPOL)	"
37 16 17	I504E	Supplement Relating to the International Convention for the Prevention of Pollution of the Sea by Oil (1954)	"
37 16 19	IA516E	Reporting of Incidents involving Harmful Substances under MARPOL 73/78	"
37 16 20	IF520E	MARPOL (Consolidated Edition 2022)	"
37 16 86	KB531E	Waste Assessment Guidelines under the London Convention and Protocol (2021 Edition)	"
37 16 22	IB532E	London Convention and London Protocol	"
37 16 87	I533E	The London Protocol - What it is and how to implement it (2014 Edition)	"
37 16 88	I538M	London Convention and Protocol: Guidance for the Development of Action Lists and Action Levels for Dredged Material (2009 Edition)	"
37 16 89	IA545E	PSSA (Particularly Sensitive Sea Areas) (2007 Edition)	"
37 16 90	I546E	Carbon Dioxide Sequestration (2016 Edition)	"
37 16 23	E556E	OPRC - HNS Protocol 2000	"
37 16 91	IA557E	Manual on Oil Pollution: Section I - Prevention (2011 Edition)	"
37 16 92	I558E	Response to a Marine Oil Pollution Incident (2016 Edition)	"
37 16 24	IB560E	Manual on Oil Pollution Section II - Contingency Planning	"
37 16 25	KA566E	Manual on Oil Pollution Section III - Salvage	"
37 16 26	KA569E	Manual on Oil Pollution Section IV - Combating Oil Spills	"
37 16 27	KA572E	Manual on Oil Pollution - Section V. Administrative Aspects of Oil Pollution Response	"
37 16 28	IA575E	IMO/UNEP Guidelines on Oil Spill Dispersant Application	"
37 16 29	K578E	Manual on Oil Pollution - Section VI. IMO Guidelines for the Sampling and Identification of Oil Spills	"
37 16 93	E579E	Manual on Oil Spill Risk Evaluation and Assessment of Response Preparedness (2010 Edition)	"
37 16 94	I580E	IMO/UNEP Guidance Manual on the Assessment and Restoration of Environmental Damage Following Marine Oil Spills (2009 Edition)	"
37 16 95	I582E	Guideline for Oil Spill Response in Fast Currents (2013 Edition)	"
37 16 96	E584E	Bioremediation in Marine Oil Spills (2004 Edition)	"
37 16 97	KB586E	Guidelines for the Development of Shipboard Marine Pollution Emergency Plans (2010 Edition)	"
37 16 98	E590E	IMO/FAO Guidance on Managing Seafood Safety During and after Oil Spills (2002 Edition)	"
37 16 67	IB597E	Port Reception Facilities	"
37 16 99	E598E	Guidelines for Ensuring the Adequacy of Port Waste Reception Facilities (2000 Edition)	"
37 17 00	KA617E	Crude Oil Washing Systems (2000 Edition)	"
37 17 64	K619E	Dedicated Clean Ballast Tanks (1982 Edition)	"

(to be continued)

CODE	Ref No.	Title	Unit
37 17 66	IA621E	Ballast Water Management Convention and BWMS Code with Guidelines for Implementation (2018 Edition)	Vol
37 17 94	I624E	Ballast Water Management – How to Do It	"
37 16 30	KA630E	Manual on Chemical Pollution: Section I - Problem Assessment and Response Arrangements	"
37 16 31	IA 633E	Manual on Chemical Pollution: Section II - Search and Recovery of Packaged Goods Lost at Sea.	"
37 16 32	IB636E	MARPOL - How to do it	"
37 17 67	I637E	Manual on Chemical Pollution: Section 3 – Legal and Administrative Aspects of HNS Incidents (2015 Edition)	"
37 16 33	KA646E	Pollution Prevention Equipment under MARPOL	"
37 16 34	I649E	Field Guide for Oil Spill Response in Tropical Waters	"
37 16 35	IE650E	Port State Control 2021	"
37 16 36	I653E	Guidelines for the Provisional Assessment of Liquids Transported in Bulk	"
37 16 37	IC656E	Guidelines for the Implementation of MARPOL Annex V	"
37 17 95	KA657E	Instruments relevant to Port State Control 2021	"
37 17 68	IA659E	Poster: MARPOL Annex V Discharge Provisions	"
37 17 69	K662E	Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species (2012 Edition)	"
37 16 39	ID664E	MARPOL Annex VI and NC 2008 with Guidelines for Implementation	"
37 17 70	I665E	Bunkers Sampling Guidelines (2005 Edition)	"
37 17 71	KB680E	International Convention on the Control of Harmful Anti-Fouling Systems (AFS) on Ships, 2001 (2023 Edition)	"
37 17 72	I685E	IMO Guidelines on Ship Recycling (2006 Edition)	"
37 17 73	I686E	Use of Sorbents for Spill Response – an Operational Guide (2016 Edition)	"
37 16 68	IC701E	Load Lines Convention 1966 (2021 Edition)	"
37 17 74	K713E	Tonnage Measurement of Ships, 1969 (1970 Edition)	"
37 16 69	KC772E	BCH Code	"
37 16 40	E782E	Code for Construction & Equipment of Ships Carrying Liquified Gases in Bulk	"
37 17 75	K817E	Code on Noise Levels on Board Ships (2014 Edition)	"
37 17 76	KA820E	Code of Safety for Special Purpose Ships (2008 Edition)	"
37 17 77	IC844E	2010 FTP Code (2012 Edition)	"
37 16 41	IA847E	Graphical Symbols for Shipboard Fire Control Plans	"
37 17 78	KB867E	Code on Alerts and Indicators, 2009 (2010 Edition)	"
37 17 96	KC874E	The International Code on Intact Stability, 2008 (2008 IS Code)	"
37 16 43	IB904E	Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREG)	"
37 17 79	ID908E	International SafetyNET Manual (2022 Edition)	"
37 17 80	K915E	International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel, 1995 (STCW-F) (1996 Edition)	"
37 16 44	IH927E	Ship's Routeing	"
37 16 45	ID938E	STCW (2017 Edition)	"
37 17 81	KB946E	Pocket Guide for Cold Water Survival (2012 Edition)	"
37 17 97	IA947E	A Pocket Guide to Recovery Techniques (2014 Edition)	"
37 17 82	IF951E	NAVTEX Manual (2023 Edition)	"
37 16 49	KB955E	SAR Convention. International Convention on Search and Rescue, 1979	"
37 16 50	KK960E	IAMSAR Manual (International Aeronautical and Maritime Search and Rescue Manual) Volume I - Organization and Management"	"
37 16 51	IH961E	IAMSAR Manual (International Aeronautical and Maritime Search and Rescue Manual) Volume II – Mission Coordination	"
37 16 52	KK962E	IAMSAR Manual (International Aeronautical and Maritime Search and Rescue Manual) Volume III – Mobile Facilities	"
37 17 83	IB966E	IAMSAR Manual, Volume III – Action Cards (2022 Edition)	"
37 17 98	KA968E	Guidelines on Fatigue	"
37 16 55	I969E	GMDSS Operating Guidance Card	"
37 16 57	II970E	GMDSS Manual	"
37 16 70	KG978E	Performance Standards for Shipborne Radiocommunication and Navigational Equipment	"
37 16 59	IB 981E	Poster: Life-Saving Appliances Symbols	"
37 16 60	KF982E	Life-Saving Appliances inc. LSA Code	"
37 16 71	KA987E	IMO Standard Marine Communication Phrases (IMO SMCP)	"

(to be continued)

CODE	Ref No.	Title	Unit
37 06 67	IB994E	International Code of Signals	Vol
37 16 63	IMOCAT	IMO Publications Catalogue	"
37 17 99	TB101E	Basic Training for Oil and Chemical Tanker Cargo Operations	"
37 17 84	ETC102E	Advanced Training for Oil Tanker Cargo Operations (Model course 1.02)	"
37 17 85	TA103E	Advanced Training for Chemical Tanker Cargo Operations (Model course 1.03)	"
37 18 00	TC104E	Basic Training for Liquefied Gas Tanker Cargo Operations	"
37 17 86	T105E	Advanced Training for Liquefied Gas Tanker Cargo Operations (Model course 1.05)	"
37 17 87	TA114E	Medical First Aid (Model course 1.14 plus compendium)	"
37 17 88	ETA127E	Operational Use of Electronic Chart Display and Information Systems (ECDIS) (Model course 1.27)	"
37 17 89	KTB203E	Advanced Training in Fire Fighting (Model course 2.03 plus compendium)	"

Sailing Directions

37 09 21	NP001	Africa Pilot Volume I	Vol
37 09 22	NP002	Africa Pilot Volume II	"
37 09 23	NP003	Africa Pilot Volume III	"
37 09 24	NP004	South-East Alaska Pilot	"
37 09 25	NP005	South America Pilot Volume I	"
37 09 26	NP006	South America Pilot Volume II	"
37 09 27	NP007	South America Pilot Volume III	"
37 09 28	NP007A	South America Pilot Volume IV	"
37 09 29	NP008	Pacific Coasts of Central America and United States Pilot	"
37 09 30	NP009	The Antarctic Pilot	"
37 09 31	NP010	Arctic Pilot Volume I	"
37 09 32	NP011	Arctic Pilot Volume II	"
37 09 33	NP012	Arctic Pilot Volume III	"
37 09 34	NP013	Australia Pilot Vol I	"
37 09 35	NP014	Australia Pilot Vol II	"
37 09 36	NP015	Australia Pilot Vol III	"
37 09 38	NP018	Baltic Pilot Vol I	"
37 09 39	NP019	Baltic Pilot Vol II	"
37 09 40	NP020	Baltic Pilot Vol III	"
37 09 41	NP021	Bay of Bengal Pilot	"
37 09 42	NP022	Bay of Biscay Pilot	"
37 09 43	NP023	Bering Sea and Strait Pilot	"
37 09 44	NP024	Black Sea and Sea of Azov Pilot	"
37 09 45	NP025	British Columbia Pilot Vol I	"
37 09 46	NP026	British Columbia Pilot Vol II	"
37 09 47	NP027	Channel Pilot	"
37 09 48	NP028	Dover Strait Pilot	"
37 09 49	NP030	China Sea Pilot Vol I	"
37 09 50	NP031	China Sea Pilot Vol II	"
37 09 51	NP032A	China Sea Pilot Vol III	"
37 09 17	NP032B	China Sea Pilot Vol IV	"
37 09 52	NP033	Philippine Islands Pilot	"
37 09 53	NP034	Indonesia Pilot Volume II	"
37 09 54	NP035	Indonesia Pilot Volume III	"
37 09 55	NP036	Indonesia Pilot Volume I	"
37 09 56	NP037	West Coast of England and Wales Pilot	"
37 09 57	NP038	West Coast of India Pilot	"
37 09 58	NP039	South Indian Ocean Pilot	"
37 09 59	NP040	Irish Coast Pilot	"
37 09 60	NP041	Japan Pilot Volume I	"
37 09 61	NP042A	Japan Pilot Volume II	"
37 09 62	NP042B	Japan Pilot Volume III	"
37 09 95	NP042C	Japan Pilot Volume IV	"

(to be continued)

CODE	Ref No.	Title	Unit
37 09 63	NP043	South and East Coasts of Korea, East Coast of Siberia and Sea of Okhotsk Pilot	Vol
37 09 64	NP044	Malacca Strait and West Coast of Sumatera Pilot	"
37 09 65	NP045	Mediterranean Pilot Volume I	"
37 09 66	NP046	Mediterranean Pilot Volume II	"
37 09 67	NP047	Mediterranean Pilot Volume III	"
37 09 68	NP048	Mediterranean Pilot Volume IV	"
37 09 69	NP049	Mediterranean Pilot Volume V	"
37 09 70	NP050	Newfoundland and Labrador Pilot	"
37 09 71	NP051	New Zealand Pilot	"
37 09 72	NP052	North Coast of Scotland Pilot	"
37 09 73	NP054	North Sea (West) Pilot	"
37 09 74	NP055	North Sea (East) Pilot	"
37 09 75	NP056	Norway Pilot Volume I	"
37 09 76	NP057A	Norway Pilot Volume IIA	"
37 09 77	NP057B	Norway Pilot Volume IIB	"
37 09 78	NP058A	Norway Pilot Volume IIIA	"
37 09 79	NP058B	Norway Pilot Volume IIIB	"
37 09 80	NP059	Nova Scotia and Bay of Fundy Pilot	"
37 09 81	NP060	Pacific Islands Pilot Volume I	"
37 09 82	NP061	Pacific Islands Pilot Volume II	"
37 09 83	NP062	Pacific Islands Pilot Volume III	"
37 09 84	NP063	Persian Gulf Pilot	"
37 09 85	NP064	Red Sea and Gulf of Aden Pilot	"
37 09 86	NP065	St. Lawrence Pilot	"
37 09 96	NP066A	South-West Coast of Scotland Pilot	"
37 09 97	NP066B	North-West Coast of Scotland Pilot	"
37 09 88	NP067	West Coast of Spain and Portugal Pilot	"
37 09 89	NP068	East Coast of the United States Pilot Volume I	"
37 09 90	NP069	East Coast of the United States Pilot Volume II	"
37 09 91	NP069A	East Coast of Central America and Gulf of Mexico Pilot	"
37 09 92	NP070	West Indies Pilot Volume I	"
37 09 93	NP071	West Indies Pilot Volume II	"
37 09 94	NP072	Southern Barents Sea & Beloye More Pilot	"

List of Lights and Fog Signals

37 06 11	NP074	British Isles and North Coast of France, Volume. A	Vol
37 06 12	NP075	Southern & Eastern Sides of the North Sea, Volume. B	"
37 06 13	NP076	Baltic Sea including Kattegat, Belts and Sound, Volume. C	"
37 06 14	NP077	Eastern Atlantic, Western Indian, Arabian & Seas, Volume. D	"
37 06 15	NP078	West Mediterranean, Volume. E	"
37 06 16	NP079	N.E. Indian Ocean, Central part of South China and Eastern Archipelagic Seas, Volume F	"
37 06 17	NP080	Western Side of South Atlantic Ocean & East Pacific Ocean, Volume. G	"
37 06 18	NP081	Northern and Eastern Coasts of Canada, Volume. H	"
37 06 19	NP082	Western Side of the North Atlantic Ocean, Volume. J	"
37 06 20	NP083	Western Pacific Oceans, South of the Equator, Volume. K	"
37 06 21	NP084	Northern Seas: Coast of Norway North of latitude 60°55' N, Volume. L	"
37 06 57	NP085	Western Side of North Pacific Ocean, Volume. M	"
37 06 58	NP086	East Mediterranean and Black Seas, Volume. N	"
37 06 59	NP087	North Part of South China and Eastern Archipelagic Seas, Volume P	"
37 06 65	NP088	Eastern Indian Ocean, South of the Equator, Volume Q	"

U.K. Publications

37 06 68	NP100	The Mariner's Handbook	Vol
37 17 44	NP120	Admiralty Manual of Tides	"

(to be continued)

CODE	Ref No.	Title	Unit
37 06 92	NP131	Catalogue of Admiralty Charts and Publications	Vol
37 17 45	NP133A	Paper Chart Maintenance Record	"
37 17 51	NP133C	ENC Maintenance Record	"
37 06 71	NP136-1	Ocean Passages for the World – Atlantic Ocean Vol. I	"
37 06 93	NP136-2	Ocean Passages for the World – Indian & Pacific Oceans Vol. II	"
37 17 46	NP160	Tidal Harmonic Constants (European Waters), Edition 6 2015	"
37 17 14	NP164	Dover, Times of High Water and mean range of the Tide (published annually)	"
37 06 24	NP201A	Admiralty Tide Tables Vol. 1A - United Kingdom – English Channel to River Humber	"
37 06 25	NP201B	Admiralty Tide Tables Vol. 1B - United Kingdom and Ireland	"
37 06 07	NP202	Admiralty Tide Tables Vol. 2 - North Atlantic Ocean and Arctic Regions	"
37 06 08	NP203	Admiralty Tide Tables Vol. 3 - Indian Ocean (including Tidal Stream Tables)	"
37 06 09	NP204	Admiralty Tide Tables Vol. 4 - South Pacific Ocean (including Tidal Stream Tables)	"
37 06 10	NP205	Admiralty Tide Tables Vol. 5 - South China Sea and Indonesia (Including Tidal Stream Table)	"
37 06 23	NP206	Admiralty Tide Tables Vol. 6 - North Pacific Ocean (Including Tidal Stream Table)	"
37 06 49	NP207	Admiralty Tide Tables Vol. 7 - South West Atlantic Ocean and South America	"
37 06 50	NP208	Admiralty Tide Tables Vol. 8 - South East Atlantic Ocean, West Africa and Mediterranean (including Tidal Stream Tables)	"
37 17 16	NP209	Tidal Stream Atlas - Orkney and Shetland Islands	"
37 17 17	NP214	Co-Tidal Atlas - Persian Gulf	"
37 17 18	NP215	Co-Tidal Atlas – South East Asia	"
37 17 19	NP218	Tidal Stream Atlas - North Coast of Ireland and West Coast of Scotland	"
37 17 20	NP219	Tidal Stream Atlas - Portsmouth Harbour & Approaches	"
37 17 21	NP220	Tidal Stream Atlas - Rosyth Harbour & Approaches	"
37 17 22	NP221	Tidal Stream Atlas - Plymouth Harbour & Approaches	"
37 17 23	NP222	Tidal Stream Atlas - Firth of Clyde & Approaches	"
37 17 52	NP231	Guide to the Practical Use of ENCs	"
37 17 53	NP232	Guide to ECDIS Implementation, Policy and Procedures	"
37 17 24	NP233	Tidal Stream Atlas - Dover Strait	"
37 17 25	NP234	Cumulative List of Admiralty Notices to Mariners	"
37 17 26	NP247(1)	Annual Summary of Admiralty Notices to Mariners Part 1	"
37 17 54	NP247(2)	Annual Summary of Admiralty Notices to Mariners Part 2	"
37 17 27	NP249	Tidal Stream Atlas - Thames Estuary (with Co-Tidal Chart)	"
37 17 28	NP250	Tidal Stream Atlas - The English Channel	"
37 17 29	NP251	Tidal Stream Atlas - North Sea - Southern Part	"
37 17 30	NP252	Tidal Stream Atlas - North Sea – North Western Part	"
37 17 31	NP253	Tidal Stream Atlas - North Sea - Eastern Part	"
37 17 55	NP254	Tidal Stream Atlas - The West Country, Falmouth to Teignmouth	"
37 17 56	NP255	Tidal Stream Atlas - Falmouth to Padstow including Isles of Scilly	"
37 17 32	NP256	Tidal Stream Atlas - Irish Sea and Bristol Channel	"
37 17 33	NP257	Tidal Stream Atlas - Approaches to Portland	"
37 17 57	NP258	Tidal Stream Atlas - Bristol Channel (Ludy to Avonmouth)	"
37 17 58	NP259	Tidal Stream Atlas - Irish Sea, Eastern Part	"
37 17 59	NP263	Tidal Stream Atlas - Lyme Bay	"
37 17 34	NP264	Tidal Stream Atlas - The Channel Islands and Adjacent Coasts of France	"
37 17 35	NP265	Tidal Stream Atlas – France, West Coast	"
37 06 26	NP281(1)	Admiralty Lists of Radio Signals Vol. 1 Part 1: Maritime Radio Stations: Europe, Africa & Asia	"
37 06 27	NP281(2)	Admiralty Lists of Radio Signals Vol. 1 Part 2: Maritime Radio Stations: The Americas, Far East and Oceania	"
37 06 28	NP282(1)	Admiralty Lists of Radio Signals Vol. 2: Radio Aids to Navigation, Differential GPS (DGPS), Legal Time, Radio Time Signals & Electronic Position Fixing System, Europe, Africa and Asia (excluding the Far East)	"
37 06 94	NP282(2)	Admiralty Lists of Radio Signals Vol. 2: Radio Aids to Navigation, Differential GPS (DGPS), Legal Time, Radio Time Signals & Electronic Position Fixing System, The America, Far East and Oceania	"
37 06 30	NP283(1)	Admiralty Lists of Radio Signals Vol. 3 Part 1: Maritime Safety Information Services: Europe, Africa and Asia (excluding Far East)	"
37 06 31	NP283(2)	Admiralty Lists of Radio Signals Vol. 3 Part 2: Maritime Safety Information Services: The Americas, Far East and Oceania	"

(to be continued)

CODE	Ref No.	Title	Unit
37 06 32	NP284	Admiralty List of Radio Signals Vol. 4: Meteorological Observation Stations	Vol
37 06 33	NP285	Admiralty List of Radio Signals Vol. 5: Global Maritime Distress & Safety Systems (GMDSS)	"
37 06 35	NP286(1)	Admiralty List of Radio Signals Vol. 6 Part 1: Pilot Services, Vessel Traffic Services & Port Operations: United Kingdom & Europe	"
37 06 36	NP286(2)	Admiralty List of Radio Signals Vol. 6 Part 2: Pilot Services, Vessel Traffic Services & Port Operations: Europe, Arctic & Baltic Coasts	"
37 06 37	NP286(3)	Admiralty List of Radio Signals Vol. 6 Part 3: Pilot Services, Vessel Traffic Services & Port Operations: Mediterranean Sea, Black Sea, Caspian Sea & Suez Canal	"
37 06 38	NP286(4)	Admiralty List of Radio Signals Vol. 6 Part 4: Pilot Services, Vessel Traffic Services & Port Operations: Indian sub-continent, South East Asia & Australasia	"
37 06 39	NP286(5)	Admiralty List of Radio Signals Vol. 6 Part 5: Pilot Services, Vessel Traffic Services & Port Operations: North America, Canada & Greenland	"
37 06 46	NP286(6)	Admiralty List of Radio Signals Vol. 6 Part 6: Pilot Services, Vessel Traffic Services & Port Operations: North East Asia & Russia (Pacific Coast)	"
37 06 47	NP286(7)	Admiralty List of Radio Signals Vol. 6 Part 7: Pilot Services, Vessel Traffic Services & Port Operations: Central & South America & the Caribbean	"
37 06 48	NP286(8)	Admiralty List of Radio Signals Vol. 6 Part 8: Pilot Services, Vessel Traffic Services & Port Operations: Africa (excluding Mediterranean Coast), Red Sea and the Persian Gulf	"
37 17 39	NP294	How to keep Your Admiralty Products Up-to-Date	"
37 17 60	NP303(1)	Rapid Sight Reduction Tables for Navigation Vol. 1	"
37 17 61	NP303(2)	Rapid Sight Reduction Tables for Navigation Vol. 2	"
37 17 62	NP303(3)	Rapid Sight Reduction Tables for Navigation Vol. 3	"
37 06 02	NP314	The Nautical Almanac	"
37 17 47	NP321	The Star Almanac for Land Surveyors	"
37 06 73	NP323	The Star Finder & Identifier	"
37 17 40	NP337	Tidal Stream Atlas - The Solent and Adjacent Waters	"
37 06 41	NP350(1)	Admiralty Distance Tables Vol.1 - Atlantic Ocean	"
37 06 43	NP350(2)	Admiralty Distance Tables Vol. 2 - Indian Ocean	"
37 06 44	NP350(3)	Admiralty Distance Tables Vol. 3 - Pacific Ocean	"
37 17 41	NP5011	Symbols and Abbreviations Used on Paper Charts	"
37 17 63	NP5012	Guide to ENC Symbols Used in ECDIS	"
37 17 42	NP735	IALA Maritime Buoyage System	"
37 06 66	GTPE-2023	Guide to Port Entry	"
37 06 60	-	Code of Practice for Controlling Risks due to Noise on Ships	"
37 06 63	-	Code of Practice for Controlling Risks due to Whole-body Vibration in Ships	"
37 06 64	-	Code of Practice for Controlling Risks due to Hand-transmitted Vibration on Ship	"

US Publications

37 07 01	US TCTA	U.S. Tidal Current Tables - Atlantic and Gulf Coasts of the United States	Vol
37 07 02	US TCTP	U.S. Tidal Current Tables - Pacific Coast of United States Including the Hawaiian Islands	"
37 07 71	US LL1	USCG Light Lists VOL.1 - Atlantic Coast - St. Croix River, Marine to Shrewsbury River, New Jersey	"
37 07 72	US LL2	USCG Light Lists VOL.2 - Atlantic Coast - Shrewsbury River, New Jersey to Little River, South Carolina	"
37 07 73	US LL3	USCG Light Lists VOL.3 - Atlantic & Gulf Coasts - Little River, S.Carolina to Econfina River, Florida	"
37 07 74	US LL4	USCG Light Lists VOL.4 - Gulf of Mexico - Econfina River, Florida to Rio Grande, Texas	"
37 07 75	US LL5	USCG Light Lists VOL.5 - Mississippi River System	"
37 07 76	US LL6	USCG Light Lists VOL.6 - Pacific Coast & Pacific Islands	"
37 07 77	US LL7	USCG Light Lists VOL.7 - Great Lakes & The St. Lawrence River above the St. Regis River	"
37 07 21	US LL110	USCG List of Lights - Greenland, the East Coasts of North & South America & the West Indies	"
37 07 22	US PUB.111	U. S. List of Lights - The West Coasts of North & South America, Australia, Tasmania, New Zealand, & Islands of the North and South Pacific Oceans	"
37 07 23	US PUB.112	U. S. List of Lights - Western Pacific and Indian Ocean Including the Persian Gulf & Red Sea	"
37 07 24	US PUB.113	U.S. List of Lights - The West Coasts of Europe and Africa, the Mediterranean Sea, Black Sea & Azovskoye More (Sea of Azov)	"
37 07 25	US PUB.114	U.S. List of Lights - British Isles, English Channel, and North Sea	"
37 07 26	US PUB.115	U.S. List of Lights - Norway, Iceland and Arctic Ocean	"
37 07 27	US PUB.116	U.S. List of Lights - Baltic Sea with Kattegat, Belts and Sound and Gulf of Bothnia	"
37 07 07	US NOAA	U.S. Tide Tables - East and Gulf Coasts of the United States (Including the Bahamas and Caribbean)	"

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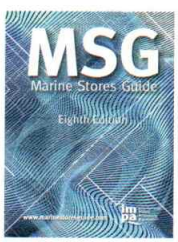
CODE	Ref No.	Title	Unit
37 07 09	US NOAA	U.S. Tide Tables - West Coast of the United States Including the Hawaian Islands and U.S. Territories in the Pacific	Vol
37 07 11	US CP1	U.S. Coast Pilot Vol. 1 – Atlantic Coast: Eastport, ME to Cape Cod, MA	"
37 07 10	US CP2	U.S. Coast Pilot Vol. 2 – Atlantic Coast: Cape Cod, MA to Sandy Hook, NJ	"
37 07 13	US CP3	U.S. Coast Pilot Vol. 3 – Atlantic Coast: Sandy Hook, NJ to Cape Henry, VA	"
37 07 14	US CP4	U.S. Coast Pilot Vol. 4 - Atlantic Coast: Cape Henry, VA to Key West, FL	"
37 07 15	US CP5	U.S. Coast Pilot Vol. 5 - Gulf of Mexico, Puerto Rico and Virgin Islands	"
37 07 16	US CP6	U.S. Coast Pilot Vol. 6 - Great Lakes & Their Connecting Waterways	"
37 07 17	US CP7	U.S. Coast Pilot Vol. 7- Pacific Coast, California	"
37 07 18	US CP8	U.S. Coast Pilot Vol. 8 - Alaska: Dixon Entrance to Cape Spencer	"
37 07 19	US CP9	U.S. Coast Pilot Vol. 9 - Pacific & Arctic Coasts Alaska: Cape Spencer to Beaufort Sea	"
37 07 20	US CP10	U.S. Coast Pilot Vol. 10 - Pacific Coast: Oregon, Washington, Hawaii and Pacific Islands	"
37 07 03	US 5090	Maneuvering Board (Pad of 50)	"
37 07 04	US WP9998	9998 Chart Correction Template	"
37 07 05	US PUB.9	American Practical Navigator "Bowditch" Vol 1 & 2	"
37 07 56	US NV102	International Code of Signals (U.S) Pub. 102	"
37 07 41	US NV105	Atlas of Pilot Charts - South Atlantic Ocean	"
37 07 42	US NV106	Atlas of Pilot Charts - North Atlantic Ocean	"
37 07 43	US NV107	Atlas of Pilot Charts - South Pacific Ocean	"
37 07 44	US NV108	Atlas of Pilot Charts - North Pacific Ocean	"
37 07 45	US NV109	Atlas of Pilot Charts - Indian Ocean	"
37 07 53	US RA117	Radio Navigational Aids	"
37 07 59	US NV150	World Port Index	"
37 07 57	US NV151	Distance Between Ports	"
37 07 58	US NR1	USCG Navigation Rules and Regulations Handbook	"
37 07 48	US PUB125	U.S. Sailing Directions - West Coast of South America	"
37 07 31	US SR229-1	Sight Reduction Tables Marine Navigation Vol 1 Lat. 0 to 15 Inclusive	"
37 07 32	US SR229-2	Sight Reduction Tables Marine Navigation Vol 2 Lat. 15 to 30 Inclusive	"
37 07 33	US SR229-3	Sight Reduction Tables Marine Navigation Vol 3 Lat. 30 to 45 Inclusive	"
37 07 34	US SR229-4	Sight Reduction Tables Marine Navigation Vol 4 Lat. 45 to 60 Inclusive	"
37 07 35	US SR229-5	Sight Reduction Tables Marine Navigation Vol 5 Lat. 60 to 75 Inclusive	"
37 07 36	US SR229-6	Sight Reduction Tables Marine Navigation Vol 6 Lat. 75 to 90 Inclusive	"
37 07 38	US SR249-1	Sight Reduction Tables for Air Navigation Vol 1 Selected Stars	"
37 07 39	US SR249-2	Sight Reduction Tables for Air Navigation Vol 2 Lat. 0 to 40	"
37 07 40	US SR249-3	Sight Reduction Tables for Air Navigation Vol 3 Lat. 39 to 89	"
37 18 01	US CFR33-1	U.S. Code of Federal Regulations (Part 1 to 124)	"
37 18 02	US CFR33-2	U.S. Code of Federal Regulations (Part 125 to 199)	"
37 18 03	US CFR33-3	U.S. Code of Federal Regulations (Part 200 to end)	"
37 18 05	US CFR46-1	U.S. Code of Federal Regulations - 46 (Part 1 - 40)	"
37 18 06	US CFR46-2	U.S. Code of Federal Regulations - 46 (Part 41 - 69)	"
37 18 07	US CFR46-3	U.S. Code of Federal Regulations - 46 (Part 70 - 89)	"
37 18 08	US CFR46-4	U.S. Code of Federal Regulations - 46 (Part 90 - 139)	"
37 18 09	US CFR46-5	U.S. Code of Federal Regulations - 46 (Part 140 - 155)	"
37 18 10	US CFR46-6	U.S. Code of Federal Regulations - 46 (Part 156 - 165)	"
37 18 11	US CFR46-7	U.S. Code of Federal Regulations - 46 (Part 166 - 199)	"
37 18 12	US CFR46-8	U.S. Code of Federal Regulations - 46 (Part 200 - 499)	"
37 18 13	US CFR46-9	U.S. Code of Federal Regulations - 46 (Part 500 - END)	"
37 18 44	US CG515	CG-515 + Foreign Vessel Rules A Complication of Applicable CFR33 & CFR46	"
37 18 14	US CFR47-1	U.S. Code of Federal Regulations - 47 (Part 0 - 19) 2021	"
37 18 15	US CFR47-2	U.S. Code of Federal Regulations - 47 (Part 20 - 39) 2021	"
37 18 16	US CFR47-3	U.S. Code of Federal Regulations - 47 (Part 40 - 69) 2021	"
37 18 17	US CFR47-4	U.S. Code of Federal Regulations - 47 (Part 70 - 79) 2021	"
37 18 18	US CFR47-5	U.S. Code of Federal Regulations - 47 (Part 80 - END) 2021	"
37 18 19	US CFR49-1	U.S. Code of Federal Regulations - 49 (Part 1 to 99)	"

(to be continued)

CODE	Ref No.	Title	Unit
37 18 20	US CFR49-2	U.S. Code of Federal Regulations - 49 (Part 100 to 177)	Vol
37 18 21	US CFR49-3	U.S. Code of Federal Regulations - 49 (Part 178 to 199)	"
37 18 22	US CFR49-4	U.S. Code of Federal Regulations - 49 (Part 200 - 299)	"
37 18 42	US CFR49-5	U.S. Code of Federal Regulations - 49 (Part 300 - 399)	"
37 18 23	US CFR49-6	U.S. Code of Federal Regulations - 49 (Part 400- 571)	"
37 18 43	US CFR49-7	U.S. Code of Federal Regulations - 49 (Part 572 - 999)	"
37 18 24	US CFR49-8	U.S. Code of Federal Regulations - 49 (Part 1000 - 1199)	"
37 18 25	US CFR49-9	U.S. Code of Federal Regulations - 49 (Part 1200 - End)	"
37 18 45	US PUB NO.1	U.S. Chart No. 1: Symbols, Abbreviations and Terms used on Paper and Electronic Navigational Charts	"
37 18 46	US PUB 241	Garbage Record Book	"
37 18 47	US PUB 242	Ballast Water Record Book	"
37 18 48	US PUB 248	Chemical Data Guide for Bulk Shipment by Water USCG CIM 16616.6A	"
37 18 49	US PUB.1310	Radar Navigation and Maneuvering Board Manual	"
37 18 26	ASTM101	A.S.T.M. Petroleum Measurement Tables Vol.1, Generalized Crude Oils (Tables 5A & 6A)	"
37 18 27	ASTM102	A.S.T.M. Petroleum Measurement Tables Vol.2, Generalized Products (Tables 5B & 6B)	"
37 18 28	ASTM103	A.S.T.M. Petroleum Measurement Tables Vol.3, Individual and Special Applications (Tables 6C)	"
37 18 29	ASTM104	A.S.T.M. Petroleum Measurement Tables Vol.4, Generalized Crude Oils (Tables 23A & 24A)	"
37 18 30	ASTM105	A.S.T.M. Petroleum Measurement Tables Vol.5, Generalized Products (Tables 23B & 24B)	"
37 18 31	ASTM106	A.S.T.M. Petroleum Measurement Tables Vol.6, Individual and Special Applications (Tables 24C)	"
37 18 32	ASTM107	A.S.T.M. Petroleum Measurement Tables Vol.7, Generalized Crude Oils (Tables 53A & 54A)	"
37 18 33	ASTM108	A.S.T.M. Petroleum Measurement Tables Vol.8, Generalized Products (Tables 53B & 54B)	"
37 18 34	ASTM109	A.S.T.M. Petroleum Measurement Tables Vol.9, Individual and Special Applications (Tables 54C)	"
37 18 35	ASTM110	A.S.T.M. Petroleum Measurement Tables Vol.10, Background Development and Computer Documentation	"
37 18 36	ASTM111	A.S.T.M. Petroleum Measurement Tables Vol.11 & 12, Intraconversion between Volume & Density Measures	"
37 18 40	ASTM 1155M	Standard Test Method for Calculation of Volume and Weight of Industrial Aromatic Hydrocarbons and Cyclohexane	"
37 18 38	M.E.T.516	US Port State Control	"
37 18 39	USCG 515	Rules and Regulations for Foreign Vessels Operating in the Navigable Waters of the United States	"
37 18 50	US MRPC	Regulations for Transiting the Panama Canal (including CD-ROM)	"

Marine Stores Guide

Guía Pertrechos Marinos
船用品カタログ
船用物料手册



A reference book for international marine ships stores. This catalogue is published for ship owners, ship's officers and ship suppliers.

37 08 03	Marine stores guide	Vol.

Chart Catalogues

Cátalogo de Cartas Náuticas
海図カタログ　英国海図目录



Many chart catalogues are available as per list below. Some of the chart catalogues has several volumes, so please specify volume number when ordering.

37 08 06	British admiralty chart catalogue NP-131	Vol.
07	NGA (America) chart catalogue	"
08	Australian chart catalogue	"
09	Japanese chart catalogue No. 900	"
10	Canadian chart catalogue	"
11	New Zealand chart catalogue	"

Nautical Charts

Cartas Náuticas　海図　海图



Most popular charts are listed below without chart numbers. When ordering, specify the type and number of the chart required.

British

37 08 16	Admiralty chart	Sht
17	Admiralty chart folio	Set
19	Loran C navigator chart	Sht
20	Omega navigator chart	"

(to be continued)

	American	
37 08 23	NIMA (National Imagery and Mapping Agency) chart	Sht
24	NOS (National Ocean Survey) chart	"
	Japanese	
37 08 26	Japanese chart	Sht
28	Loran C navigator chart	"
	Australian	
37 08 31	Australian chart	Sht
	Canadian	
37 08 36	Canadian chart	Sht
38	Loran-C navigator chart	"
	Other Countries	
37 08 41	New Zealand chart	Sht
42	Chinese chart	"
43	Egyptian chart	"

Marine Forms

Formularios Marinos
船舶用書式　航海日志

Various kinds of marine forms are published. The most popular items are listed below.



Unit Per Vol

CODE	Description	Size
	For Deck Dept.	
37 08 51	Ship's log book (0010)	B-4
52	Noon report (for deck use) (0150)	B-6
53	Oil record book (for tankers) (0210)	B-4
54	Bell book (for deck use) (0160)	-
71	Official log book (0030)	A-4
37 08 72	Deck abstract log (0040)	B-3
73	Commander's daily report (0070)	B-6
74	Quarter master's daily report (0080)	B-6
75	Bridge daily report (0090)	B-6
76	Chronometer journal (0100)	B-5
37 08 77	Compass journal (0110)	B-5
78	Bridge order book (0140)	B-5
79	Radar log (0170)	A-4
80	Radar log	B-4
81	Night order book (0180)	A-4
37 08 82	Sight observation note book (0190)	A-4
83	Compass Error Log Book	-
	For Engine Dept.	
37 08 57	Chief engineer's log book (1020)	A-3
60	Noon report (for engine use) (1250)	B-6
61	Oil record book (for all ships) (1160)	B-4
62	Bell book (for engine use) (1260)	A-5
94	Chief engineer's night order book	A-4
37 08 95	Dynamo & auxiliary log book (1080)	A-4
96	Dynamo engine diary (1090)	A-4
97	Chief engineer's abstract log (1100)	B-3
98	Chief engineer's log book of refrigerating machinery (1130)	B-5
99	Chief engineer's daily report (1140)	B-6
	For Radio Room	
37 08 66	Radio log book (2205)	A-4
67	Radar log book	A-4
68	GMDSS radio log (English) (2207)	A-4
69	VHF radio telephone log (2211)	B-5
70	Bridge report (2250)	B-5
86	Inventory (2550)	A-4

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	Custom Forms	
37 09 01	Declaration inward / outward of vessel	A-4
02	Cargo manifest	A-3
03	Crew manifest	A-4
04	Parcel list (4830)	A-4
05	Declaration of crew's baggages	A-4
	Sanitary Forms	
37 09 06	Sanitary Log Book (2710)	A-4
	IMO Forms	
37 09 11	General declaration (IMO371.E)	A-4
12	Freight/cargo manifest	A-4
13	Ship's stores declaration (IMO373.E)	A-3
14	Crew's effects declaration (IMO374.E)	A-4
15	Crew list (IMO375.E)	A-4
16	Passenger list (IMO376.E)	A-4

Marine Forms for Panamanian Flag Vessel

Formularios Marítimos para Buques de Bandera Panameña
パナマ籍船舶用書籍　在巴拿马注册的船只的书籍

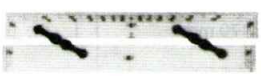
The following marine forms for Panamanian flag vessel must be authenticated by the Panamanian Consulate before delivery on board.

37 08 87	Oil record book authenticated by the Panamanian Consulate	Vol.
88	Official log book authenticated by the Panamanian Consulate	"
89	Vessel crew logbook authenticated by the Panamanian Consulate	"

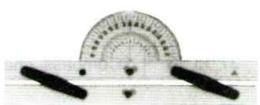
Parallel Rules

Reglas Paralelas　平行定規　平行尺

Made of transparent plastic in wooden case. Available in plain or with semi circular protractor.



Plain



with Protractor

Unit Per Pc.

Plain		with Protractor	
CODE	Length mm	CODE	Length mm
37 10 01	450	**37 10 03**	450
02	600	**04**	600

Nautical Triangles

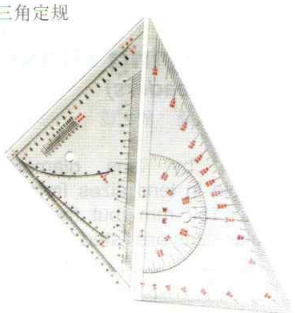
(Set Squares)

Triángulos Náuticas　三角定規　三角定规

"Inoue" and "Kent" types are available.

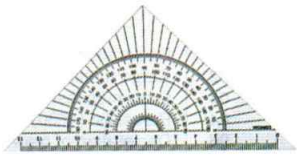
1. Inoue Type

Nautical Triangles, a position finder for the navigator, consisting of a danger-angle triangle (A) and a protractor triangle (B) made of transparent plastic, 36 cm.



A　B

2. Kent Type



Two 45° triangles provide an easy method for plotting position and course and doing other chart work. Using protractor scales, the triangle is easily aligned in any direction with a chart meridian. Direction is maintained as one triangle is slid along the other to the desired position. Durable, clear, vinylite. Long side length 30 cm.

CODE	Type	Function	Size mm	Unit
37 10 07	Inoue	Danger angle and protractor	360 mm	Pr.
08	Kent	Protractor	300 mm	Pc.

Chart Dividers

Compás de División para Carta Náutica
海図用ディバイダー（両脚器）
海图两脚规



An instrument for chart work and other marine and engineering requirements. Made of brass with sharp steel points.

Unit Per Pr.

CODE	**37 10 11**	**37 10 12**	**37 10 13**
Length	150 mm	170 mm	200 mm

Chart Room Compasses

Compás de Cuarto para Carta Náutica
海図用コンパス
海图用室内两脚规



Extendible arm with a pencil lead point. The maximum circle diameter is 380 mm. 170 mm in overall length.

37 10 16	Compass, chart room, 170 mm	Pr.

Chart Weights

Pisapapeles para Carta Náutica　文鎮　海图压



Designed to keep charts firmly in place on the chart table. Backed with soft cloth in order not to scratch or harm charts and other papers.

Unit Per Pc.

CODE	**37 10 21**	**37 10 22**	**37 10 23**
Weight	550 grm	930 grm	1,300 grm

Magnifying Glasses
(Round Readers)

Lupas　拡大鏡　放大镜



Ordered by lens diameter. Available in lens sizes from 50 mm to 150 mm, but the most popular sizes are listed below.

Unit Per Pc.

CODE	**37 10 26**	**37 10 27**	**37 10 28**
Lens Diam.	75 mm	90 mm	100 mm

Chart Brushes

Cepillos para Carta Náutica
海図用ブラシ　海图用刷



A feather brush with grip. Overall length 270 mm.

37 10 31	Chart brush, feather 270 mm	Pc.

Illuminated Magnifiers

Lupa con Iluminación　照明拡大鏡　照明放大镜

The illumination magnifier product uses a large-diameter glass lens and a white LED as the light source.

It is highly effective for visual inspection and difficult assembly work of precision parts. This illuminated magnifier has a function to control the brightness of the illumination.

The product itself is compatible with 100 to 240 V as standard, but the outlet plug must be changed when used outside Japan.



Flexible Arm Type



Light Box Type

How to order: CODE

Illuminated magnifier, TYPE

Unit Per Pc.

CODE		**37 10 51**	**37 10 54**
Type		Flexible Arm Type	Light Box Type
Voltage		100 ～ 240V	
Lens	Diam.	130 mm	
	Magnification	× 3	
	Focus Length	130 mm	
Box Size		-	340 × 353 × 60 mm
Arm Overall Length		1,000 mm	-
Height		-	353 mm
Weight		2.5 kg	3.7 kg
Main Usage		For precision work	For precision work on a desk

Flags

Banderas Mercantes　国旗、商船旗　商船旗



National Flag



Ensign

A ship hoists her National flag (Sometimes "Civil Ensign") at ship's stern to denote nationality and hoists a national flag of a country where ship called as a matter of courtesy at ship's foremasthead. Few countries, such as the United Kingdom, have national flags for land purpose and ensign for maritime purpose with different pattern and they hoist ensign as ship's own national flag at ship's stern. When ordering please do not confuse this matter.

Flags are made of warp-knitting polyester, if not any other material are specially required. The flag hook is normally separate order.

National Flags

Banderas Nacionales 国旗 国旗

How to order: CODE

Flag, national, COUNTRY NAME, SIZE

Size: 2' × 3', 3' × 4' and 3' × 5'

Unit Per Sht.

CODE			Country Name
2' × 3'	3' × 4'	3' ×5'	
-	37 34 01	-	Afghanistan
37 31 02	02	37 37 02	Albania
-	03	-	Alderney
37 31 04	37 12 83	37 37 04	Algeria
-	37 34 05	-	American Samoa
-	37 34 06	-	Andorra
37 31 07	37 12 84	37 37 07	Angola
-	37 34 08	-	Anguilla
37 31 09	09	37 37 09	Antigua & Barbuda
10	37 12 01	10	Argentina
-	37 34 11	-	Armenia
37 31 12	12	37 37 12	Aruba
13	37 12 02	13	Australia
-	37 34 14	-	Austria
37 31 15	15	37 37 15	Republic of Azerbaijan
37 31 16	37 34 16	37 37 16	The Bahamas
17	17	17	Bahrain
18	37 12 85	18	Bangladesh
19	37 34 19	19	Barbados
-	20	-	Belarus
37 31 21	37 12 03	37 37 21	Belgium
22	37 34 22	22	Belize
23	23	23	Benin
24	24	24	Bermuda
-	25	-	Bhutan
37 31 26	37 12 04	37 37 26	Bolivia
27	37 34 27	27	Bosnia & Herzegovina
-	28	-	Botswana
37 31 29	37 12 05	37 37 29	Brazil
-	37 34 30	-	British Antarctic Territory
-	37 34 31	-	British Indian Ocean Territory
37 31 32	37 12 86	37 37 32	Brunei
33	06	33	Bulgaria
-	37 34 34	-	Burkina Faso
-	35	-	Burundi
37 31 36	37 34 36	37 37 36	Cambodia
-	37	37	Cameroon
37 31 38	37 12 08	-	Canada
40	37 34 40	-	Cabo Verde
41	41	-	Cayman Islands
-	37 34 42	-	Central African Republic
-	43	-	Republic of Chad
37 31 44	37 12 09	37 37 44	Chile
45	10	45	China (People's Republic of China)
-	37 34 46	-	Christmas Island
37 31 47	37 12 11	37 37 47	Colombia
-	37 34 48	-	Comoros
37 31 49	37 12 87	37 37 49	Congo, Democratic Republic
50	88	-	Congo, Republic
-	37 34 51	-	Cook Islands
37 31 52	37 12 12	37 37 52	Costa Rica
53	95	53	Cote D'Ivoire
54	37 34 54	54	Croatia
55	37 12 13	55	Cuba
57	14	57	Cyprus
37 31 58	37 34 58	37 37 58	The Czech Republic
59	37 12 16	59	Denmark
60	89	60	Djibouti
61	37 34 61	61	Dominica (Commonwealth of)
62	62	62	Dominican Republic
37 31 64	37 12 17	37 37 64	Ecuador
65	18	65	Egypt
66	19	66	El Salvador
67	90	67	Equatorial Guinea
68	91	68	Eritrea
37 31 69	37 34 69	37 37 69	Estonia
70	70	37 37 70	Ethiopia
71	71	-	Falkland Islands
-	72	-	Faroe Islands
37 31 73	73	37 37 73	Fiji
37 31 74	37 12 20	37 37 74	Finland
75	21	75	France
-	37 34 76	-	French Polynesia
-	77	-	French Southern & Antarctic Lands
78	37 12 92	37 37 78	Gabon
37 31 79	37 34 79	37 37 79	Republic of The Gambia
80	80	80	Georgia
81	37 12 23	81	Germany, (Federal Republic of)
82	37 34 82	82	Ghana
83	37 12 93	83	Gibraltar
37 31 84	37 12 24	37 37 84	Greece
-	37 34 85	-	Greenland
37 31 86	86	37 37 86	Grenada
-	87	-	Guam
37 31 88	37 12 25	37 37 88	Guatemala
-	37 34 89	-	Guernsey
37 31 90	90	37 37 90	Republic of Guinea
91	91	91	Republic of Guinea-Bissau
92	92	-	Guyana
93	37 12 26	37 37 93	Haiti
37 31 94	37 12 27	37 37 94	Honduras
95	94	95	Hong Kong
-	37 34 96	-	Hungary
37 31 97	37 12 28	37 37 97	Iceland
98	29	98	India
37 31 99	37 12 30	37 37 99	Indonesia
37 32 00	31	37 38 00	Iran
01	32	01	Iraq
02	33	02	Ireland
03	37 35 03	-	Isle of Man
37 32 04	37 12 34	37 38 04	Israel
05	35	05	Italy
06	36	06	Jamaica
07	37	07	Japan
-	37 35 08	-	Jersey
37 32 09	37 12 96	37 38 09	Jordan
10	37 35 10	10	Kazakhstan
11	11	11	Kenya
12	12	-	Kiribati
13	37 12 38	37 38 13	Korea, North (Democratic People's Republic of Korea)
37 32 14	37 12 39	37 38 14	Korea, South (Republic of Korea)
15	40	15	Kuwait
-	37 35 16	-	Kyrgyzstan
37 32 17	17	37 38 17	Laos
18	18	18	Latvia
37 32 19	37 12 41	37 38 19	Republic of Lebanon
-	37 35 20	-	Lesotho
37 32 21	37 12 42	37 38 21	Liberia
22	43	22	Libya
-	37 35 23	-	Liechtenstein

(to be continued)

(to be continued)

Unit Per Sht.

CODE			Country Name
2' × 3'	3' × 4'	3' ×5'	
37 32 24	37 35 24	37 38 24	Lithuania
-	25	-	Luxembourg
37 32 26	26	-	Macao
-	27	-	Macedonia
37 32 28	28	37 38 28	Madagascar
-	37 35 29	-	Malawi
37 32 30	37 12 44	37 38 30	Malaysia
31	37 35 31	31	Republic of Maldives
-	32	-	Mali
37 32 33	33	37 38 33	Malta
37 32 34	37 35 34	37 38 34	Marshall Islands
35	35	35	Mauritania
36	36	36	Mauritius
37	37 12 45	37	Mexico
38	37 35 38	38	Micronesia
-	37 35 39	-	Midway Island (Atoll)
-	40	-	Moldova
37 32 41	41	37 38 41	Monaco
-	42	-	Mongolia
37 32 43	43	37 38 43	Montenegro
-	37 35 44	-	Montserrat
37 32 45	37 12 46	37 38 45	Morocco
46	47	46	Mozambique
47	37 35 47	47	Myanmar
48	37 12 97	48	Namibia
37 32 49	37 35 49	37 38 49	Nauru
-	50	-	Nepal
37 32 51	37 12 48	37 38 51	The Netherlands
53	37 35 53	53	New Caledonia
54	37 12 49	54	New Zealand
37 32 55	37 12 50	37 38 55	Nicaragua
-	37 35 56	-	Niger
37 32 57	37 12 51	37 38 57	Nigeria
-	37 35 58	-	Niue
-	59	-	Norfolk Islands
-	37 35 60	-	Northern Cyprus
-	61	-	Northern Ireland
-	62	-	Northern Marianas
37 32 63	37 12 52	37 38 63	Norway
64	98	64	Oman
37 32 65	37 12 53	37 38 65	Pakistan
-	37 35 66	-	Palau
-	67	-	Palestine
37 32 68	37 12 54	37 38 68	Panama
69	37 35 69	69	Papua New Guinea
37 32 70	37 12 55	37 38 70	Paraguay
71	56	71	Peru
72	57	72	Philippines
-	37 35 73	-	Pitcairn Islands
37 32 75	37 12 58	37 38 75	Poland
37 32 76	37 12 59	37 38 76	Portugal
77	60	77	Puerto Rico
78	99	78	Qatar
79	61	79	Romania
80	37 35 80	80	Russian Federation
-	37 35 81	-	Rwanda
37 32 82	82	37 38 82	Saint Kitts and Nevis
83	83	83	Saint Lucia
-	84	-	St. Helena & Dependencies
-	85	-	St. Pierre & Miquelon
37 32 86	37 15 91	37 38 86	Saint Vincent and the Grenadines
87	37 35 87	87	Samoa
-	88	-	San Marino
37 32 89	89	37 38 89	Sao Tome & Principe
-	90	-	Sark
37 32 91	37 12 62	37 38 91	Saudi Arabia
92	37 15 92	92	Senegal
-	37 35 93	-	Republic of Serbia
37 32 94	94	37 38 94	Seychelles
95	95	95	Sierra Leone
37 32 96	37 12 63	37 38 96	Singapore
97	37 35 97	97	Slovak Republic
98	98	98	Slovenia
99	99	99	Solomon Islands
37 33 00	37 12 64	37 39 00	Somalia
-	37 36 01	-	Somaliland
37 33 02	37 12 65	37 39 02	South Africa
-	37 36 03	-	South Georgia & South Sandwich Islands
37 33 04	37 12 66	37 39 04	Spain
05	37 15 93	05	Sri Lanka
37 33 06	37 15 94	37 39 06	The Sudan
07	37 36 07	07	Suriname
-	08	-	Swaziland
09	37 12 67	37 39 09	Sweden
10	68	10	Switzerland
37 33 11	37 12 69	37 39 11	Syria
12	70	12	Taiwan (Republic of China)
-	37 36 13	-	Tajikistan
37 33 14	14	37 39 14	Tanzania
15	37 12 71	15	Thailand
-	37 36 16	-	Timor-Leste
37 33 17	17	37 39 17	Togo
18	18	18	Tonga
19	19	19	Trinidad & Tobago
-	20	-	Tristan Da Cunha
37 33 21	37 12 72	37 39 21	Tunisia
22	73	22	Turkey
-	37 36 23	-	Turkmenistan
-	24	-	Turks & Caicos Islands
37 33 25	25	37 39 25	Tuvalu
-	37 36 26	-	Uganda
37 33 27	27	37 39 27	Ukraine
28	37 12 75	28	United Arab Emirates
29	74	29	U. K. (United Kingdom of Great Britain and Northern Ireland)
30	78	30	U. S. A. (United State of America)
37 33 31	37 12 76	37 39 31	Uruguay
-	37 36 32	-	Uzbekistan
37 33 33	33	37 39 33	Vanuatu
-	34	-	Vatican City
37 33 35	37 12 79	37 39 35	Venezuela
37 33 36	37 12 80	37 39 36	Vietnam
37	37 36 37	37	Virgin Islands (British)
38	38	38	Virgin Islands (U.S.A.)
-	39	-	Wake Island
-	40	-	Wales
-	37 36 41	-	Wallis & Futuna
-	42	-	Sahrawi Arab Democratic Republic
37 33 43	37 15 95	37 39 43	Yemen
-	37 36 44	-	Zambia
-	45	-	Zimbabwe

(to be continued)

Size: 4' ×6' and 6' × 8'

Unit Per Sht.

CODE		Country Name
4' × 6'	6' × 8'	
37 40 01	-	Afghanistan
37 11 87	37 43 02	Albania
37 40 03	-	Alderney
37 11 01	37 43 04	Algeria
37 40 05	-	American Samoa
37 40 06	-	Andorra
37 11 02	37 43 07	Angola
37 40 08	-	Anguilla
37 11 03	37 43 09	Antigua & Barbuda
37 13 01	37 14 01	Argentina

(to be continued)

Unit Per Sht.

CODE 4' × 6'	CODE 6' × 8'	Country Name
37 40 11	-	Armenia
37 11 73	37 43 12	Aruba
37 13 02	37 14 02	Australia
37 40 14	-	Austria
37 11 04	37 43 15	Republic of Azerbaijan
37 11 05	37 43 16	The Bahamas
06	17	Bahrain
07	18	Bangladesh
74	19	Barbados
37 40 20	-	Belarus
37 13 03	37 14 03	Belgium
37 11 08	37 43 22	Belize
51	23	Benin
52	24	Bermuda
37 40 25	-	Bhutan
37 13 04	37 14 04	Bolivia
37 11 09	37 43 27	Bosnia & Herzegovina
37 40 28	-	Botswana
37 13 05	37 14 05	Brazil
37 40 30	-	British Antarctic Territory
37 40 31	-	British Indian Ocean Territory
37 11 10	37 43 32	Brunei
37 13 06	37 14 06	Bulgaria
37 40 34	-	Burkina Faso
35	-	Burundi
37 11 11	37 43 36	Cambodia
53	-	Cameroon
37 13 08	37 14 08	Canada
37 40 39	-	Canary Island
40	-	Cabo Verde
37 40 41	-	Cayman Islands
42	-	Central African Republic
43	-	Republic of Chad
37 13 09	37 14 09	Chile
10	10	China (People's Republic of)
37 40 46	-	Christmas Island
37 13 11	37 14 11	Colombia
37 40 48	-	Comoros
37 11 88	37 43 49	Congo, Democratic Republic
89	50	Congo, Republic
37 40 51	-	Cook Islands
37 13 12	37 14 12	Costa Rica
37 11 55	37 43 53	Cote D'Ivoire
12	54	Croatia
37 13 13	37 14 13	Cuba
37 40 56	-	Curacao
37 13 14	37 14 14	Cyprus
37 11 13	37 43 58	The Czech Republic
37 13 16	37 14 16	Denmark
37 11 56	37 43 60	Djibouti
37 11 14	37 43 61	Dominica (Commonwealth of)
15	62	Dominican Republic
37 40 63	-	Dubai
37 13 17	37 14 17	Ecuador
18	18	Egypt
37 13 19	37 14 19	El Salvador
37 11 75	37 43 67	Equatorial Guinea
57	68	Eritrea
16	69	Estonia
58	70	Ethiopia
37 40 71	37 43 71	Falkland Islands
72	-	Faroe Islands
37 11 17	37 43 73	Fiji
37 13 20	37 14 20	Finland
21	21	France
37 40 76	-	French Polynesia
77	-	French Southern & Antarctic Lands
37 11 59	37 43 78	Gabon
90	79	Republic of The Gambia
18	80	Georgia

(to be continued)

37 13 23	37 14 23	Germany, (Federal Republic of)
37 11 60	37 43 82	Ghana
76	37 14 83	Gibraltar
37 13 24	24	Greece
37 40 85	-	Greenland
37 11 19	37 43 86	Grenada
37 40 87	-	Guam
37 13 25	37 14 25	Guatemala
37 40 89	-	Guernsey
37 11 21	37 43 90	Republic of Guinea
37 11 20	37 43 91	Republic of Guinea-Bissau
37 40 92	-	Guyana
37 13 26	37 14 26	Haiti
27	27	Honduras
37 11 91	37 43 95	Hong Kong
37 40 96	-	Hungary
37 13 28	37 14 28	Iceland
29	29	India
30	30	Indonesia
31	31	Iran
37 13 32	37 14 32	Iraq
33	33	Ireland
37 41 03	-	Isle of Man
37 13 34	37 14 34	Israel
35	35	Italy
37 13 36	37 14 36	Jamaica
37	37	Japan
37 41 08	-	Jersey
37 11 23	37 44 09	Jordan
24	10	Kazakhstan
37 11 25	37 44 11	Kenya
61	12	Kiribati
37 13 38	37 14 38	Korea, North (Democratic People's Republic of Korea)
39	39	Korea, South (Republic of Korea)
40	40	Kuwait
37 41 16	-	Kyrgyzstan
37 11 26	37 44 17	Laos
27	18	Latvia
37 13 41	37 14 41	Republic of Lebanon
37 41 20	-	Lesotho
37 13 42	37 14 42	Liberia
43	43	Libya
37 41 23	-	Liechtenstein
37 11 28	37 44 24	Lithuania
37 41 25	-	Luxembourg
37 41 26	37 44 26	Macao
27	-	Macedonia
37 11 29	37 44 28	Madagascar
37 41 28	-	Madeira
37 41 29	-	Malawi
37 13 44	37 14 44	Malaysia
37 11 30	37 44 31	Republic of Maldives
37 41 32	-	Mali
37 11 31	37 44 33	Malta
78	34	Marshall Islands
62	35	Mauritania
37 11 63	37 44 36	Mauritius
37 13 45	37 14 45	Mexico
37 11 32	37 44 38	Micronesia
37 41 39	-	Midway Island (Atoll)
40	-	Moldova
37 11 92	37 44 41	Monaco
37 41 42	-	Mongolia
37 11 93	37 44 43	Montenegro
37 41 44	-	Montserrat
37 13 46	37 14 46	Morocco
37 13 47	37 14 47	Mozambique
37 11 33	37 44 47	Myanmar
34	48	Namibia
64	49	Nauru
37 41 50	-	Nepal

(to be continued)

Unit Per Sht.

CODE 4' × 6'	CODE 6' × 8'	Country Name
37 13 48	37 14 48	The Netherlands
37 11 81	37 44 53	New Caledonia
37 13 49	37 14 49	New Zealand
50	50	Nicaragua
37 41 56	-	Niger
37 13 51	37 14 51	Nigeria
37 41 58	-	Niue
59	-	Norfolk Islands
60	-	Northern Cyprus
61	-	Northern Ireland
37 41 62	-	Northern Marianas
37 13 52	37 14 52	Norway
37 11 35	37 44 64	Oman
37 13 53	37 14 53	Pakistan
37 41 66	-	Palau
37 41 67	-	Palestine
37 13 54	37 14 54	Panama
37 11 36	37 44 69	Papua New Guinea
37 13 55	37 14 55	Paraguay
56	56	Peru
37 13 57	37 14 57	Philippines
37 41 73	-	Pitcairn Islands
37 41 74	-	Pohnpei
37 13 58	37 14 58	Poland
59	59	Portugal
37 13 60	37 14 60	Puerto Rico
37 11 65	37 44 78	Qatar
37 13 61	37 14 61	Romania
37 11 37	37 44 80	Russian Federation
37 41 81	-	Rwanda
37 11 82	37 44 82	Saint Kitts and Nevis
83	83	Saint Lucia
37 41 84	-	St. Helena & Dependencies
85	-	St. Pierre & Miquelon
37 11 43	37 44 86	Saint Vincent and Grenadines
37 11 94	37 44 87	Samoa
37 41 88	-	San Marino
37 11 95	37 44 89	Sao Tome & Principe
37 41 90	-	Sark
37 13 62	37 14 62	Saudi Arabia
37 11 66	37 44 92	Senegal
37 41 93	-	Republic of Serbia
37 11 38	37 44 94	Seychelles
67	95	Sierra Leone
37 13 63	37 14 63	Singapore
37 11 39	37 44 97	Slovak Republic
40	98	Slovenia
68	99	Solomon Islands
37 13 64	37 14 64	Somalia
37 42 01	-	Somaliland
37 13 65	37 14 65	South Africa
37 42 03	-	South Georgia & South Sandwich Islands
37 13 66	37 14 66	Spain
37 11 42	37 45 05	Sri Lanka
44	06	The Sudan
37 11 41	37 45 07	Suriname
37 42 08	-	Swaziland
37 13 67	37 14 67	Sweden
68	68	Switzerland
69	69	Syria
37 13 70	37 14 70	Taiwan (Republic of China)
37 42 13	-	Tajikistan
37 11 69	37 45 14	Tanzania
37 13 71	37 14 71	Thailand
37 42 16	-	Timor-Leste
37 11 70	37 45 17	Togo
71	18	Tonga
45	19	Trinidad & Tobago
37 42 20	-	Tristan Da Cunha
37 13 72	37 14 72	Tunisia

(to be continued)

37 13 73	37 14 73	Turkey
37 42 23	-	Turkmenistan
24	-	Turks & Caicos Islands
37 11 72	37 45 25	Tuvalu
37 42 26	-	Uganda
37 11 46	37 45 27	Ukraine
37 13 75	37 14 75	United Arab Emirates
74	74	U. K. (United Kingdom of Great Britain and Northern Ireland)
37 13 78	78	U. S. A. (United State of America)
76	76	Uruguay
37 42 32	-	Uzbekistan
37 11 47	37 45 33	Vanuatu
37 42 34	-	Vatican City
37 13 79	37 14 79	Venezuela
80	80	Vietnam
37 11 84	37 45 37	Virgin Islands (British)
85	38	Virgin Islands (U.S.A.)
37 42 39	-	Wake Island
40	-	Wales
41	-	Wallis & Futuna
37 42 42	-	Sahrawi Arab Democratic Republic
37 11 48	37 45 43	Yemen
37 42 44	-	Zambia
45	-	Zimbabwe

Ensigns (Civil Ensigns)

Bandera de la Marina Mercante　商船旗　商旗

How to order: CODE

Flag, ensign, COUNTRY NAME, SIZE

Unit Per Sht.

				
Country Name	Albania	Argentina	Australia	The Bahamas
2' × 3'	37 19 51	37 19 69	37 19 03	-
3' × 4'	37 19 68	37 19 01	37 19 04	37 19 06
3' × 5'	-	-	-	37 19 07
4' × 6'	37 19 52	37 19 02	37 19 05	37 19 08
6' × 8'	-	37 19 70	-	-

Unit Per Sht.

				
Country Name	Bangladesh	British Virgin Islands	Cayman Islands	Colombia
2' × 3'	37 19 71	37 19 53	-	-
3' × 4'	37 19 09	-	-	37 19 13
3' × 5'	-	37 19 54	37 19 10	-
4' × 6'	37 19 72	37 19 55	37 19 11	37 19 14
6' × 8'	-	-	37 19 12	-

Unit Per Sht.

				
Country Name	El Salvador	Falkland Island	Fiji	Ghana
2' × 3'	-	37 19 56	37 19 59	-
3' × 4'	-	-	-	37 19 16
3' × 5'	-	37 19 57	37 19 60	-
4' × 6'	37 19 15	37 19 58	37 19 61	-

Unit Per Sht.

Country Name	Gibraltar	Guatemala	India	Isle of Man
2' × 3'	-	37 19 18	37 19 20	37 19 62
3' × 4'	-	-	37 19 21	-
3' × 5'	-	-	-	37 19 63
4' × 6'	37 19 17	37 19 19	37 19 22	37 19 64

Unit Per Sht.

Country Name	Israel	Italy	Luxembourg	Malaysia
2' × 3'	-	-	-	37 19 29
3' × 4'	37 19 23	37 19 24	37 19 27	37 19 30
4' × 6'	-	37 19 25	37 19 28	37 19 31
6' × 8'	-	37 19 26	-	-

Unit Per Sht.

Country Name	Malta	Mauritius	New Zealand	Pakistan	Peru
2' × 3'	-	-	-	-	37 19 74
3' × 4'	37 19 32	37 19 35	37 19 36	37 19 38	37 19 75
4' × 6'	37 19 33	-	37 19 37	37 19 73	37 19 39
6' × 8'	37 19 34	-	-	-	37 19 76

Unit Per Sht.

Country Name	Singapore	Solomon Island	Turks & Caicos Islands	United Kingdom
1' × 1.5'	37 19 40	-	-	-
1.5' × 3'	37 19 41	-	-	-
2' × 3'	37 19 77	37 19 65	-	37 19 46
2' × 4'	37 19 42	-	-	-
3' × 4'	37 19 78	-	37 19 45	37 19 47
3' × 5'	-	37 19 66	-	37 19 48
3' × 6'	37 19 43	-	-	-
4' × 6'	37 19 79	37 19 67	-	37 19 49
4' × 8'	37 19 44	-	-	-
6' × 8'	37 19 80	-	-	37 19 50

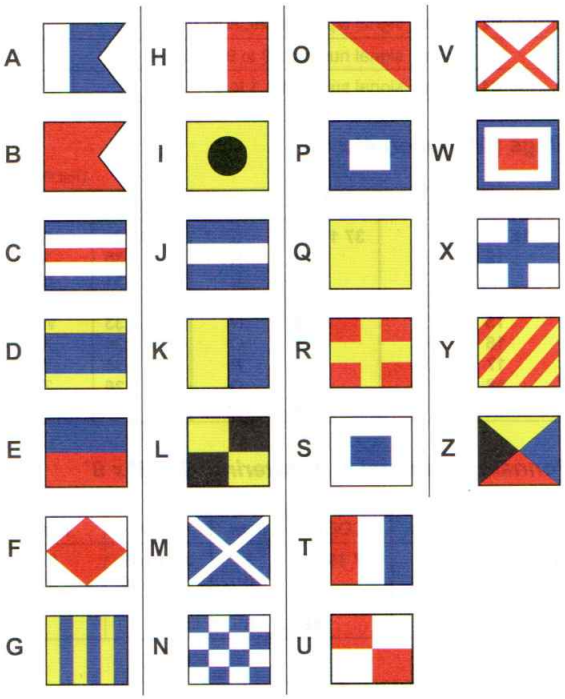
International Code of Signals

Código Internacional de Señales 国際信号旗 国际信号旗

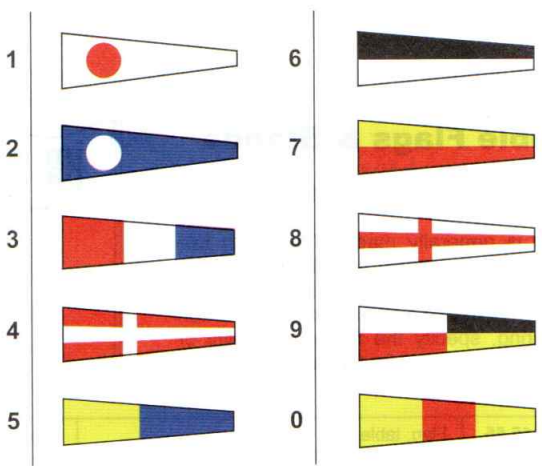
Made of Exlan bunting (synthetic fibre sometimes called Creslan, which has the appearance of wool).

Can be ordered individually or as complete sets. Sets include the following : 26 alphabet flags, 11 pennants (10 numeral and 1 answering) and 3 substitutes.

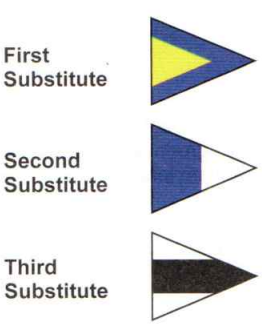
Alphabetical Flags



Numeral Pennants



Substitute



Code and Answering Pennant



37 15 01	Flag, signal full set, 40's A to Z, 0 to 9, 3 substitutes & 1 answering	Set
02	Flag, signal alphabetical, A to Z 26's	"
03	Flag, signal numeral, 0 to 9 10's	"
04	Flag, signal substitute, 1 to 3 3's	"

Flags (Alphabet) 4' x 6'

Unit Per Pc.

CODE	Alphabet	CODE	Alphabet	CODE	Alphabet
37 15 11	A	37 15 20	J	37 15 29	S
12	B	21	K	30	T
13	C	22	L	31	U
14	D	23	M	32	V
15	E	24	N	33	W
16	F	25	O	34	X
17	G	26	P	35	Y
18	H	27	Q	36	Z
19	I	28	R		

Pennant (Numeral & Answering) 2-2/3' x 9'

Unit Per Pc.

CODE	Item	CODE	Item	CODE	Item
37 15 41	1	37 15 45	5	37 15 49	9
42	2	46	6	50	0
43	3	47	7	51	Answering
44	4	48	8		

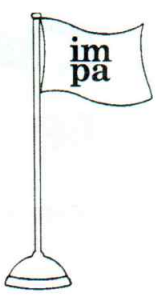
Substitutes 2-2/3' x 5-1/3'

Unit Per Pc.

CODE	Item	CODE	Item	CODE	Item
37 15 56	First	37 15 57	Second	37 15 58	Third

Table Flags & Stands

Banderas de Mesa y de Mastiles
卓上旗及びスタンド 桌旗及桌旗座



Flag is generally made of silk with two strings for tightening it to the stand pole. Owner's flags, etc. are available by special order. Standard size is 12 x 18 cm. When ordering, specify the flag's nationality or design. The stand for the table flag is sold separately.

37 15 65	Flag, table 12 × 18 cm	Pc.
66	Stand for table flag 400 mm	"

Repairing Bunting

Tela para Reparación de Bandera
修理用旗布 修补用旗布

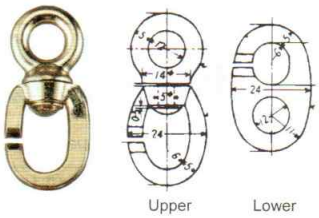
Synthetic fibre textile used for repairing flags. Available in 6 colours of black, red, yellow, white, green and blue. The standard width is 1,260 mm (4') in random lengths.

Unit Per Mtr.

CODE	Colour	CODE	Colour
37 15 71	White	37 15 74	Green
72	Red	75	Yellow
73	Blue	76	Black

Flag Hooks

Gancho para Bandera
旗用フック 旗钩



Made of cast brass or brass plated zinc die cast. The upper hook has a swivel and eye. The lower has an eye only with no swivel, sold individually or in sets.

37 15 81	Flag hook, complete upper/lower	Set
82	Flag hook, upper side	Pc.
83	Flag hook, lower side	"

Flag Blocks

Bloques para Bandera 旗用ブロック 旗坠



Cast brass flag line blocks covered by a semi-circle guard with an eye on top.

37 15 86	Flag block, brass, 32 mm	Pc.
87	Flag block, brass, 38 mm	"
88	Flag block, brass, 50 mm	"

Windsocks

Cortavientos 吹流し 风向标



A colonial textile tube shape that resembles a big sock. Used as a basic guide to wind direction and speed.

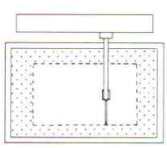
37 15 89	Windsock for wind direction and speed indication	Pc.

Marine Electric Window Wipers

Limpia-parabrisas Eléctricos para Ventanas
船用電動ワイパー 船用电动窗刷

A wide variety of wipers are available in parallel and fan types. The models below are provided merely as a reference for ordering the correct wipers. For further details, ask your supplier or provide a sample of the wipers you are currently using.

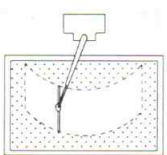
1. Parallel Type



1. Motor mounted : Inside, or outside
2. Wiping speed : Fixed, or variable
3. Heater : With heater, or without heater

1) Stroke speed is adjustable according to conditions.
2) Arm blade stops at a certain position.

2. Fan Type



1. Motor mounted : Inside, or outside
2. Wiping speed : Fixed, or variable
3. Heater : With heater, or without heater

1) Constant : Blade speed is constant
2) Variable : Blade speed is variable (Speed adjustable depending on the conditions of use)

Remarks:
Inside cabin type ... Motor is mounted inside the cabin.
Outside cabin type ... Motor is mounted outside the cabin.
With heater ... A heater is incorporated to prevent freezing.

3. Power Source

AC 100, 110, 115 V – Single Phase
AC 200, 220, 240 V – Single Phase

4. Motors

Parallel Type
Output 40W (Stroke Length 650 mm max.)
60W (" 1,200 mm max.)
100W (" 1,800 mm max.)
120W (" 2,600 mm max.)
Fan Type
Output 40W

5. Stroke Length - Parallel Type

400 - 650 mm (Single Blade)
700 - 1,200 mm (")
1,300 - 1,800 mm (")
2,600 mm (Twin Blade)

6. Wiping Angle - Fan Type: 30° – 110°

7. Blade Length: 600 mm

How to order: 37 - 20 - 01

Marine window wiper, electric (with the following information)

1. *Type of wiping mode (Parallel or Fan)*
2. *Power source*
3. *Wiping stroke speed (Fixed or Variable)*
4. *Wiper stroke length*
5. *Heater (With or Without)*
6. *Installing position of the motor (Inside or Outside)*
7. *Mounting position of the main frame (Upper and Lower positions of the window)*
8. *Height and width of the clear parts of the window*
9. *Length of the arm and blade*

Clear View Windshield Screens

Aclaradpres y Limpia-parabrisas para Pantalla
丸型ウインドワイパー　船用电动窗扫



A range of well proven and superior clear view screens of the highest quality. Unlike other similar screens it is not necessary to cut a large center hole for the fixing. These are fitted directly into the window glass by a series of fixing bolts for which a drilling template is provided.

Made of high quality, corrosion free materials. Gas tight and non-gas tight models available. Unless specified when ordering, the non-gas tight type will be supplied as standard. Suitable for glass thickness from 6 mm – 19 mm. Also specify power source voltage when ordering.

How to order: CODE

Clear view windshield screen, CLEAR VIEW DIAM mm, DEPTH INSIDE mm, POWER SOURCE VOLTAGE

Unit Per Set

CODE	Size mm			Weight kg	Revolution per Minute	Cans Watt
	Clear View	Overall Diam.	Depth Inside			
AC 110 Volt						
37 20 11	250	293	60	5.1	1,600 - 1,900	60
12	300	343	60	5.5	1,600 - 1,900	60
13	350	393	60	6.5	1,600 - 1,900	60
14	350	393	110	7.0	1,600 - 1,900	120
15	400	443	110	7.5	1,600 - 1,900	120
AC 220 Volt						
37 20 16	250	293	60	5.1	1,600 - 1,900	60
17	300	343	60	5.5	1,600 - 1,900	60
18	350	393	60	6.5	1,600 - 1,900	60
19	350	393	110	7.0	1,600 - 1,900	120
20	400	443	110	7.5	1,600 - 1,900	120

About GMDSS

All cargo ships of 300 gross registered tonnes and upwards and all passenger ships engaged on international voyages must be equipped with radio equipment that conforms to international standards as set out in the system.

The GMDSS was adopted by means of amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974. The amendments, contained in Chapter IV of SOLAS on Radiocommunications, were adopted in 1988 and entered into force on 1 February 1992 but provided for a phase-in period until 1 February 1999.

The final, global implementation of GMDSS became fully effective on 1 February 1999. On that date, all applicable ships had to comply with the GMDSS requirements in SOLAS. Specific equipment requirements for ships vary according to the sea area (or areas) in which the ship operators. The GMDSS combines various subsystems - all of which have different limitation with respect to coverage - into one overall system, and the oceans are divided into four sea areas :

About Inmarsat

It operates a constellation of geostationary satellites designed to extend phone, fax and data communications all over the world. Inmarsat provides the space segment necessary for instant and reliable distress and safety satellite communications for the maritime community.

Inmarsat-A

The Inmarsat-A analogue mobile satcoms system provides two-way direct-dial phone, fax, telex, electronic mail and data communications at rates up to 9.6 kbit/sec to and from anywhere in the world with the exception of the polar regions.

The service that most users access the Inmarsat system is Inmarsat-A. The first analog system of the Inmarsat system. Inmarsat-A can support high-quality direct-dial phone, telex, fax and data.

The System

An Inmarsat-A terminal is a small self-contained satellite earth station comprising, in the maritime environment, of an above deck equipment containing a parabolic antenna and electronics and a below deck equipment containing electronic units, power supplies and interface connections. Connections to telex, telephone, modem and facsimile equipment are contained in the below deck equipment.

Inmarsat ship borne terminals are referred to as a Mobile Earth Stations (MESs). In the same way Land based Earth Stations through which communications are routed are known as Land Earth Stations (LESs).

A call from an MES is routed via the Inmarsat network to an LES and thence into the national and international phone, telex and data networks. There are four Ocean Regions covering the world each with its own operational satellite.

Area A1 : Within range of VHF coast stations with continuous DSC alerting available (about 20-30 miles).

Area A2 : Beyond area A1, but within range of MF coastal stations with continuous DSC alerting available (about 150 miles).

Area A3 : Beyond the first two areas, but within coverage of geostationary maritime communication satellites (in practice this means Inmarsat). This covers the area between roughly 76° North and 76° South.

Area A4 : The remaining sea areas. The most important of these is the sea around the North Pole (the area around the South Pole is mostly land). Geostationary satellites, which are positioned above the equator, cannot reach this far.

Transmission and reception of signals are co-ordinated by four network co-ordination stations (NCS), one for each ocean region;

Atlantic Ocean Region East (AOR-E)
Atlantic Ocean Region West (AOR-W)
Indian Ocean Region (IOR)
Pacific Ocean Region (POR)

Inmarsat-B
The Inmarsat-B digital mobile satcoms system provides two-way direct-dial phone, telex, facsimile and data communications at rates up to 9.6 kbit/sec to and from anywhere in the world with the exception of the polar regions.

The System
An Inmarsat-B terminal is a small self-contained satellite earth station comprising, in the maritime environment, of an above deck equipment containing a parabolic antenna and electronics and a below deck equipment containing electronic units, power supplies and interface connections. Connections to telex, telephone, modem and facsimile equipment are contained in the below deck equipment.

Inmarsat ship borne terminals are referred to as a Mobile Earth Stations (MESs). In the same way Land based Earth Stations through which communications are routed are known as Land Earth Stations (LESs).

A call from an MES is routed via the Inmarsat network to an LES and thence into the national and international phone, telex and data networks. There are four Ocean Regions covering the world each with its own operational satellite.

Transmission and reception of signals are co-ordinated by four network co-ordination stations (NCS), one for each ocean region;

Atlantic Ocean Region East (AOR-E)
Atlantic Ocean Region West (AOR-W)
Indian Ocean Region (IOR)
Pacific Ocean Region (POR)

Inmarsat-B is the digital successor to Inmarsat-A. It supports high-quality direct-dial phone, telex, fax, data, and high-speed data. Inmarsat-B is a lower cost alternative to Inmarsat-A because the system is based on modern digital satellite telecommunications technologies. The use of digital technology enables Inmarsat-B to improve on Inmarsat-A, through less power usage and improved use of satellite power and bandwidth. Inmarsat-B offers Data services in two forms: 9.6 k standard service and 64 k High Speed Data (HSD).

Inmarsat-B is a good choice for high-volume users of voice and data. In the maritime environment these include the offshore exploration industry, cruiseship operators and deep-sea shipping companies.

Inmarsat-C
The Inmarsat-C satellite system provides two-way data communications to and from virtually anywhere in the world. Inmarsat-C terminals are simple, low-cost units small enough to be hand-carried or fitted to any vessel, vehicle or aircraft.

The System
Communications via the Inmarsat-C system are data or message-based. Anything that can be coded into data bits can be transmitted via Inmarsat-C. Messages are transferred to and from an Inmarsat-C terminal at an information rate of 600 bits/sec. Frequencies are 1626.5-1645.5 MHz (transmit), 1530.0-1545.0 Mhz (receive). Inmarsat-C is available in all four Inmarsat satellite coverage ocean regions · Atlantic Ocean East and West, Indian Ocean and Pacific Ocean · through about 40 land earth stations (LESs). A network co-ordination station (NCS) in each region controls communications traffic.

These units come in fixed, mobile, transportable, maritime and aeronautical configurations. All configurations employ omni-directional antennas.

Inmarsat-C supports tow-way text and data messaging, data-reporting and fleet broadcast communications at a data rate of 600 bits/sec. Inmarsat-C Internet gateway allows vessels to exchange Internet e-mail without the need for special software.

Inmarsat-M
It provides digital phone, fax and data capabilities through compact terminals. Inmarsat-M is still available in all ocean regions, this service has been largely replaced by the more cost-effective Inmarsat mini-M.

Inmarsat-mini-M
The Inmarsat mini M is a digital phone, fax and data system which is packaged in very compact terminals, utilizing spot beam satellite technology. The mini M terminal form is similar in size to a small laptop computer. The terminal provides direct-dial phone, fax and 2.4 kbps data connections.

The Inmarsat mini M comes in portable, maritime and vehicle terminal configurations. There is now a multi-terminal capable of multiple installation configurations.

Inmarsat M4
Inmarsat M4 is a combination of mini-M's low-speed voice, fax, and data capabilities with Inmarsat B's high speed data feature. An additional feature of M4 is the mobile packet data service. M4 utilizes the same spot beam satellite technology as mini-M, making it very small, lightweight, and power efficient.

About Cospas-Sarsat
Cospas-Sarsat is a satellite system designed to provide distress alert and location data to assist search and rescue (SAR) operations, using spacecraft and ground facilities to detect and locate the signals of distress beacons operating on 406 Megahertz (MHz) or 121.5 MHz. The position of the distress and other related information is forwarded by the responsible Cospas-Sarsat Mission Control Center (MCC) to the appropriate SAR authorities.

The Cospas-Sarsat System provides distress alert and location data to Rescue Coordination Centers (RCCs), for 121.5 MHz beacons within the coverage area of Cospas-Sarsat ground stations (Local User Terminals - LUTs), and for 406 MHz beacons activated anywhere in the world.

GMDSS Radio Equipment

(Global Maritime Distress and Safety System)

Equipo de Radio GMDSS (Sistema Mundial de Socorro y Seguridad Marítima)

全世界的な海上遭難安全システム

全球海上遇險及安全系統（GMDSS）無線通訊設備

GMDSS will provide an effective search and rescue system on a global basis using the advanced technology of satellite and terrestrial communications.

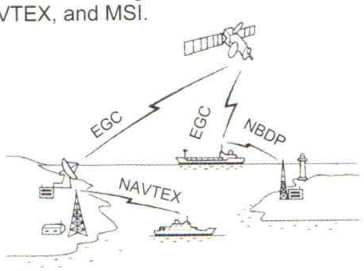
The basic concept of the GMDSS is that search and rescue authorities ashore, as well as vessels in the immediate vicinity of a ship in distress, will be rapidly alerted to the distress incident so that they can assist in a co-ordinated search and rescue operation without delay.

In the GMDSS, the radio equipment to be carried on a ship is determined by the ship's area of operation, as designated below.

Conventional ships will be obliged to comply with the requirements for the installment of GMDSS systems in stages during the period between February 1, 1992 and February 1, 1999 for all ships.

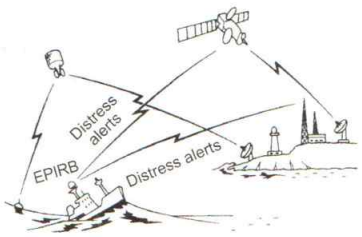
During normal time:

Receives navigational and meteorological warnings via EGC, NAVTEX, and MSI.



In emergency:

Transmits distress alerts through INMARSAT, DSC, and EPIRB.



Amendment 1988 to the International Convention for the Safety of Life at Sea 1974 Chapter IV "Radiocommunications" Part C – Ship Requirements

Regulation 7 Radio Equipment - General

No.	Item	Descriptions
1.1	A VHF radio installation	For transmitting and receiving (1) DSC on the frequency 156.525 MHz (CH 70) (2) Radiotelephony on the frequencies 156.300 MHz (CH 6), 156.650 MHz (CH 13) and 156.800 MHz (CH 16)
1.2	A radio installation	For maintaining a continuous DSC watch on VHF channel 70
1.3	A radar transponder	For operating in the 9 GHz band
1.4	A receiver	For receiving International Navtex service broadcast
1.5	A radio facility	For the reception of maritime safety information by the INMARSAT enhanced group calling system
1.6	A satellite emergency position-indicating radio beacon (EPIRB)	For transmitting a distress alert either through the polar orbiting satellite service operating in the 406 MHz band or, through the INMARSAT geostationary satellite service operating in the 1.6 GHz band.

Regulation 10 Radio Equipment – Sea areas A1, A2 and A3:

No.	Item	Descriptions
1.1	An INMARSAT ship earth station	For: (1) transmitting and receiving distress and safety communications using direct printing telegraphy (2) initiating and receiving distress priority calls (3) maintaining watch for shore-to-ship distress alerts (4) transmitting and receiving general radiocommunications, using either radiotelephony or direct-printing telegraphy
1.2	An MF radio installation	For transmitting and receiving on the following frequencies (1) 2,187.5 kHz using DSC, and (2) 2,182 KHz using radiotelephony
1.3	A radio installation	For maintaining a continuous DSC watch on the frequency 2,187.5 kHz
1.4	Means of initiating the transmission	For ship-to-shore distress alerts by a radio service operating either : (1) through the polar orbiting satellite service on 406 MHz (2) on HF using DSC, or (3) through the INMARSAT geostationary satellite service
2.1	DSC, Radiotelegraphy and MF/HF radio installation	For transmitting and receiving between 1,605 KHz and 4,000 kHz and between 4,000 kHz and 27,500 kHz using, (1) DSC (2) Radiotelegraphy and (3) Direct-printing telegraphy

(to be continued)

No.	Item	Descriptions
2.2	A radio installation	For maintaining DSC watch on 2,187.5 kHz, 8,414.5 kHz and one of the distress and safety DSC 4,207.5 kHz, 6,312 kHz, 12,577 kHz or 16,804.5 kHz
2.3	Means of initiating the transmission	For the transmission of ship-to-shore distress alerts (1) through the Polar Orbiting Satellite Service on 406 MHz, or (2) through the INMARSAT Geostationary Satellite Service
2.4	Radiocommunication, or direct-print telegraph	For transmitting and receiving general radiocommunications using radiotelephony or direct-printing telegraphy by an MF/HF radio installation operating between 1,605 kHz and 4,000 KHz and between 4,000 kHz and 27,500 kHz.

Note: Every ship shall be provided with the requirements of Regulation 7. In addition to the requirements of Regulation 7, every ship engaged on voyages beyond sea areas A1 and A2, but remaining within sea area A3, shall be provided with the requirements of Regulation 10, Paragraphs 1 or 2.

The Definition of Sea Areas

Area A1	Within range of shore-based VHF coast stations	Distance from shore: App. 20 - 30 miles
A2	Within range of shore-based MF coast stations (Excluding A1 area)	Distance from shore: App. 100 - 150 miles
A3	Within the coverage area of INMARSAT geostationary satellites (Excluding A1 and A2 areas)	Between north latitude 70° and south latitude 70°
A4	The remaining sea areas outside areas A1, A2 and A3.	Around the North Pole and the South Pole

Automatic Identification Systems

Sistemas de Identificación Automaticá

船舶自動識別装置

船舶自動識別器



Designed to meet the SOLAS requirements Chapter 5 Safety of Navigation - in Regulation 19-2.4 to all of ships of 300 gross tonnage and upwards engaged on international voyages, and for simple installation onto a ships bridge, and with quick and easy access for repair or replacement. As well as being intrinsically tough and rugged, the system also features a sophisticated touch screen minimum display for intuitive operation. With its touch-screen LCD (Liquid Crystal Display) minimum display, this AIS transponder transmits the ship's data to other vessels as well as shore-based VTS (Vessel Tracking Systems). Utilizing various VHF channels, this is ship-borne station consists of an integral GPS engine for timing, one VHF transmitter, three VHF receivers and a computer. Interface this with an external GPS for navigation, an antenna, a gyrocompass, and an optional ECDIS (Electronic Chart Display and Information System) or ARPA (Automatic Radar Plotting Aid) display system and you have everything required to comply with the mandatory carriage requirements that comes into effect July 1, 2002.

Static and voyage related data is transmitted every six minutes, while the dynamic information is transmitted between 2 seconds to 3 minutes, depending on the ships navigational status and speed. Short messages from ships or shore stations can be inserted into the AIS message structure that contain such information as; notices to mariners, navigational warnings, weather forecast and SAR (Search and Rescue) communications etc.

Features and Functions:

- Provision of tactical and strategic VTS information. Transmitting port data, berth assignments, pilotage, tides, currents as well as shipping agency information.
- Automatic data exchange, ship-to-ship and ship-to-shore.
- Short message service (121 characters).
- Collision avoidance.
- Detection of vessels that may be hidden in radar shadows.
- Overcomes target swapping of radar contacts.
- 4 mode operation: Autonomous, Continuous, Assigned and Polled.
- Telemetry applications for navigation aids such as lighthouse or buoys.
- Reduction of global VHF voice traffic.

The AIS message is divided into a number of categories that contain specific information which include:

- Static Data: IMO number / Call sign and name length and beam / Type of ship / Location of position fixed antenna onboard the ship.
- Dynamic Data: Ships position / Time in UTC (Universal Time Coordinated) / COG (Course Over Ground)/ SOG (Speed Over Ground)/ Heading / Navigational status / ROT (Rate of Turn).
- Voyage Related Data: Ships draft / Cargo / Destination and ETA (at masters direction).
- Safety Related Messages: As needed.

Unit Per Set

CODE		37 24 01
Item		Automatic Identification System
Dimensions & Weight	Display Unit	L230 × H140 × D50 mm, 1.5 kg
	Transceiver Unit	L270 × W350 × D75mm, 6.5 kg
Power Supply		24V DC
Power Drain		75 watts
GPS Receiver		12 Channel
Interfaces		3 × RS232, 5 × RS422
Name of Mfr.		McMurdo Limited

Radar Transponders
(SART - Search and Rescue Radar Transponder)

Transpondedores de Radar
レーダー・トランスポンダー　雷达应答器



At least 1 radar transponder shall be carried on each side of every cargo ship of 500 gross tons or more.

Upon receiving radio waves from 9 GHz shipboard radar, this unit sends signals to indicate its position and bearing on the screen.

37 25 01	Radar transponder (SART) 9 GHZ (with ship's registered flag)	Pc.

NAVTEX Receivers

Receptores NAVTEX
NAVTEX 受信機　NAVTEX 受信机



NAVTEX is an international maritime radio telex system. For receiving navigational warnings and safety information via printing telegraphy broadcast on 518 KHz along coastal areas.

37 25 06	NAVTEX receiver 518 kHz	AC 110V	Pc.
07	"	AC 220V	"

Note: Please specify the ship's registered flag when ordering

Satellite Emergency Position-indicating Radio Beacons
(Satellite EPIRB)

Radiofaros Indicadores de Posicion Emergencia de Satélite (Satélite EPIRB)
衛星 EPIRB　卫星紧急定位无线电导航台（卫星 EPIRB）



Transmitting a distress alert either through the polar orbiting satellite service, operating in the 406 MHz band, or through the INMARSAT geostationary satellite service operating in the 1.6 GHz band.

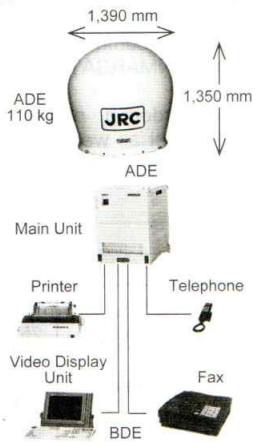
The unit will also float free if the ship sinks and will be automatically activated when afloat or activated manually in emergency. The EPIRB mentioned here is operated on 406 MHz and 121.5 MHz by the COSPAS/SARSAT satellite system which is adopted widely to the ships in the early stage of the introduction of the GMDSS. This type of EPIRB will broadcast on 406 MHz to be received by the COSPAS/SARSAT satellite and on 121.5 MHz to be used for homing by search-and-rescue vessels along with a strobe to pinpoint exact location.

It is required, when ordering, to specify the ship's registered flag, call sign, etc. to be programmed into the EPIRB as a rescue signal by the manufacturer before delivery.

37 25 11	Satellite EPIRB 406 MHz & 121.5 MHz (with ship's registered flag, etc.)	Pc.

Satellite Communication Equipment
INMARSAT B Ship Earth Station

Estación Terrestre de Barco B de INMARSAT con Equioamiento para Comunicación de Satélite
インサルマット—B 船舶地球局
海事卫星船舶通信装置



INMARSAT stands for the organization established by The Convention on the International Maritime Satellite Organization adopted on September 3rd, 1976. The INMARSAT maritime satellite communications service permits direct ship to land and ship to ship communication via INMARSAT satellite and coastal earth stations. The INMARSAT B Ship Earth Station provides a full range of instant, quality communication services from anywhere at sea into the world public telephone, facsimile, telex and data networks. It consists of an Above Deck Equipment (ADE) and a Below Deck Equipment (BDE) which are interconnected by a single cable.

ADE: Antenna and Radome
BDE: Communication unit, Video display unit and RO printer

Specification for reference

Frequency	Transmit: 1625.5 of 1646.5 MHz
Range	Receive: 1525.0 of 1545.0 MHz
Antenna	89 cm diameter parabolic antenna
Enclosure	FRP radome (1.39 mtr diameter)
Primary Power	100/110/220 VAC ± 10% Single-phase 60 Hz ± 6%
Size & Weight	ADE: H1,350 × φ1,390 mm, 110 kg BDE: Main unit H500 × W400 × D350 mm, 38 kg Video display unit H280 × W366 × D180 mm, 4.5 kg Printer H193 × W380 × D376 mm, 3.7 kg

How to order: CODE

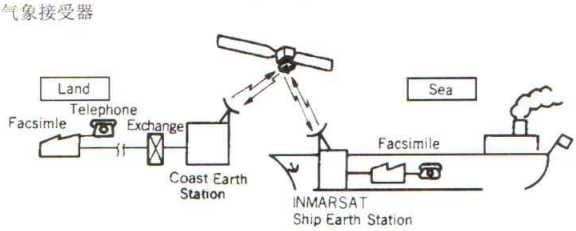
Ship earth station INMARSAT B with standard attachments
VOLTAGE (Specify Manufacturer's Name & Model)

Unit Per Set

CODE	**37 25 15**	**37 25 16**
Power Supply	AC 110V	AC 220V

INMARSAT Facsimile Receivers

Receptores de Facsímile INMARSAT
INMARSAT ファクシミリ送受信装置
气象接受器





Designed for INMARSAT communications to transmit all kinds of graphics and drawings that now can be transmitted over a terrestrial telephone line. Suitable for use in the shipowner's offices where there is a communication link with an INMARSAT ship to earth station.

When ordering, please specify the manufacturer's name and model as well as the INMARSAT ship to earth station currently on board.

Specifications for Reference

Standard	CCIT GII/GIII
Transmission Line	INMARSAT/Telephone
Document Size	B4 (252 mm width)
Reading/Recording	252 mm width max.
Data Compression	Modified Huffman (MH) GIII Modified Read (MR) GIII AM-PM-VSB (GII)
Size & Weight	H209 × W410 × D465 mm, 15 kg

How to order: CODE

INMARSAT facsimile receiver CCIT GII/GIII standard, VOLTAGE

Unit Per Set

CODE	37 25 21	37 25 22
Power Supply	AC 110V	AC 220V

GPS (Global Positioning System) Navigators

Navegadores GPS
(sistema Global de Posicionamiento)
GPS 受信装置　GPS 受信装置



Satellite-based radio navigation system to provide a global, all-weather, continuous 24 hour service for position fixing with high accuracy. The satellite system is available to an unlimited number of users when it is fully operational.
It is composed of 24 GPS satellites, each transmitting their own orbital data. The GPS navigator receives the orbital data from three or more GPS satellites to calculate a two or three dimension position, speed, and time.

Specifications for Reference

Accuracy Position & Speed	15 m RMS (C/A code, HDOP ≦ 2.5) 0.2 knot RMS (C/A code, HDOP ≦ 2.5)
Receiving Signal	1,575.42 MHz ± 1 MHz, C/A code
Data Display	A8 digit, 4-line LCD
Display Items	Position (Latitude, Longitude and Altitude), Course and speed, Data and time, Satellite data, Satellite signal receiving status and GPS positioning period, Range, Bearing and time to go, and Course deviation
Power Supply	100-115/220-240V, AC 50/60 Hz, 10-45V DC, 12W
Size & Weight	Receiver: H120 × W243 × D116 mm, 2.7 kg Antenna : H229 × 50 mm dia, 0.4 kg

How to order: CODE

GPS navigator, receiving signal 1,575.42 MHz, VOLTAGE

Unit Per Set

CODE	37 25 31	37 25 32
Power Supply	AC 110V	AC 220V

VHF Radio Telephones

Radiotelefonía VHF
国際 VHF 無線電話装置
国际 VHF 无线电话装置



Designed to provide ship-to-shore, ship-to-ship and on board communications, allowing the ship's crew to easily obtain emergency, safety, navigation, weather and business information.

Equipped with all ITU channels, USA, USCG, Canadian and private channels. Continuous scanning watch on channel 16.

Specifications for Reference

Frequency Range	Transmit Receive	155.50 - 159.50 MHz 155.50 - 159.50 MHz (Simplex) 160.60 - 163.50 MHz (Duplex)
Channel Capacity		57 ITU/USA channels, 4 Canadian channels, 9 weather channels, Up to 99 private channels
Mode of Operation		Simplex or Duplex
Power Supply		13.8V DC
Size & Weight		H290 × W240 × D145 mm, 6.5 kg

37 25 41	VHF radio telephone 155.50 - 159.50 MHz simplex mode	Set
42	" duplex mode	"

Magnetic Compasses

Compasses Magnéticos　磁気コンパス　磁罗经

A compass which measures direction by a needle which continuously seeks the magnetic meridian.
SOLAS Regulation requires ships of 150 gross tons or more to be fitted with a magnetic compass.

Here are some types of magnetic compasses for your reference. There are several sizes of compass card diameter, according to the type of magnetic compass and the manufacturers.



Table Type



Stand Type



Projector Type

37 25 51	Magnetic compass (With further information)	Set

Azimuth Mirrors

Espejos de Azimut 方位鏡 方位仪



A measuring instrument used with the magnetic compass. For obtaining the azimuth of observed objects by observing an object's reflection in a mirror or prism, pivoted in the centre of glass over a compass card.

37 25 53	Azimuth mirror (With manufacturer's name and model of Magnetic Compass)	Set

Gyro Compasses

Girocompases ジャイロ・コンパス
电罗经



Ships of 500 gross tons or more constructed on or after September 1st, 1984 and ships of 1,600 gross tons or more constructed before September 1st, 1984 shall be fitted with a gyro compass.

The gyroscope is mounted, ballasted and fitted so that it's north south line always remains within the meridian through the influence of the earth's diurnal revolution. Can be used as a sensor for the following types of navigation devices : Autopilots, Radar, Collision avoidance systems, Satellite navigation systems, Direction finders, etc. Here are some specifications as a reference when ordering.

Specifications for Reference

Master Compass	Follow-up accuracy : 0.1° Follow-up speed : 360°/15 sec. Gimbal freedom angle : ±45° Range of speed error correction : 0-40 knot/0-70°	
Power Supply	Main supply voltage	AC 110V/115/220/380 440V 3P 50/60 Hz
	Emergency supply voltage	DC 24V, 2.5A

37 25 56	Gyro compass (With further information)	Set

Radars

Radares レーダー 雷达



Electronic system by which the bearing and distance of an object are found by the emission of a radio pulse.

An object's bearing and distance can be measured by observing the direction from which the pulse returns and the time elapsed from when it was sent.

Ships of 500 gross tons or more constructed on or after September 1st, 1984 and ships of 1,600 gross tons or more constructed before September 1st, 1984 shall be fitted with a radar installation.

From February 1st, 1995, the radar installation will be capable of operating on the 9 GHz frequency band. In addition, cargo ships of 300 gross tons or more, when engaged on international voyages, shall be fitted with a radar installation capable of operating on 9 GHz frequency band.

Specifications for Reference

Peak Power	25 kW
Frequency	9,410 ± 30 MHz
Range Ring	0.25/0.05, 0.5/0.1, 0.75/0.25, 1.5/0.25, 3/0.5, 6/1, 12/2, 24/2, 48/8, 120/20 nm
CRT	21-inch Raster scan
Power Supply	100/110/115V AC, 50/60Hz, 1-P (7 ft) 200/220/230V AC, 50/60Hz, 3-P (9 ft)
Size & Weight	H1,270 × W535 × D575 mm, 100 kg

Remark: The above specifications are listed as a reference only. Please contact with a representative about which required features are available from various manufacturers.

37 25 61	Radar (With further information)	Set

Automatic Radar Plotting Aid (ARPA)

(Collision Avoidance System)

Radar Automático de Ayuda Gráfica
(Sistema de Colisión Evitable)
自動衝突予防援助装置
自动雷达测绘辅助装置（防碰撞系统）



Automatic radar plotting aids are required for ships of 10,000 gross tons or more, constructed on or after September 1984, and tankers constructed before September 1st, 1984.

It is designed to be operated as a separate or integral part of marine radar equipment. It will give precise target information to avoid collision in vector and numeric form.

There are various models world-wide. Please ask a representative about detailed specifications. Listed below are some specifications for your reference.

Specifications for reference

Peak Power	25 kW
Frequency	9,410 ± 30 MHz
Scanner Length	7 feet
Target Acquisition	Automatic and/or manual
Target Tracking	Automatic up to 40 targets
CRT Display	28 inch (Effective dia.: 340 mm)
Radar Range	0.25, 0.5, 0.75, 1.5, 3, 6, 12, 24, 48,120 mm
Range/bearing Measurement	VRM 1/2 and electronic bearing line (EBL)
Warnings	Min. CPA : 0-9.9 min. in 0.1 step Min. TCPA : 0-99 min. in 1 step
Power Supply	100/110/115/200/220V AC, 50/60 Hz
Size & Weight	H1,278 × W700 × D875 mm, 135 kg

Note: CPA = Closest Point of Approach
TCPA = Time of Closest Point of Approach

37 25 63	Automatic radar plotting aid (With further information)	Set

Navigation Systems

Sistemas de Navegación　航法装置　導航系統

Various kinds of navigation systems are available in the world. Some major navigational systems are produced here for your reference.

Major Navigational Systems

Systems	Service Area	Effective Range	Accuracy
Loran C (100 kHz)	Japan/Korea U.S.A./ Canada/North Sea Mediterranean	1,500 miles (Daytime)	30 - 500 mtr
Loran A (1.75-1.95 MHz)	Japan	700 miles (Daytime)	0.25 - 0.5 miles
Decca (70-130 kHz)	Europe/Japan/etc.	350 miles (Daytime)	20 - 100 mtr
Satellite Navigator (150, 400 MHz)	World-wide	World-wide	0.1 mile
GPS (1,575.42 MHz)	World-wide	World-wide	100 mtr

Loran C Navigators

Navegantes Loran C
ロランC 航法装置
Loran C 導航系統



A long range aid to navigation. Master and slave stations transmit synchronised signals which can be received by a special receiver on board the ship.

Since radio signals travel at a known speed, the difference in time at which the signals arrive at the ship can be converted into distance.

Signals from two pairs of Loran stations can thus fix the position of a ship.

Specifications for reference

Station Tracking	Master and all slave stations
Display	Fully automatic LAT/LON
Memory Capacity of Waypoints	50
Readouts	Course/Speed, Bearing/Distance and Time-to-go
Frequency	100 kHz
Power Supply	10 - 40V DC, 17W, 100/115/220V AC
Size & Weight	H142 × W271 × D314 mm, 4 kg

Decca Navigators

Navegantes Decca
デッカ航法装置　Decca 導航系統



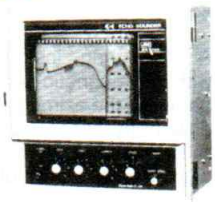
A radio aid for fixing positions up to 300 miles or more from the transmitter.

A master transmitter ashore controls a chain of other transmitters. A ship provided with a receiver can receive a transmitted signal by measuring the phase-difference of the Decometers.

The numbers indicated on the Decometers refer to coloured lattice lines printed on special charts. The ship's position is symbolized by where the numbered lines cross each other on the chart.

Echo Sounding Devices

Aparatos de Ecosondeo
音響測深装置　回声探深仪



For ships constructed before May 25, 1980, weighing greater than 1,600 gross tons and for ships constructed after May 25, 1980, weighing greater than 500 gross tons. All vessels falling under this classification which sail international routes must be fitted with an echo sounding device.

Electrically operated instrument that emits a sound from vessel's submerged surface and then measures and records the time interval which passes before the echo returns.

The most popular model is shown here. Please ask for further information and brochures of various models available from local manufacturers when required.

Specification for reference

Depth Range	0 - 450 mtr, 3 ranges
Max. Sounding Depth	450 mtr
Frequency	50 kHz or 200 kHz
Recording Paper	Dry type, 150 mm width x 15 mtr
Power Supply	100/115/220V AC, 50/60 Hz
Size & Weight	H380 v W360 × D210 mm, 16 kg

37 25 71	Echo sounding device (With further information)	Set

Weather Facsimile Receivers

Receptores de Facsímile Meteorológico
気象ファクシミリ　气象传真装置



Weather facsimile service is provided world-wide, and designed to meet the WMO (World Meteorological Organization) standards.
The most popular model is shown here. Please ask for further information and brochures of various models available from local manufacturers when required.

Specification for reference

Mode of Receiving	Fully automatic, Semi automatic, Manual and Programmed
Recording	Solid-state scanning by thermal head
Effective Scanning line	256 mm (10 inches)
Scanning Speed	60, 90, 120 and 240 spm
Mode of Emission	F3C
Frequency Range	HF: 2 - 24.9999 MHz
Power Supply	DC10-42V, less than 70V AC
Size & Weight	H106.5 × W300 × D254.5 mm, 5.3 kg

37 25 81	Weather facsimile receiver (With further information)	Set

Personal Location Beacons

Radiofaro para Localización Personal
個人用位置指示無線標識　個人用位置信標

Featuring a built-in GPS receiver (Global Positioning System) combined with a 406 MHz transmitter and 121.5 MHz homing signal. In the event of an emergency, an alert signal is

transmitted to Cospas-Sarsat satellites and forwarded to a secure co-ordinate centre within typically 3 minutes. The built-in GPS receiver will provide latitude and longitude co-ordinates to give a position to within typically 30 meters anywhere in the world.



It comes complete with lanyard and designer carry case to enable users to keep the personal location beacon safely attached at all times.

Features
- Built-in 12 channel GPS receiver.
- Geostationary coverage > 75°N - 75°S.
- Global alert to Cospas-Sarsat polar orbiting satellites.
- 406 MHz transmitter.
- 121.5 MHz homing frequency.
- GPS cold start time to fix typically less than 3 minutes.
- Positional accuracy to typically within 30 meters.
- GPS transmitted position update rate every 20 minutes (as permitted by Cospas Sarsat).
- GPS reacquisition time, typically less than 60 seconds.
- Complete with lanyard and designer carry case.
- User replaceable battery pack.

37 28 11	Personal location beacon with built-in GPS receiver	Set

Name of Mfr.: McMurdo Limited

Wristwatch Manoverboard Beacon

Radiofaro Tipo Reloj de Pulsera
腕時計型位置指示無線標識
錶型位置信標



The light weight, easy to wear waterproof, multi-function wristwatch has a built-in radio transmitter which when activated either manually or automatically, immediately transmits a distress tone on the international emergency search and rescue frequency (121.5 MHz). The distress signal transmitted can be detected by a surface rescue vessel or helicopter, which can accurately home in to the watch using direction-finding equipment. The unit is a working watch, fully waterproof to a depth of 50 mtr and can be set to manual or automatic activation on immersion in water, making it functional and easy-to wear manoverboard transmitter for crew members.

The distress signal transmitted can be detected by a surface rescue vessel or helicopter, which can accurately home in to the watch using either the emergency receiver or direction finder.

Features
- Automatic activation with manual on/off override.
- Chronograph 1/100 second with lap/split control.
- Alarm with chime.
- LCD backlight.
- Water resistant - tested to a depth of 50 mtrs.
- Transmission activation audible and visual LED alarms.
- Up to 8 hours transmission time.
- Range to surface vessel up to 1 nautical mile.
- Range to SAR helicopter up to 5 nautical miles.

Unit Per Pc.

CODE	**37 28 15**
RF Transmitter Frequency	121.5 MHz (121.65 MHz Training)
Class of Emission	A3X
RF Power	-25 dBm
Frequency Error	+/- 3.5 kHz
Duty Cycle	100%
Modulation Type	Sweep downward from 1.5 kHz to 650 Hz with sweep repetition of 2 Hz
Modulation Duty-Cycle	50%
Voltage	3.2 volts max. (CR2 battery)
Current Draw	20 µ Amps Quiescent 110 mAmps Transmitting
Weight including Strap	81 grm
Name of Mfr.	McMurdo Limited

(to be continued)

Voyage Data Recorder

Registrador de Datos de Navegación 航海記録装置 航海記録儀

Designed to meet the requirements of IMO performance standard A. 861 (20); (1) Passenger ships constructed on or after July 1, 2002, (2) Ro-Ro passenger ships constructed before July 1, 2002 not later than the first survey on or after July 1, 2002, (3) Passenger ships other than ro-ro passenger ships constructed before July 1, 2002 not later than January 1, 2004 and (4) Ships other than passenger ships of 3,000 gross tonnage and upwards constructed on or after July 1, 2002.

Voyage Data Recorder consists of Data Collection Unit (DCU), robust protective data storage capsule and replay and evaluation unit. It records conversations at the navigation bridge, VHF radio communication, speed, course and other information on the ship's condition for 12 hours. Records and plays back important voyage navigation, machinery and environmental data for post-incident evaluation and crew training.

Provides the following data recording solutions;
- Conversation and communication recording
- Radar recording
- Vessel motion response monitoring/recording
- Vessel performance and trends analysis
- Stand-alone and integrated bridge configulations



Data Collection Unit (DCU)

- Data Collection Unit
  Interfaced with ship equipment and collects, processes and stores all relevant ship's data for a period of 12 hours as required by IMO A.861.
- Protected Storage Unit
  Stores data received from the DCU on a solid state recording medium. The PSU is calamity resistant by means of a protective capsule. It is located on top of the ship's superstructure in order to provide easy access from outside.
- Relay and Evaluation Unit
  Used to reply and evaluate previously recorded time synchronized data. The REU is in addition an excellent

tool for training purposes. Data stores in the PSU can be downloaded through the DCU for replay or long-term storage of data.

Recording Paper

for Navigational Equipment

Papel para Equipamiento de Navegación
航海計器用記録紙　航仪器记录仪

As a wide variety of recording paper for use with different kinds of navigational equipment are available, please specify the name of the equipment, the type, model number, manufacturers name and any other information regarding the applications of the paper.

For Course Recorder

How to order: CODE

Course recorder paper, PAPER CHART NO., SIZE mm, MANUFACTURER'S NAME & MODEL of course recorder

Unit Per Rls.

CODE	Course Recorder		Paper	
	Mfr.	Model No.	Chart No.	Size mm
37 26 01	Tokyo Keiki	CR-1, 2, 3, 4	12010357-	150 × 75 × 35
02		DCR-10A, 40A	12010331-	200 × 75 × 35
13	YDK	KR-100A MKR-101A	V8105AA	100 mm × 18 mtr
14		KR-180A MKR-181A	V8104AH	180 mm × 18 mtr
35			V8105AH	

For Echo Sounder

How to order: CODE

Echo sounder recording paper, TYPE of PAPER, SIZE mm, MANUFACTURER'S NAME & MODEL of echo sounder

Unit Per Rls.

CODE	Course Recorder		Paper	
	Mfr.	Model No.	Type	Size mm
37 26 17	JRC	JFE-570S, JFE-582, JFE-585	J-8 (6ZPBS00006)	150 mm × 15 mtr
36		JFE-700, JFE-680 JFE-400 (For option printer NKG-901) JFE-380 (For option printer NKG-91)	7ZPJD0384	58 mm × 25 mtr
30	Furuno	FE-680, FE-680T	PD-1520NW	150 mm × 20 mtr
34		FE-700, FE-800 for Printer PP-505	TP0340	112 mm × 40 mtr

For Weather Facsimile Receiver

How to order: CODE

Facsimile recording paper, TYPE of PAPER, SIZE mm, MANUFACTURER'S NAME & MODEL of weather facsimile receiver

Unit Per Rls.

CODE	W.F. Receiver		Paper		
	Mfr.	Model No.	P/No.	Type	Size
37 26 40	JRC	JAX-9B	6ZPTS00108	HFB-19	260 mm × 25 mtr
45		JAX-91	6ZPTS00127	HFB-19 (HFB-03)	400 mm × 100 mtr
37 26 57	Furuno	FAX-408	-	TP0820	216 mm × 20 mtr
33		FAX-410	-	F220VP	257 mm × 30 mtr

(to be continued)

Course Recorder Pens

Bolígrafos registradores de cursos
コースレコーダーペン　课程记录笔

How to order: CODE

Course recorder pen, MANUFACTURER'S NAME & MODEL of course recorder

CODE	Course Recorder	Part No.	Colour	Unit
37 26 85	YDK KR100A/MKR101A KR180A/MKR181A	B9902AM	Red	3's/Pkt
86		B9902AN	Green	
87		B9902AP	Blue	
88		B9902AR	Purple	

*Remark: KR100A & MKR101A do not require blue colour pen.

Teleprinter Recording Paper



Papel para Telex
テレックス受信紙　电传记录纸

Available from 1 ply to 4 ply paper in various colour combinations. Standard size is 214 mm width. Colour combination is listed below. Besides the above, 257 mm width paper is also available on request.

How to order: CODE

Teleprinter recording paper, width 214 mm, NUMBERS of PLY, COLOUR COMBINATION

Unit Per Rls.

CODE	Ply	Colour Combination	Length (mtr)
37 26 93	1	White	175
94	1	Yellow	105
37 26 95	2	White/Yellow	81
96	3	White/Pink/Yellow	51
97	4	White/Pink/Blue/Yellow	48

Recording Paper for Navtex Receiver

Papel para Receptor Navtex
ナブテックス受信記録紙　Navtex 接收和记录纸

How to order: CODE

Recording paper for Navtex receiver, WIDTH x LENGTH, MANUFACTURER'S NAME & MODEL of Navtex receiver

Unit Per Rls.

CODE	Mfr. Name	Model	Paper Type	Width × Length
37 27 03	JRC	NCR 300A	5ZPMB00001	80 mm × 25 mtr
07		NCR-300	7ZPJD0044	80 mm × 40 mtr
37 27 08		NCR-333	6ZCAF00252 (DPU-414 Printer)	112 mm × 25 mtr
37 27 10			7ZPJD0384 (NGK-901 Printer)	58 mm × 25 mtr
37 27 04	Furuno	NX 500	TP0340	112 mm × 40 mtr
09		NX-700A	TP058-30CL	58 mm × 30 mtr
37 27 06	JMC	NT-1800	PR-950	112 mm × 25 mtr

39
Medicine

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List of Recommended Medicines and Equipment by International Medical Guide for Ships - Third Edition

All ships subject to the regulations established by the international Maritime Organization (IMO) and International Labour Organization (ILO) must have adequate medical supplies, that are periodically inspected, kept in good condition, and are ready for use whenever required. The quantities needed on board will depend on the duration and destination of the voyage, the number of crew members, and the nature of the cargo.

The medicine chest is designed to hold a range of medicinal products needed for the most common medical emergencies likely to occur on board ship, however distant it is from shore.

Different communities have different methods of treatment. Items specific to national requirements and customs can be added to the list of recommended medicines and medical supplies provided at the end of this chapter. The added items, however, should not be used to replace any of the recommended medicines or medical supplies on the list, but should be integrated into the list together with detailed information about their actions and unwanted effects.

The list assumes that on-board medical treatment is dispensed by an officer working under the responsibility of the master. Ships with a doctor on board may carry an expanded range of medicines and other medical equipment and supplies.

Some of the listed medicines are available only on prescription. As regulations differ from country to country, no advice is given here about obtaining these medicines.

Quantification Addendum: International Medical Guide for Ships, Third edition

Background

The third edition of the *International Medical Guide for Ships* was published by the World Health Organization, in collaboration with the International Labour Organization and the International Maritime Organization in 2007. The Guide provides advice to help promote and protect the health of seafarers. An important section in the Guide is the 'Ship's Medicine Chest'. This section provides a recommended list of medicines that ships at sea should carry, as well as indications and dosing. The second edition of the Guide, published in 1988, also provided suggested quantities of medicines that ships of various size should hold; recommended quantities were not included in the third edition. The University of Newcastle WHO Collaborating Centre for Training in Pharmaco-economics and Rational Pharmacotherapy was commissioned to develop a list of recommended quantities of medicines listed in the third edition of the *International Medical Guide for Ships*.

	Category A	Category B
Definition of categories of ships	Ocean-going merchant vessels without a doctor on board.	Merchant vessels engaged in coastal trade or going to nearby ports, and not more than 24 hours away from a port of call.
Crew sizes and trip durations	Per 10 crews, the assumed duration of each trip is up to 3-4 weeks.	

List of Recommended Medicines

CODE	Description	Indication	Quantities per 10 crew		Notes
			A	B	
39 17 01	Acetylsalicylic acid, 300 mg tablet	Pain, fever, blood clots	50	50	
39 17 02	Aciclovir, 400 mg tablet	Herpes simplex/zoster	70+	35+	
39 17 03	Adrenaline, 1 mg/ml ampoule	Anaphylaxis	10+	5+	
39 17 05	Amoxicillin/clavulanic acid, 875 mg/125 mg tablet	Infections	20	10	
39 17 06	Artemether, 80 mg/ml ampoule	Malaria treatment	12+	12+	
39 17 07	Artemether + lumefantrine, 20 mg/120 mg tablet	Malaria treatment	24+	24+	Double if crew size >30
39 17 08	Atropine, 1.2 mg/ml ampoule	MI/organophosphate poisoning	10+	5+	Double quantity if carrying organophosphates
39 17 09	Azithromycin, 500 mg tablet	Infections	10+	5+	Double if crew size >30
39 17 10	Ceftriaxone, 1 g ampoule	Infections	15	5+	
39 17 11	Cetirizine, 10 mg tablet	Hayfever/hives/dermatitis	30+	30+	
39 17 12	Charcoal, activated, powder	Poisoning	120 g+	120 g+	
39 17 13	Ciprofloxacin, 250 mg tablet	Infections	20+	10+	Double if crew size >30

(to be continued)

CODE	Description	Indication	Quantities per 10 crew		Notes
			A	B	
39 17 14	Cloves, oil of, liquid	Toothache	10 ml	10 ml+	
39 17 15	Dexamethasone, 4 mg/ml ampoule	Severe asthma/anaphylaxis	3	1	
39 04 62	Diazepam, 5 mg tablet	Alcohol withdrawal	50+	20+	
39 17 17	Docusate with senna, 50 mg/8 mg tablet	Constipation	30+	-	
39 06 31	Doxycycline, 100 mg tablet	Infections	10	-	
39 17 19	Ethanol, hand cleanser, 70% gel	Hand cleaning	500 ml	500 ml+	
39 17 20	Ethanol, 70% liquid	Disinfect instruments	500 ml	100 ml	
39 17 21	Fluorescein, 1% eye strips	Detect corneal damage	20+	20+	
39 17 22	Frusemide, 40 mg/4 ml ampoule	Pulmonary oedema	5+	5+	
39 17 23	Glucagon, 1 mg ampoule	Hypoglycaemia	1+	1+	
39 17 24	Haloperidol, 5 mg/ml ampoule	Psychosis/severe agitation	5	5+	
39 06 44	Hydrocortisone, 1% cream	Allergy/inflammatory skin	2 x 30 g	1 x 30 g	One tube per patient
39 17 26	Ibuprofen, 400 mg tablet	Inflammation/pain	100	50	
39 17 27	Isosorbide dinitrate, 5 mg tablet	Angina/MI	10	10	
39 17 28	Lignocaine, 1%, 5 ml ampoule	Suturing/minor surgery	5	5	
39 17 29	Loperamide, 2 mg tablet	Diarrhoea	30	30	
39 17 30	Mebendazole, 100 mg tablet	Intestinal worms	6+	6+	
39 17 31	Metoprolol, 100 mg tablet	HTN/AF/Angina/Migraine	60+	-	
39 17 32	Metronidazole, 500 mg tablet	Infections	30+	20+	
39 06 52	Miconazole, 2% cream	Fungal skin infections	2 x 30 g	1 x 30 g	Double quantity if females on board
39 17 34	Midazolam, 5 mg/ml ampoule	Epileptic fits	10+	5+	
39 17 35	Misoprostol, 200 ug tablet	Post-partum haemorrhage	3+	3+	Only if females on board
39 03 90	Morphine, 10 mg/ml ampoule	Severe pain	10	10	
39 17 37	Morphine, 1 mg/ml liquid	Severe pain in patients able to eat and drink	100 ml+	100 ml+	
39 06 56	Naloxone, 0.4 mg/ml ampoule	Opiate overdose	10+	5+	
39 17 39	Omeprazole, 20 mg tablet	Reflux, peptic ulcers	30+	30+	
39 17 40	Ondanestron, 4 mg tablet	Vomiting, sea-sickness	10	10	
39 06 58	Oral Rehydration Solution, sachet powder	Dehydration due to diarrhoea	15 ltr (75)	10 ltr (50)	Quantities in brackets are number of sachets based on sachets made up to 200 ml
39 17 42	Oxymetazoline, 0.50% Nasal drop	Nasal obstruction/drain sinuses	2	1	One bottle per patient
39 06 60	Paracetamol, 500 ml tablet	Pain and fever	100	50	
39 17 44	Permethrin, 1% lotion	Lice	200 ml+	100 ml+	Double if crew size >30
39 17 45	Permethrin, 5% lotion	Scabies	300 ml+	100 ml+	100 ml per patient
39 17 46	Povidone iodine, 10% ointment	Disinfect skin/wounds	1 x 25 g	1 x 25 g	
39 17 48	Povidone iodine, 10% liquid	Disinfect skin/wounds	100 ml+	100 ml	
39 17 47	Prednisone, 25 mg tablet	Asthma/inflammatory conditions	30+	30+	
39 06 72	Salbutamol, 100 ug/dose inhalation	Asthma/bronchitis/emphysema	1	1	One inhaler per patient
39 06 73	Sodium chloride, 0.9%, 1 ltr liquid	Fluid replacement	5+	1	
39 17 04	Tetracaine [amethocaine], 0.50% eye drop	Eye examination	20+	20+	
39 17 50	Tetracycline, 1% eye ointment	Minor eye infections	2	1	One tube per patient
39 17 51	Vitamin K, 10 mg/ml ampoule	Reverse warfarin or similar	2+	2+	
39 06 82	Water for injection, 5 ml ampoule	Reconstitute infections	10	5+	Only used to reconstitute ceftriaxone
39 17 53	Zidovudine + lamivudine, 300 mg/150 mg tablet	Needle-stick injury prophylaxis	56+	56+	
39 06 83	Zinc oxide, 20% paste/ointment	Irritated skin	200 g+	100 g+	4 x 25 g or 3 x 30 g tubes per 100 g

Remark: Quantities marked with an '+' are suggested quantities irrespective of crew size.

List of Recommended Equipment

(According to Guidance to the International Medical Guide for Ships 3rd edition:Interim advice regarding the best use of the medical chest for ocean-going merchant vessels without a doctor onboard, Joint Statement of WHO Collaborating Centres for the Health of Seafarers and the International Maritime Health Association – 2009 Version)

How to use the proposed list of recommended medicines and equipment of the International Medical Guide for Ships 3rd edition, pages 430-461

- The Interim Advice is **only** to be used in conjunction with the International Medical Guide for Ships 3rd edition[2] as published by WHO in 2007.

[2] International Medical Guide for Ships (3rd Edition), World Health Organization, Geneva. 2007.

- All items suggested from WHO in the original list on pages 430 to 461 are included.
- Any additions to the original list (items and comments) are made visible by the use of italic letters. Reference pages from the medical textbook to the list of items which justify the additions are given.
- Running numbers have been given to the list of medicines and equipment including added items.
- Drugs, forms, books and equipment which are mentioned in the textbook but have not been displayed in the list of medicines are added to the list in alphabetical order.
- Reference pages to the medical textbook are given for all items to ease the use of the list.
- If an item may be omitted under special circumstances this is mentioned in italic letters in the last column.
- Suggestions for quantities have been included. Quantities are calculated on the basis of the following assumptions: Ocean-going merchant vessels without a doctor onboard. Maximum duration of travel of 3 weeks. Crew sizes of 10, 20, 30 or 40 persons.
- For merchant vessels without a doctor onboard engaged in coastal trade or going to nearby foreign ports, and not more than 24 hours away from a port of call, for fishing boats and private craft: Quantities may be adapted or omitted on the advice of a qualified medical practitioner or pharmacist with regards to the destination, medical facilities ashore, number of crew members and cargo.
- **For dosage, contra-indications, unwanted effects, radiomedical advice and further remarks the users needs to refer to original text of the IMGS 3rd edition.**
- Recommended quantities will not always reflect the standard packs in a given country. In this case the recommendation is for the nearest available dispensing sales pack above the minimum required quantity.
- Owners and operators may substitute exact equivalents on the advice of a qualified medical practitioner or pharmacist, provided they are satisfied that an equivalent level of treatment is assured.
- Specific items will not be available in certain countries, for example Chlorpyrifos was banned in the European Communion (Directive 98/8 eec of March 16th 1998). The pharmacist will have to supply an analogous drug in corresponding quantities. The same is true for items which have transport restrictions and cannot be delivered locally.
- For ships carrying dangerous goods according to the IMDG Code[6] : Medicines and equipment already available in the IMGS list may be counted toward the Medical First Aid Guide (MFAG) numerical requirement, if appropriate.

[6] Medical First Aid Guide (MFAG) for use in accidents involving dangerous goods. International Maritime Organization, London, 2004.

Ocean-going merchant vessels without a doctor onboard.
Maximum duration of travel of 3 weeks.
Crew sizes of 10, 20, 30 or 40 persons.
Only to be used in conjunction with the International Medical Guide for Ships 3rd editon

Running numbers are given to the alphabetical list of medicines and equipment. Items which have been added by authors appear in alphabetical order and are written in italic letters.	Quantities for the recommended minimum number of items for ocean –going vessels are based on an estimated 3 weeks inventory for a crew complement of 10 to 40 persons.	Comments in italic letters refer to added items which are mentioned in the textbook but have not been displayed in the list of medicines. Remarks on items which may be omitted under special circumstance are given. For dosage, contra-indications, doctor consulting, unwanted effects and remarks refer to IMGS 3rd ed. p.430-461 and textbook

Item No.	CODE	Recommended Item	Per 10	Per 20	Per 30	Per 40	Category Added Comments
1. RESUSCITATION EQUIPMENT							
1.1	**39 18 01**	Portable oxygen set, complete, containing;	*1*	*1*	*1*	*1*	Appliance for the administration of oxygen. *See pages 4-5.*
1.1a	**39 18 02**	1 oxygen cylinder, 2 ltr / 200 bar	*1*	*1*	*1*	*1*	Ready to use. *See pages 4-5.*
1.1b	**39 18 03**	1 spare oxygen cylinder, 2 ltr / 200 bar	*1*	*1*	*1*	*1*	*See pages 4-5. If no additional equipment from the MFAG on board consider to increase amount of oxygen to 4 x 10 ltr.*
1.1c	**39 18 04**	Pressure regulating unit and flow meter with tubes such that ship's industrial oxygen can also be used	*1*	*1*	*1*	*1*	*See pages 4-5.*
1.1d	**39 18 05**	3 disposable face masks of choice: including simple face mask and non-rebreathing mask	*1*	*2*	*3*	*4*	*See pages 4-5.*
1.2a	**39 18 06**	Guedel airway (Mayo-tube): sizes medium	*1*	*1*	*1*	*1*	Oropharyngeal airway, *See pages 4-5, 315.*
1.2b	**39 18 34**	Guedel airway (Mayo-tube): sizes large	*1*	*1*	*1*	*1*	Oropharyngeal airway, *See pages 4-5, 315.*
1.3a	**39 18 07**	Manual aspirator to clear upper airways	*1*	*1*	*1*	*1*	Mechanical aspirator, *See pages 4-5.*
1.3b	**39 18 35**	Catheters for aspirator	*2*	*2*	*2*	*2*	Mechanical aspirator, *different sizes; See pages 4-5.*
1.4	**39 18 08**	Ambubag or equivalent: supplied with small, medium and large masks	*1*	*1*	*1*	*1*	Bag and mask resuscitator *including oxygen reservoir bag and oxygen tubing, See pages 4-5.*
1.5	**39 18 09**	Brook Airway, Lifeway, pocket face mask or equivalent	*1*	*1*	*1*	*1*	Cannula for mouth-to-mouth resuscitation, *See pages 4-5.*
2. DRESSING MATERIAL AND SUTURING EQUIPMENT							
2.1	**39 18 10**	Assorted wound-plaster or plaster strips, water resistant – *slim and broad*	*200*	*200*	*200*	*200*	Adhesive dressings.
2.2a	**39 18 11**	Sterile gauze compresses, 5 cm × 5 cm, sterile	*50*	*50*	*100*	*100*	Sterile gauze compresses.
2.2b	**39 18 12**	Sterile gauze compresses, 10 cm × 10 cm	*50*	*50*	*100*	*100*	Sterile gauze compresses.
2.3	**39 18 13**	Gauze roll, 5 cm and 60 or 90 cm × 100 m, non- sterile	*1*	*1*	*1*	*1*	Gauze roll. *60 cm / 90 cm may be substituted by gauze roll of smaller size.*
2.4	**39 18 14**	Non-adherent gauze dressing, square, 10 cm	*10*	*20*	*30*	*40*	Gauze dressing with non-adherent surface.
2.5	**39 18 15**	Paraffin gauze dressing, 10 × 10 cm, sterile	*40*	*40*	*40*	*40*	Vaseline gauze.
2.6	**39 18 16**	Elastic fixation bandage, 4 m × 6 cm	*3*	*6*	*9*	*12*	Bandage.
2.7a	**39 18 17**	First-aid absorbent gauze-covered cotton pad sewn onto a cotton bandage (ambulance dressing) small	*5*	*5*	*10*	*10*	Sterile compression bandages.
2.7b	**39 18 36**	First-aid absorbent gauze-covered cotton pad sewn onto a cotton bandage (ambulance dressing) medium	*5*	*5*	*10*	*10*	Sterile compression bandages.
2.7c	**39 18 43**	First-aid absorbent gauze-covered cotton pad sewn onto a cotton bandage (ambulance dressing) large	*5*	*5*	*10*	*10*	Sterile compression bandages.
2.8a	**39 18 18**	Tubular gauze bandage for finger bandage, 5 m	*1*	*1*	*1*	*1*	Tubular gauze for finger bandage. *See pages 43-58.*
2.8b	**39 18 44**	Applicator for finger bandage	*1*	*1*	*1*	*1*	*See pages 43-58.*
2.9	**39 18 19**	Adhesive elastic bandage, 4 m × 6 cm	*10*	*10*	*10*	*10*	Adhesive elastic bandage.
2.10	**39 18 20**	Triangular sling	*5*	*5*	*5*	*5*	Triangular sling. *See pages 43-58 and 77.*
2.11	**39 18 21**	Sterile sheets for burn patients	*2*	*2*	*4*	*4*	Sterile sheet for burn victims. Different sizes *See pages 79-83.*
2.12	**39 18 22**	Honey for dressing burns 1 kg *(only purified 1,000 g)*	*1*	*1*	*2*	*2*	*Only if honey for medical purposes available. Otherwise use a hydrogel-burnkit. See pages 79-83.*

(to be continued)

Item No.	CODE	Recommended Item	Per 10	Per 20	Per 30	Per 40	Category Added Comments
2.13	**39 18 23**	Adhesive tape, waterproof, skin-friendly, 5 × 1.25 cm	*3*	*3*	*6*	*6*	Adhesive sutures or zinc oxide bandages.
2.14	**39 18 24**	Q-tips (wooden)	*100*	*100*	*100*	*100*	Q-tips.
2.15	**39 13 51**	Safety pins (stainless steel) 12 pieces	*1*	*1*	*2*	*2*	Safety pins.
2.16	**39 18 26**	Butterfly sutures, Steristrip® or Leukostrip®, sterile	*50*	*50*	*50*	*50*	Butterfly sutures. *See pages 69-74.*
2.17	**39 18 27**	2-octyl cyanoacrylate liquid, 0.5 ml	*1*	*1*	*1*	*1*	Skin adhesive for closing small wounds. *See pages 69-74.*
2.18a	**39 18 28**	Sutures, absorbable with curved non-traumatic needles, 1-0	*3*	*3*	*6*	*6*	Suturing equipment. *See pages 71-74. Replace with non-absorbable sutures for easier use, See page 71.*
2.18b	**39 18 45**	Sutures, absorbable with curved non-traumatic needles, 3-0	*3*	*3*	*6*	*6*	Suturing equipment. *See pages 71-74. Replace with non-absorbable sutures for easier use, See page 71.*
2.18c	**39 18 29**	Sutures, absorbable with curved non-traumatic needles, 4-0 or 5-0	*3*	*3*	*6*	*6*	Suturing equipment. *See pages 71-74. Replace with non-absorbable sutures for easier use, See page 71.*
2.19a	**39 18 30**	Disposable examination gloves, *size M*	*100*	*100*	*100*	*100*	Gloves.
2.19b	**39 18 74**	Disposable examination gloves, *size L*	*100*	*100*	*100*	*100*	Gloves.
2.19c	**39 18 31**	Surgical gloves size 6.5, sterile, in pairs	*3*	*4*	*5*	*6*	Gloves *(sterile).*
2.19d	**39 18 63**	Surgical gloves size 7.5, sterile, in pairs	*3*	*4*	*5*	*6*	Gloves *(sterile).*
2.19e	**39 18 66**	Surgical gloves size 8.5, sterile, in pairs	*3*	*4*	*5*	*6*	Gloves *(sterile).*
2.20	**39 12 50**	*Eye pads*	*1*	*2*	*3*	*4*	*See pages 36, 38.*
3. INSTRUMENTS							
3.1	**39 18 32**	Scalpel, sterile, disposable	*10*	*10*	*10*	*10*	Disposable scalpels *See pages 71-74, 216-219.*
3.2	**39 18 33**	Instrument box (stainless steel)	*1*	*1*	*1*	*1*	Stainless-steel instrument box.
3.3	**39 13 61**	Operating scissors, straight (stainless steel)	*1*	*1*	*1*	*1*	Scissors.
3.4	**39 13 62**	Bandage scissors (stainless steel)	*1*	*1*	*1*	*1*	Scissors.
3.5	**39 12 69**	Splinter forceps, pointed (stainless steel)	*1*	*1*	*1*	*1*	Forceps.
3.6	**39 18 37**	Teeth tissue forceps (stainless steel)	*1*	*1*	*1*	*1*	Forceps. *See pages 71-74, 216-219.*
3.7	**39 18 38**	Needle holder, Mayo-Hegar, 180 mm, straight	*1*	*1*	*1*	*1*	Needle holder. *See pages 71-74.*
3.8	**39 18 39**	Haemostatic clamp, Halstead mosquito, 125 mm, stainless steel	*2*	*2*	*2*	*2*	Haemostatic clamps.
3.9	**39 18 40**	Razor, disposable	*5*	*5*	*5*	*5*	Disposable razors.
4. EXAMINATION AND MONITORING EQUIPMENT							
4.1	**39 18 41**	Tongue depressors, disposable	*100*	*100*	*100*	*100*	Disposable tongue depressors.
4.2	**39 18 42**	Reactive strips for urine analysis: blood/glucose/protein/nitrite/ leukocytes	*50*	*50*	*100*	*100*	Reactive strips for urine analysis, *See pages 311-312, 324.*
4.3	**39 13 34**	Microscope slides	*12*	*12*	*12*	*12*	Microscope slides, *See pages 265-269.*
4.4	**39 13 71**	Stethoscope	*1*	*1*	*1*	*1*	Stethoscope.
4.5	**39 13 68**	Sphygmomanometer (blood pressure set), preferably automatic	*1*	*1*	*1*	*1*	Aneroid sphygmomanometer, *See pages 305-307.*
4.6a	**39 18 46**	Standard thermometer, digital if possible	*2*	*2*	*3*	*3*	Standard thermometer, *See pages 302-304.*
4.6b	**39 18 47**	Rectal thermometer, digital if possible	*1*	*1*	*1*	*1*	Rectal thermometer, *See pages 302-304.*
4.7	**39 18 48**	Thermometer 32°-34°C, digital if possible	*1*	*1*	*1*	*1*	Hypothermic thermometer, *preferable range 26°C to 42°C to differentiate between severe-moderate-mild hypothermia; See pages 343-344.*
4.8	**39 18 49**	Penlight + blue cover	*1*	*1*	*1*	*1*	Penlight (Blue light) to detect damage to cornea. *See pages 33-34.*

(to be continued)

Item No.	CODE	Recommended Item	Per 10	Per 20	Per 30	Per 40	Category Added Comments
4.9	**39 18 69**	*Waterproof indelible marker*	*1*	*1*	*1*	*1*	*See page 29.*
4.10	**39 12 53**	*Magnifying glass (a x 8 loupe)*	*1*	*1*	*1*	*1*	*See pages 33-34.*
FORMS AND BOOKS							
4.11	**39 14 20**	*Temperature cards / charts*	*10*	*10*	*10*	*10*	*Use as master copy from page 302.*
4.12	**39 18 70**	*Cards for telemedical advise*	*10*	*10*	*10*	*10*	*Use as master copy. Should be filled in before calling radiomedical advise.*
4.13	**39 18 71**	*Medical logbook*	*1*	*1*	*1*	*1*	*See p.455.*
4.14	**39 18 72**	*Controlled drug register*	*1*	*1*	*1*	*1*	*Controlled drug register.*
4.15	**37 06 74**	*International Medical Guide for Ships 3rd*	*1*	*1*	*1*	*1*	*Hard-copy.*
4.16a	**39 18 88**	*Forms from Annex A Ship master's report form*	*10*	*10*	*10*	*10*	*Use as master copy (See pages 455-461) file in medical log p.455.*
4.16b	**39 18 89**	*Forms from Annex A Ship's identity and navigational status form*	*10*	*10*	*10*	*10*	*Use as master copy (See pages 455-461).*
4.16c	**39 18 90**	*Forms from Annex A Patient health status form*	*10*	*10*	*10*	*10*	*Use as master copy (See pages 455-461).*
4.16d	**39 18 91**	*Forms from Annex A Primary physician's report form*	*10*	*10*	*10*	*10*	*Use as master copy (See pages 455-461).*
4.17	**37 06 82**	*Vaccination requirements*	*1*	*1*	*1*	*1*	*International travel and Health, current edition (WHO).*
4.18	**39 18 92**	*Malaria prophylaxis and treatment*	*1*	*1*	*1*	*1*	*www.who.int/malaria/publications.html See page 266.*
5. EQUIPMENT FOR INJECTION, INFUSION, AND CATHETERIZATION							
5.1	**39 18 50**	Syringes, Luer connection, 2 ml, sterile, disposable	*10*	*20*	*30*	*40*	Equipment for injection, *See pages 324-329.*
5.2	**39 18 51**	Syringes, Luer connection, 5 ml, sterile, disposable	*10*	*20*	*30*	*40*	Equipment for injection, *See pages 324-329.*
5.3	**39 18 93**	*Syringes, Luer connection, 10 ml, sterile, disposable*	*10*	*10*	*20*	*20*	*Equipment for injection, See pages 324-329.*
5.4	**39 18 52**	Hypodermic subcutaneous needle, Luer connection, 16 × 0.5 mm, *(23G or 25G), sterile, disposable*	*20*	*30*	*40*	*50*	Equipment for subcutaneous injection, *See pages 324-329.*
5.5	**39 18 53**	Hypodermic intramuscular needle *(19G or 21G)*, Luer connection, 40 × 0.8 mm, sterile, disposable	*20*	*30*	*40*	*50*	Equipment for intramuscular injection, *See pages 324-329.*
5.6	**38 18 54**	Needles, 19G *or 21G*, blunt, "drawing up" type	*20*	*30*	*40*	*50*	*Equipment for drawing the medicine into the syringe, See pages 324-329.*
5.7a	**39 18 55**	Intravenous infusion cannula 16G (1.7 mm) *or 19G*, Luer-lock connection, sterile, non-recap type + mandarin	*5*	*5*	*10*	*10*	*Equipment for intravenous fluid infusion, See page 326.*
5.7b	**39 18 94**	Intravenous infusion cannula 22G (0.8 mm) *or 21G*, Luer-lock connection, sterile, non-recap type + *mandarin*	*5*	*5*	*10*	*10*	*Equipment for intravenous fluid infusion, See page 326.*
5.8	**39 18 56**	Intravenous giving set, Luer-lock connection, sterile + *3-way valve/ connection*	*5*	*5*	*10*	*10*	Equipment for intravenous infusion, *See pages 324-329.*
5.9	**39 18 57**	Tourniquet, blood-taking type, to be used with intravenous infusion cannula	*1*	*1*	*1*	*1*	Equipment for infusion, *See pages 324-329.*
5.10a	**39 18 58**	Penile sheath set with condom catheter, tube, and bag	*1*	*1*	*1*	*1*	Bladder drainage equipment, *See pages 308-309.*
5.10b	**39 18 95**	*Indwelling urine catheter 14 CH*	*1*	*1*	*1*	*1*	Bladder drainage equipment, *See pages 319-321.*
5.11a	**39 18 59**	Short-term urine catheter with soft-eye straight tip Thieman No.12, or equivalent	*2*	*2*	*2*	*2*	Bladder drainage equipment, *See pages 319-321.*
5.11b	**39 18 96**	Short-term urine catheter with soft-eye straight tip Thieman No.16, or equivalent	*2*	*2*	*2*	*2*	Bladder drainage equipment, *See pages 319-321.*

(to be continued)

Item No.	CODE	Recommended Item	Per 10	Per 20	Per 30	Per 40	Category Added Comments
5.11c	**39 18 97**	Complete sterile urine catheterization set with lubricant, drapes, cotton swabs, skin disinfection, forceps, sterile container	*2*	*2*	*2*	*2*	Bladder drainage equipment, *See pages 319-321.*
5.12	**39 18 60**	Urine collecting bag and tube	*2*	*2*	*2*	*2*	Bladder drainage equipment, *See pages 319-321.*
6. GENERAL MEDICAL AND NURSING EQUIPMENT							
6.1	**39 18 61**	Plastic goggles or full-face mask	*1*	*1*	*1*	*1*	Eye protection.
6.2	**39 18 62**	Disposable plastic apron	*10*	*10*	*10*	*10*	Plastic apron.
6.3	**39 13 16**	Kidney dish, stainless steel, 825 ml	*1*	*1*	*2*	*2*	Kidney dish.
6.4	**39 18 64**	Towels,plastic backed, absorbent, 600 × 500 mm	*10*	*10*	*10*	*10*	Plastic backed towels.
6.5	**39 18 65**	Safety box for sharps disposable, 5 ltr	*1*	*1*	*1*	*1*	Safety box size of *1-5 liters may be* chosen.
6.6	**39 12 83**	Mask, duckbill type, disposable	*50*	*50*	*100*	*100*	Mask.
6.7	**39 18 67**	Tape measure, vinyl coated, 1.5 m	*1*	*1*	*1*	*1*	Tape measure.
6.8	**39 18 68**	Draw sheet, plastic 90 × 180 cm	*1*	*1*	*1*	*1*	Draw sheet.
6.9	**39 12 08**	Bedpan, stainless steel	*1*	*1*	*1*	*1*	Bedpan.
6.10	**39 12 90**	Hot-water bag	*1*	*1*	*1*	*1*	Hot-water bottle.
6.11	**39 14 40**	Urinal, male (plastic)	*1*	*1*	*1*	*1*	Urine bottle.
6.12	**39 12 92**	ColdHotpack Maxi	*1*	*1*	*1*	*1*	Ice bag.
6.13	**39 18 73**	Aluminium foil blanket	*1*	*1*	*1*	*1*	Aluminium foil blanket.
6.14	**39 12 26**	Male condoms	*100*	*200*	*300*	*400*	Condoms, *assorted sizes.*
6.15	**39 18 75**	Plastic wash bottle, 250 ml	*1*	*1*	*1*	*1*	Wash bottle.
6.16	**39 18 76**	Bottle, 1 ltr, plastic with screw top	*1*	*1*	*1*	*1*	Plastic bottle.
6.17	**39 18 77**	Stainless steel dressing tray, 300 × 200 × 30 mm	*1*	*1*	*1*	*1*	Dressing tray.
6.18	**39 18 79**	Bowl, stainless steel, 180 ml	*1*	*1*	*1*	*1*	Bowl.
6.19	**39 18 80**	Jars, plastic, with lids and labels, 100 ml	*10*	*20*	*30*	*40*	Specimen jars.
6.20a	**39 18 81**	Bandages, POP, 5 cm x 2.7 m	*6*	*6*	*6*	*6*	Plaster-of-Paris bandages, *may be omitted if splints are carried.*
6.20b	**39 18 98**	Bandages, POP, 10 cm x 2.7 m	*6*	*6*	*6*	*6*	Plaster-of-Paris bandages, *may be omitted if splints are carried.*
6.21a	**39 18 82**	Stockinet sizes for arm splints, 10 m roll	*1*	*1*	*1*	*1*	Stockinet. *See pages 43-58.*
6.21b	**39 18 99**	Stockinet sizes for leg splints, 10 m roll	*1*	*1*	*1*	*1*	Stockinet. *See pages 43-58.*
6.22	**39 18 83**	Cotton wool roll, 500 g	*1*	*1*	*2*	*2*	Cotton wool, *See pages 43-58.*
6.23	**39 18 84**	Alcohol swabs	*100*	*100*	*100*	*100*	70% alcohol swabs for skin cleansing prior to injection.
6.24	**39 18 85**	Nail brush	*1*	*1*	*1*	*1*	Nail brush.
6.25	**65 17 15**	*Thermometer for refrigerator*	*1*	*1*	*1*	*1*	*If Tetanus vaccine and Immunoglobin are on board.*
6.26	**39 19 29**	*Mortuary transfer bag*	*1*	*1*	*1*	*1*	*See pages 334-336.*
DISINFECTANTS, DISINSECTANTS							
6.27	**39 19 30**	*Water disinfection set including measure kit / test stripes for pH and for residual chlorine*	*1*	*1*	*1*	*1*	*To disinfect portable water tanks with chlorine effectively, See pages 359-360.*
6.28	**39 19 52**	*Disinfectant solution for medical instruments, 1,000 ml: 3% aqueous phenolic solution*	*1*	*1*	*1*	*1*	*For disinfection of used instruments* and thermometers. See page 331. *Caution: All items entering the skin or are in direct contact with mucous membranes should be single use (i.e. injection needles, urinary catheters).*
6.29	**39 19 45**	*Disinfectant for surfaces and floor, 1,000 ml concentrate: 2% cetrimide solution or 3% aqueous phenolic solution.*	*1*	*1*	*1*	*1*	*For disinfection of contaminated surfaces, hard-surface objects and floors. (Non-food-handling area), See page 331.*

(to be continued)

Item No.	CODE	Recommended Item	Per 10	Per 20	Per 30	Per 40	Category Added Comments
6.30	**39 19 46**	*Disinfectant for surfaces and floor, 1,000 ml concentrate: sodium hypochlorite 100 mg/ltr*	*2*	*2*	*2*	*2*	*For disinfection of food-handling area: cutlery, dishes, plates, glasses, See page 331.*
6.31	**39 19 47**	*Chlorpyrifos 5 g/ltr in bait stations or gels*	*20*	*20*	*20*	*20*	*To use against cockroaches in food storage and preparation area, See pages 362-365.*
6.32	**39 19 48**	*Chlorpyrifos-methyl 7-10 g/ltr spray – 1 piece*	*10*	*10*	*10*	*10*	*To use against cockroaches in other areas than food storage and preparation area, See pages 362-365.*
6.33	**39 19 49**	*Insecticide spray permethrine, natural pyrethrins or chlorpyriphos-methyl*	*1*	*2*	*3*	*4*	*For space spraying, not for skin. See pages 362-365.*
7. IMMOBILIZATION AND TRANSPORTATION EQUIPMENT							
7.1	**39 18 86**	Malleable finger splint	*1*	*1*	*1*	*1*	Malleable splints *(small), See pages 43-58.*
7.2	**39 18 87**	Malleable forearm/hand splint	*2*	*2*	*2*	*2*	Malleable splints *(medium), See pages 43-58.*
7.3	**39 19 50**	*Malleable splint legs*	*2*	*2*	*2*	*2*	*Malleable splints (large), See pages 43-58.*
7.4	**39 13 91**	*Stretcher*	*1*	*1*	*1*	*1*	*Stretcher equipment (a system for trauma management, i.e. immobilization and stretcher equipment most suited for treatment in the vessel concerned. Preferably allowing crane/helicopter lifting. See page 7.*
7.5	**39 19 51**	*Cervical rigid collar variable size*	*1*	*1*	*1*	*1*	*For neck immobilisation, See pages 7, 45.*

Endnote
1. Medical first aid guide for use in accidents involving dangerous goods (MFAG), London, International Maritime Organization, 2004.

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Medical First Aid Guide Dangerous Good List

Appendix 14

LIST OF MEDICINES AND EQUIPMENT

Preamble

1 Medicines and equipment already available in the ship's medicine chest may be counted towards the MFAG numerical requirements outlined below.
2 In some cases, alternatives are given. This means that one of the given alternatives should be chosen.
3 Not all drugs and antidotes on the list may be licensed as pharmaceutical specialities in all Member States and thus available for general purchase. In such cases, the national authorities may issue a modified list, also in English, where drugs on the below list not available are substituted with analogous drugs in corresponding quantities.
4 In countries with official lists on contents of ship's medicine chests, the national authorities can decide to substitute some of the drugs on the below list with analogous drugs available in the ordinary ship's medicine chest.
5 The recommended minimum quantities are based on an estimate of risk to persons on board and the time within which full treatment on shore can be given.
6 National authorities can decide on exemption from carrying these medicines for vessels making short regular voyages of ten minutes or less.

Labelling, storage and dispensing should, in general, conform to the relevant specifications in the IMGS. Contents and storage conditions should be checked at least once a year, taking account of manufacturers expiry date and instructions. Medicines used should be replaced as soon as possible.

Column A of the following table shows the recommended minimum requirements for ships when casualties **cannot** be hospitalized on shore within 24 hours.
Column B shows the recommended minimum requirements for ships when casualties can be hospitalized on shore within 24 hours.
Column C shows the recommended minimum requirements for ships when casualties can be hospitalized on shore within 2 hours.

CODE	Medicine	Format/ Standard unit	Recommended Minimum Quantity			Dosage	Reference
			A	B	C		
39 19 01	amoxycillin	capsules 500 mg	30 capsules	none	none	500 mg × 3	Table 9
39 19 02	anaesthetic eye drops	eye drops (bottle)	5 bottles	5 bottles	5 bottles	several drops x several	Table 7
39 19 03	antibiotic eye ointment	eye ointment (tube)	5 tubes	5 tubes	none	apply 2 to 4 times daily or more frequently if required	Appendix 7
39 19 04	atropine	injection fluid 1 (or 0.5) mg/ml (1 ml ampoule)	15 (or 30) x 1 ml	15 (or 30) x 1 ml	none	1 mg x several	Table 17
39 19 05	beclomethasone (including inhalation device)	inhalation aerosol 50 µg/dose (200 doses) or 250 µg/dose (200 doses)	5 x 200 doses	5 x 200 doses	none	250 µg x several (5 puffs of 50 µg/dose) or (1 puff of 250 µg/dose)	Table 9
	or						
39 19 06	budenoside (including inhalation device)	inhalation aerosol 200 µg/dose (100 doses)	5 x 100 doses	5 x 100 doses	none	400 µg x several (2 puffs of 200 µg/dose)	
39 19 07	calcium gluconate gel	gel 2% (25 g tube)	5 tubes	5 tubes	5 tubes	apply several times	Tables 8, 16
39 19 08	calcium gluconate	Effervescent tablets 1 g	20 tablets	20 tablets	none	5 g x 2	Table 16
39 19 09	cefuroxime	injection substance 750 mg (750 mg bottle)	10 x 750 mg	none	none	750 mg x 3	Table 10
39 19 10	charcoal, activated	powder (50 g bottle) or effervescent granules (5g sachet)	2 x 50 g or 10 x 5 g	2 x 50 g or 10 x 5 g	none	50g x 1	Table 10
39 19 11	diazepam	rectal solution 10 mg (ampoule)	5 x 10 mg	5 x 10 mg	none	10 mg x 1 to 5	Tables 4, 5, 6
39 19 12	erythromycin	tablets 500 mg	30 x 500 mg	none	none	500 mg x 4	Table 9
39 19 13	ethyl alcohol	solution 99.5% (500 ml bottle)	3 x 500 ml	1 x 500 ml	none	25 ml x 8 (25 ml 99.5% in 250 to 300 ml water or soft drink)	Table19
39 19 14	fluorescein	eye test strip	1 package	none	none	1 test strip x 2	Appendix 7
39 19 15	furosemide (frusemide)	injection fluid 10 mg/ml (5 ml ampoule)	5 x 5 ml	none	none	50 mg x 3	Tables 2, 9
39 19 16	metoclopramide	injection fluid 5 mg/ml (2 ml ampoule)	30 x 2 ml	10 x 2 ml	5 x 2 ml	10 mg x 3	Tables 7, 8, 10, 13, 15, 20
39 19 17	metronidazole	suppositories 1 g	10 x 1 g	none	none	1g x 3	Table 10
39 19 18	morphine sulphate	injection fluid 10 mg/ml (1 ml ampoule)	40 x 1 ml	10 x 1 ml	5 x 1 ml	10 to 20 mg x 6 or 7	Tables 7, 8, 10, 13
39 19 19	naloxone	injection fluid 0.4 mg/ml (1 ml ampoule)	5 x 1 ml	5 x 1 ml	2 x 1 ml	0.4 mg x 1 to 5	Tables 4, 13
39 19 20	oral rehydration salts (ORS)	sachets or tablets to dissolve in water	ORS to give 18 litres solution	ORS to give 6 litres solution	none	1 litre x 3 or more	Tables 8, 10, 11
39 19 21	paracetamol	tablets 0.5 g	200 tablets	100 tablets	20 tablets	1g x 4	Tables 7, 8, 13
39 19 22	phytomenadione	injection fluid 10 mg/ml (1 ml ampoule)	10 x 1 ml	none	none	10 mg x 2 or more	Table 14
39 19 23	plasma expander (gelatine-based)	infusion fluids (500 ml bottles)	3 x 500 ml	3 x 500 ml	none	500 ml x 1 to 3	Appendix 13
39 19 24	rehydration salts - see oral rehydration salts						Tables 8, 10, 11
39 19 25	salbutamol (including inhalation device)	inhalation aerosol 100 µg/dose (200 doses)	5 x 200 doses	5 x 200 doses	1 x 200 doses	200 µg x several (2 puffs of 100 µg/ dose)	Table 9
	or						
39 19 26	terbutaline (including inhalation device)	inhalation aerosol 500 µg/dose (50 doses)	5 x 50 doses	5 x 50 doses	1 x 50 doses	500 µg x several (1 puff of 500 µg/ dose)	
39 19 27	sodium chloride, isotonic (saline)	9 mg/ml (0.9%) (1 ltr bottle)	5 x 1 ltr	3 x 1 ltr	1 x 1 ltr	1 ltr x 1 to 3	Table 7
39 19 28	terbutaline - see salbutamol						

LIST OF EQUIPMENT

Column A of the following table shows the recommended minimum requirements for ships when casualties **cannot** be hospitalized on shore within 24 hours.

Column B shows the recommended minimum requirements for ships when casualties can be hospitalized on shore within 24 hours.

Column C shows the recommended minimum requirements for ships when casualties can be hospitalized on shore within 2 hours.

CODE	Equipment	Recommended Minimum Quantity A	B	C	Reference
39 19 31 32 33	Guedel airway size 2 size 3 size 4	 2 2 2	 2 2 2	 2 2 2	Appendix 3
39 19 34	iv cannula (size 1.2)	10	10	non	Appendix 13
39 19 35	iv set	10	10	non	Appendix 13
39 19 36	needles size 0.8	100	50	10	
39 19 37	simple face mask (allowing up to 60% oxygen), disposable	10	10	2	Appendix 3
39 19 38	valve and bag manual resuscitator	2	2	2	Appendix 3
39 19 39	oxygen cylinder	40 ltr/ 200 bar*	40 ltr/ 200 bar*	none	
40	portable oxygen-giving set ready for use	1* (2 ltr /200 bar)	1* (2 ltr /200 bar)	1	Appendix 3
41	spare portable oxygen cylinder	"	"	1	
39 19 42	rectal infusion set catheter (26 French gauge)	1 6	none none	none none	Appendix 13
39 19 43 44	syringes 2 ml 5 ml	 100 10	 50 10	 10 none	

(to be continued)

- A minimum of 44 litres/200 bar oxygen of which there should be at least:

- one complete portable set with 2 ltr/200 bar oxygen ready for use with a spare cylinder of 2 ltr/200 bar and

- one oxygen cylinder of 40 ltr/200 bar (at ship's hospital, assembled for direct use) with one flowmeter unit (two ports) for supplying of oxygen for two persons at the same time. If more than one non-portable oxygen cylinder is used, there must be two flowmeter units for supplying of oxygen for two persons at the same time.

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List of Recommended Medicines and Equipment by International Medical Guide for Ships - Second Edition

The following table was devised in accordance with the "List of Medicines" recommended for the ship's medicine chest in accordance with the regulations of the World Health Organization. The table is set up in the same way as the International Medical Guide For Ships (2nd edition) with a code number assigned to each medicine to make it quick and easy to determine what medicines are required on board, compare the ship's current inventory of medical supplies, and submit orders for the medications required. We have also provided some helpful information about prescribing the medication as well as notes of caution in the use of the medication.

"List of Medicines"

WHO Number	Medicine with the corresponding IMPA code number	Required inventory	Conditions for which the medication is prescribed with notes of caution for use
1.	Acetylsalicylic acid, 300 mg tablets, 100's (Common aspirin) **39 01 86**	6 btl.	For relief of aches and pains caused by illnesses such as influenza, a cold, and sinusitis. Also to relieve headaches, neuralgia, muscular aches, joint pains, and fever.
2.	Alcohol, rubbing (70% ethyl alcohol), 500 ml **39 01 30**	6 btl.	Used as an antiseptic to sterilize and disinfect the skin prior to injections or other surgical procedures.
3.	Aluminium acetate, ear drops, 13% solution in 20 ml bottle **39 06 03**	6 btl.	Used for treating a boil in the ear.
4.	Aluminium acetate powder, 2 grm packet, 12's **39 06 04**	2 box	For external use only. A solution/mixture used as a soothing, astringent wet dressing for inflamed or exposed areas of the skin. Effective remedy for insect bites, poison ivy, or fungal infections such as athlete's foot. CAUTION : Keep away from eyes. Do not give internally.
5.	Aluminium hydroxide gel with magnesium hydroxide, 360 ml **39 06 05**	6 btl.	Used in treating gastric hyperactivity and peptic ulcer, acid ingestion, or sour stomach.
6.	Aluminium hydroxide w/magne-sium hydroxide, 1 grm tablets, 100's **39 06 06**	10 btl.	Used in the same way as the oral suspension.
7.	Aminophylline suppository, rectal 500 mg, 12's **39 06 07**	2 box	To facilitate breathing in patients who have bronchial asthma, asthmatic bronchitis, pulmonary emphysema, and certain types of heat failure. Give only on radio medical advice. (Refrigerate)
8.	Amitriptyline tablets, 25 mg, 100's **39 06 08**	1 btl.	A psychotherapuetic drug used in the treatment of depression and anxiety. To be prescribed only after obtaining radio medical advice. Not to be given to people with a history of seizure, urinary retention, glaucoma, liver disease, or to patients with cardiovascular complications.
9.	Ampicillin capsules, 250 mg, 100's **39 01 38**	3 btl.	For chest infections, urinary and gastrointestinal infections, and infections of the tonsils and throat. Give only upon radio medical advice from a physician. Persons allergic to penicillin should be assumed to be allergic to ampicillin and should not receive this medication.
10.	Antihaemorrhoidal suppositories, 12's **39 06 10**	6 box	For temporary relief of itching, burning, and soreness from haemorrhoids.
11.	Ascorbic acid tablets (vitamin C), 50 mg, 100's **39 05 44**	3 btl.	For the treatment and prevention of colds.
12.	Atropine sulfate injection, 0.5 mg/ml, 1 ml ampoules, 10's **39 06 12**	6 box	Used as an antidote in the treatment of poisoning by insecticides. Do not administer this drug before obtaining radio medical advice.
13.	Benzathine benzylpenicillin injection, 2.4 million unit/5ml vial **39 06 13**	20 pcs.	Used as an antibiotic, particularly for the treatment of syphilis. Before administering any penicillin preparation, determine if the patient is allergic to penicillin.
14.	Benzoic and salicylic acid ointment, 30 grm tube **39 01 96**	2 pcs.	Used in treating fungal infections of the skin. For external use only.
15.	Calamine lotion, plain, 120 ml. **39 02 20**	8 btl.	For the relief of itching or irritated skin, heat rashes, and hives. Do not use on open or seething sores.
16.	Calcium gluconate, effervescent tablets, 1 grm, 30's **39 06 16**	1 box	Used primarily in cases of poisoning by oxalic acid or sodium fluoride.
17.	Cetrimide, 40% solution, 500 ml (disinfectant) **39 02 26**	3 btl.	Disinfectant for external use only. This stock solution should be diluted before use.
18.	Charcoal, activated, powder, 120 grm **39 06 18**	1 btl.	Used in the initial treatment of most poisoning. Should not be used on unconscious patients because of the danger of the aspiration of the powder.
19.	Chloroquine phosphate tablets, 250 mg, 100's **39 06 19**	1 btl.	To prevent and treat malaria.
20.	Chlorphenamine maleate tablets, 4 mg, 20's **39 06 20**	3 btl.	For treating allergic reactions such as hay fever, urticaria, and anaphylactic shock. Do not give to patients with a history of glaucoma.
21.	Chlorphenamine maleate injection, 10 mg, 1 ml ampoules, 10's **39 06 21**	2 box	See previous item.

(to be continued)

WHO Number	Medicine with the corresponding IMPA code number	Required inventory	Conditions for which the medication is prescribed with notes of caution for use
22.	Chlorpromazine hydrochloride tablets, 25 mg, 20's **39 06 22**	4 btl.	For treating anxiety, tension, and agitation.
23.	Chlorpromazine hydrochloride injection, 25 mg in 1 ml ampoules, 10's **39 06 23**	2 box	Same as for chlorpromazine tablets.
24.	Clove oil, 20 ml **39 05 14**	2 btl.	For the relief of toothaches caused by cavities.
25.	Codeine sulfate tablet 30 mg, 100's Controlled substance **39 02 34**	1 btl.	Used to relieve coughing or diarrhoea. WARNING : A controlled substance. An exact record of its use must be kept.
26.	Cyclizine hydrochloride tablet, 50 mg, 100's **39 06 26**	4 btl.	For relief of nausea, vomiting and dizziness associated with motion sickness.
27.	Dextran injection, 6% and sodium chloride, 0.9% 500 ml **39 06 27**	6 btl.	To expand plasma volume and maintain blood pressure in the emergency treatment of shock due to loss of blood. Give only on the radio medical advice from a physician. Only trained people can administer this drug intravenously.
28.	Diazepam injection, 5 mg/ml, 2 ml ampoule Controlled substance **39 06 28**	20 pcs.	For treatment of severe agitation, including acute alcohol withdrawal states and convulsions. CAUTION : The injection should be given only on medical advice. This is a controlled substance. Keep an exact record of its use and keep stored in a locked cabinet.
29.	Diazepam tablets, 5 mg, 100's Controlled substance **39 04 62**	2 btl.	For the treatment of common anxiety and tension, and the management of agitation during alcohol withdrawal. Same precautions must be taken with the use of the tablets as the injections above.
30.	Dimercaprol injection, 100 mg in 2 ml ampoules, 10's **39 06 30**	6 box	Used as an antidote in poisoning from arsenic (pesticides), gold, and mercury. Always obtain radio medical advice in the event of such poisoning.
31.	Doxycycline hydrochloride tablets, 100 mg, 100's **39 06 31**	2 btl.	Antibacterial agent used in the treatment urinary infections.
32.	Ephedrine sulfate tablets, 25 mg, 100's **39 03 06**	1 btl.	To regulate breathing in asthma attacks, prevent asthma attacks for chronic asthma cases, and to relieve nasal congestion in hay fever and severe head colds. Obtain radio medical advice before using this drug. This drug should not be given to patients with chronic heart disease, high blood pressure, glaucoma, diabetes, or hyperthyroidism.
33.	Epinephrine hydrochloride injection, 1:1000, 1 ml ampoules 10's **39 06 33**	2 box	1. For acute asthma attacks and severe allergic reactions to penicillin and other drugs, and insect bites. 2. For cardiac or circulatory failure.
34.	Ergometrine maleate injection, 0.2 mg, in 1 ml ampoules, 10's **39 06 34**	1 box	Medicine administered to the mother after delivery of an infant, contracts the womb and reduces the risk of haemorrhaging.
35.	Erythromycin tablets, 250 mg, 100's **39 06 35**	3 btl.	Used for the treatment of a variety of infections of the upper and lower respiratory tract; infections of the mouth, gums, and teeth, ears, nose and sinuses.
36.	Eye anaesthetic drops, 0.5% solution of tetracaine hydrochloride, 10 ml **39 03 12**	2 btl.	For local anaesthetic of the eye before foreign particles are removed. For external use.
37.	Eye antiinfective drop, 1% solution of chloramphenicol, 10 ml **39 06 37**	3 btl.	For treating infectious eye diseases (blepharitis, conjunctivitis).
38.	Eye ointment, 1% tetracycline hydrochloride, 4 grm. tube **39 06 38**	6 pcs.	For superficial eye infections, trachoma, inflammation of the eyelids and tear sacs, and prevention of eye infection in injured eyes.
39.	Eyewash, isotonic, sterile, 120 ml **39 03 16/17**	6 btl	For irrigating or flushing the eye to wash away foreign particles, mucous secretions, and fluorescein die used in diagnosis.
40.	Fluorescein sodium ophthalmic strip, sterile, 200's **39 06 40**	1 pkt	Used for the detection of lesions or small foreign bodies embedded in the cornea of the eyeball.
41.	Furosemide tablets, 40 mg, 100's **39 06 41**	1 btl.	A potent, short acting diuretic which causes the production of urine by affecting the kidneys. This drug is to be used only after getting radio medical advice.
42.	Glyceryl trinitrate tablets, 0.5 mg, 20's **39 03 30**	2 btl.	For an acute attack of angina pectoris.

(to be continued)

WHO Number	Medicine with the corresponding IMPA code number	Required inventory	Conditions for which the medication is prescribed with notes of caution for use
43.	Hydrocortisone sodium succinate for injection 100 mg. **39 06 43**	5 vials	For use on medical advice only. 1. For severe shock. 2. For acute allergic reactions. 3. For the control of life threatening inflammation of the lungs after a patient has inhaled vomit.
44.	Hydrocortisone ointment, 1%, 30 grm tube **39 06 44**	6 pcs.	For temporary relief of certain skin disorders, common rashes, inflamed skin, and disorders causing itching and discomfort. WARNING : Do not apply to the eyes. Do not use for extended periods of time without a physicians order.
45.	Ichthyol & glycerine ointment, in 100 grm container **39 06 45**	3 pcs.	For treatment of boils, fishermen's hand infections, salt water boils, etc.
46.	Insect repellent, 50 ml **39 03 52**	12 btl.	External use only. Repels mosquitos, chiggers, flies, and other biting insects. Do not apply near the eyes, nose, or mouth.
47.	Iodine, 2.5% solution in 100 ml bottle **39 05 10**	4 btl.	For external use only. For disinfecting the skin against round worms and for the treatment of small cuts and skin bruises to prevent infection.
48.	Lidocaine hydrochloride injection 1%, 2 ml ampoule **39 06 48**	12 pcs.	For use as a local anaesthetic in minor surgical procedures.
49.	Lindane cream, 1%, 6 grm tube **39 06 49**	12 pcs.	For infestations of scabies and lice. For external use only.
50.	Magnesium hydroxide suspension, 550 mg/10 ml, 500 ml **39 06 50**	8 btl.	For use as a laxative. Never give magnesium hydroxide suspension to a patient with abdominal pain without first consulting a doctor.
51.	Metronidazole tablets, 200 mg, 100's **39 06 51**	5 btl.	For the treatment of salpingitis and other diseases of women and the treatment of amoebic dysentery.
52.	Miconazole nitrate, 2%, vaginal cream, in 80 grm container **39 06 52**	5 pcs.	For the treatment of external vaginal itching.
53.	Miconazole nitrate, 100 mg, pessary and inserter **39 06 53**	20 pcs.	Like miconazole vaginal cream, in genital itching.
54.	Mineral oil (liquid petrolatum) 500 ml **39 06 54**	1 btl.	Used as a skin emollient or protective agent. Also used to help remove ointments or creams from treated skin areas.
55.	Morphine sulfate injection, 10 mg/ml, 1 ml ampoules, 10's Controlled substance **39 03 90**	2 box	For severe pain which cannot be relieved by analgesics. Obtain medical advice prior to use. Caution : An addiction producing drug. Do not give morphine unless the radio medical doctor has instructed you to do so.
56.	Naloxone hydrochloride injection, 0.4 mg/ml, 1 ml ampoules **39 06 56**	6 pcs.	For the emergency treatment of respiratory depression resulting from the administration of narcotics, such as morphine.
57.	Neomycin and bacitracin ointment, 30 grm tube **39 06 57**	20 pcs.	Used in the treatment and prevention of infection in second and third degree burns.
58.	Oral rehydration salts in water-proof bags **39 06 58**	50 pcs.	For the treatment of diarrhoea and other diseases causing dehydration.
59.	Oxygen, size E tank **33 04 01/03**  7222 D, F	2 pcs.	To make up for the lack of oxygen in the blood and tissues, the symptoms for which are cyanosis (bluish colour to the skin and nail beds), dyspnoea (rapid shallow breathing), rapid thready pulse, and restlessness. Only trained personnel should administer oxygen. The use of oxygen presents an explosion hazard.
60.	Paracetamol, 500 mg tablet **39 06 60**	300 pcs.	To relieve pain and fever.
61.	Petrolatum, white, 60 grm tube **39 04 72**	6 pcs.	Used as a bland and neutral protective dressing for minor burns, abrasion, and dry skin.
62.	Phenobarbital tablets, 30 mg, 100's Controlled substance **39 04 42**	3 btl.	1. For insomnia. 2. For relatively prolonged sedation, as in some anxiety and tension states and in hypertension. 3. For the treatment of epilepsy. Patients using this drug should not drink alcohol.

(to be continued)

WHO Number	Medicine with the corresponding IMPA code number	Required inventory	Conditions for which the medication is prescribed with notes of caution for use
63.	Phenoxymethylpenicillin potassium tablets, 250 mg, 100's **39 04 38**	3 btl.	Used for susceptible infections. Give on radio medical advice only. Before administering any penicillin preparation, determine, if possible, whether the patient is allergic to penicillin.
64.	Pilocarpine hydrochloride eye drops, 2%, 15 ml **39 06 64**	2 btl.	Used for the management of glaucoma.
65.	Potassium permanganate, 100 grm. **39 06 65**	2 btl.	Diluted in water, this substance is used for the disinfection of the skin and mucous membranes and for the treatment of some skin diseases. For external use.
66.	Probenecid tablets, 500 mg, 100's **39 06 66**	2 btl.	Used along with intensive therapy with benzylpenicillin, with ampicillin, and a number of other penicillins for prolonging the effective blood concentration of these drugs.
67.	Procaine benzylpenicillin, sterile suspension injection, 600,000 units/ml, 1 ml vials, 10's **39 06 67**	2 box	To be given only upon the radio medical advice of a physician. Used for susceptible infections. Before administering any penicillin preparation, determine, if possible, whether the patient is allergic to penicillin.
68.	Proguanil tablets, 100 mg, 100's **39 06 68**	1 btl.	For the prevention of malaria. Given either alone or in association with chloroquine.
69.	Pyrantel tablets, 250 mg, 50's **39 06 69**	1 btl.	For the treatment of ringworm and roundworm infections.
70.	Quinine sulfate tablet, 300 mg, 100's **39 06 70**	2 btl.	Used for the treatment of acute attacks of malaria contracted in certain areas. Quinine sulfate may produce toxic symptoms such as ringing in the ears or sensation of fullness in the head.
71.	Quinine dihydrochloride, injection, 300 mg/ml, 2 ml ampoule, 10's **39 06 71**	2 box	For use in the treatment of acute attacks of malaria when the patient is unable to tolerate oral medication because of repeated vomiting or impairment of consciousness.
72.	Salbutamol, aerosol inhaler unit **39 06 72**	2 pcs.	An inhaled spray used for the relief of bronchial asthma.
73.	Sodium chloride injection, 0.9%, 1,000 ml **39 06 73**	6 btl.	Used intravenously to replace water, chloride, and sodium lost in excessive vomiting or diarrhoea, in dehydration due to excessive sweating, and in mild haemorrhage. Obtain radio medical advice before administering.
74.	Sodium chloride tablet, 1 grm, 1,000's **39 04 58**	2 btl.	Used to help avoid heat exhaustion, heat stroke, or heat cramps by replenishing body salts lost through excessive perspiration.
75.	Spectinomycin hydrochloride injection, 2 grm per 5 ml vial. **39 06 75**	20 pcs.	Used for the treatment of gonorrhoeal urethritis and proctitis in men and gonorrhoeal cervicitis and proctitis in women.
76.	Sulfamethoxazole & trimethoprim (400 + 80 mg) tablets, 20's **39 06 76**	10 btl.	For the treatment of urinary infections.
77.	Talc (talcum powder) 120 grm **39 06 77**	6 cans	Used as a skin lubricant and protector, and as a dusting powder for such skin irritations as chafing and heat rash.
78.	Tetanus immune human globulin, 250 units, vial **39 06 78**	5 pcs.	To provide immunity to tetanus in a patient who has not received vaccination and has a potentially contaminated wound. This drug should be carried only on ships transporting horses, cattle, and hides.
79.	Tetanus toxoid adsorbed, single dose, ampoule **39 06 79**	10 pcs.	For active immunization against tetanus.
80.	Tetracycline ear drops, 1% tetracycline solution, 10 ml **39 06 80**	10 btl.	For use in the treatment of ear infections.
81.	Tetracycline hydrochloride capsules, 250 mg, 100's **39 06 81**	3 btl.	For use in treatment of susceptible infections. To be given only after receiving radio medical advice.
82.	Water, sterile, 5 ml ampoules, 10's **39 06 82**	3 box	To dissolve penicillin in powder form.
83.	Zinc oxide paste, 30 grm tube **39 06 83**	12 pcs.	A non-toxic, protective, water insoluble, mildly astringent, and antiseptic paste employed in a large variety of diseases and irritations of the skin.

The following list comprises the required inventory of surgical equipment, instruments, and supplies for ocean going vessels in accordance with the provisions of the WHO International Medical Guide for Ships (2nd edition). All required equipment is listed with the standard inventory and a code number for easy stocking of the items.

Equipment

WHO Number	CODE	Description	Quantity required
1.	**39 13 16**	Basin, emesis, kidney shape	1 pc.
2.	**39 12 06**	Basin, wash, with rim	1 pc.
3.	**39 12 08**	Bedpan	1 pc.
4.	**39 12 33**	Cane, with rubber tip	1 pc.
5.	**39 12 32**	Crutches, adjustable, wood, with rubber tip	1pr.
6.	**39 12 46**	Eye cup	2 sets
7.	**39 13 28**	Funnel, metal, 12 cm diameter	1 pc.
8.	**39 13 32**	Glass cylinder 50 cm^3, graduated	1 pc.
9.	**39 13 33**	Glass cylinder 500 cm^3 graduated	1 pc.
10.	**39 12 91**	Heating pad, electric, waterproof, AC/DC	1 pc.
11.	**39 12 92**	Hot water/ice bag, rubber	1 pc.
12.	**39 13 91**	Litter, Stokes	1 pc.
13.	**39 12 53**	Magnifying glass	1 pc.
14.	**39 13 90**	Neil Robertson stretcher	1 pc.
15.	**39 12 03**	Oxygen unit, portable	1 pc.
16.	**39 12 04**	Spare oxygen cylinder, size E	1 pc.
17.	**39 12 87**	Refrigerator, about 60 ltr capacity	1 pc.
18.	**23 26 21**	Cuffs	2 pcs.
19.	**39 13 92**	Mummy restraint	1 pc.
20.	**39 12 88**	Side board	2 pcs.
21.	**39 12 05**	Resuscitator, hand operated	1 pc.
22.	**39 12 94**	Rubber inflatable ring pad	1 pc.
23.	**65 07 68**	Scales, capacity 150 kg	1 pc.
24.	**39 13 68**	Sphygmomanometer, aneroid, 300 mm Hg scale	1 pc.
25.	**39 13 78**	Splints, inflatable, arm, assorted sizes, 6's	1 pkt
26.	**39 13 79**	Splints, inflatable, leg, assorted sizes, 6's	1 pkt
27.	**39 12 65**	Splints, finger, assorted sizes 6's	1 pkt
28.	**39 13 86**	Sterilizer, steam pressure type	1 set
29.	**39 13 88**	Sterilizer, water type, 3 ltr, electric	1 set
30.	**39 13 71**	Stethoscope, disc-diaphragm type	1 pc.
31.	**39 14 23**	Thermometer, bath	2 pcs.
32.	**39 12 07**	Tray with cover	1 pc.
33.	**39 14 40**	Urinal, male	2 pcs.
34.	**39 12 89**	Receptacle, 12 ltr. capacity	1 pc.
35.	**37 06 74**	International medical guide for ships	1 vol.
36.	**37 06 80**	Medical first aid guide	1 vol.
37.	**37 06 81**	International health regulations	1 vol.
38.	**37 06 82**	Vaccination certificate requirements and health advice	1 vol.

(to be continued)

Instruments

WHO Number	CODE	Description	Quantity required
39.	**39 12 02**	Airway, pharyngeal, plastic, adult and child sizes.	2 pcs.
40.	**39 13 55**	* Blade, surgical knife, No. 10	1 pc.
	57	* Blade, surgical knife, No. 15	1 pc.
41.	**39 12 73**	Forceps, dressing, bayonet shaped, Adsor, 18 cm	1 pr.
42.	**39 12 74**	Forceps, haemostat, curved, Halstead, mosquito, 15 cm	2 prs.
43.	**39 12 67**	Forceps, haemostat, straight, Spencer-Wells 15 cm	2 prs
44.	**39 12 75**	Forceps, haemostat, curved, Kelly, 15 cm	2 prs
45.	**39 12 69**	Forceps, splinter, tweezers, 10 cm	1 pr.
46.		Forceps, tissue, 2-3 dents	
	39 12 76	(a) 13 cm	1 pr.
	77	(b) 18 cm	1 pr.
47.	**39 13 53**	Handle, knife, No.3	2 pcs.
48.	**39 13 62**	Scissors, bandage, Lister angular, one sharp point and one blunt point, 20 cm	3 pcs.
49.	**39 13 61**	Scissors, surgical, straight, 15 cm	2 pcs.
50.	**39 14 47**	Hammer, reflex testing, 20 cm	1 pc.
51.	**39 14 07**	Needle holder, suture, Hegar-Mayo, 14 cm	2 pcs.
52.		Adhesive tape, surgical	
	39 10 82	(a) 5 cm x 5 m	6 rls.
	81	(b) 2 cm x 5 m	6 rls.
53.	**39 14 09**	Administration set, intravenous with hub needle 1 mm x 40 mm, disposable	6 pcs.
54.	**39 10 44**	Applicators, wood, 2 mm x 15 cm, 50's	3 pkt.
55.		Bandage, cotton, elastic, rubberless 12's	
	39 10 13	(a) 10 cm x 5 m roll	1 box
	12	(b) 8 cm x 5 m roll	1 box
	11	(c) 5 cm x 5 m roll	1 box

(to be continued)

WHO Number	CODE	Description	Quantity required
56.	**39 10 15**	Bandage, gauze, roller 3 cm x 10 m, 12's	1 pkt
57.	**39 10 42**	Bandage, absorbent, adhesive, 5 cm x 5 m, 100's	2 box
58.		Bandage, gauze, roller	
	39 10 20	(a) 10 cm x 5 m	60 pcs.
	21	(b) 12 cm x 5 m	40 pcs.
59.		Casualty dressing, adhesive, individually wrapped	
	39 10 54	(a) 9 cm x 6 cm	30 pcs.
	55	(b) 18 cm x 9 cm	20 pcs.
60.	**39 10 22**	Bandage, muslin, triangular, 90 x 130 cm	4 pcs.
61.	**39 10 26**	Tube, gauze type, bandage for finger	10 pcs.
62.	**39 10 59**	Spray dressing, 120 ml	4 btl.
63.	**39 10 51**	Petrolatum gauze, burn and wound dressing, various sizes	20 pcs.
64.		First aid emergency dressing	
	39 10 56	(a) small size	10 pcs.
	57	(b) medium size	20 pcs.
	58	(c) large size	20 pcs.
65.	**39 12 10**	Bottle, vial, amber 50 ml, glass or plastic	50 pcs.
66.		Catheter, double eye, pointed, disposable	
	39 12 54	(a) 6 French (2 mm)	1 pc.
	55	(b) 8 French (3 mm)	1 pc.
	56	(c) 12 French (4 mm)	1 pc.
	57	(d) 14 French (5 mm)	1 pc.
	58	(e) 16 French (5.5 mm)	1 pc.
67.	**39 12 09**	Catheterization tray, sterile, disposable, regular type	3 pcs.
68.	**39 14 18**	Clinical record chart	50 pcs.
69.	**39 14 20**	Temperature/pulse chart	50 pcs.
70.	**39 14 21**	Medical report form for seafarers	100 pcs.
71.	**39 14 19**	Clinical record chart	1 pad
72.	**39 14 51**	Collar, cervical, with strap.	1 pc.
73.	**39 10 38**	Cotton absorbent, sterile, 100 grm.	3 pkt
74.		Cotton absorbent	
	39 10 37	(a) 50 grm roll	20 pkt
	41	(b) 200 grm roll	10 pkt
75.	**39 12 62**	Finger, cots, rubber,assorted sizes, 12's	1 box
76.	**39 14 53**	Flashlight, with replacement batteries	1 pc.
77.	**39 10 24**	Gauze bandage, tubular, 2 cm x 5 m, rolled.	5 pcs.
78.	**39 12 81**	Gloves, surgical, disposable, large, 12's	1 box
79.	**39 12 78**	Gowns, surgical	5 pcs.
80.	**39 12 83**	Mask, face, disposable	50 pcs.
81.	**39 12 61**	Medicine cup, 30 ml, disposable, 100's	1 box
82.	**39 13 34**	Microscope slide	100 pcs.
83.	**39 13 93**	Mortuary transfer bag	2 pcs.
84.	**39 13 04**	Needle, hypodermic, 0.5 mm x 16 mm, 6's	6 pkt
85.	**39 13 05**	Needle, intramuscular injection, 1 mm x 5 cm, 6's	3 pkt
86.	**39 13 06**	Needle, intravenous injection, 1.1 mm, 3 cm, 6's	2 pkt
87.	**39 14 55**	Occult blood detection tablet, 60's	1 pkt
88.	**39 14 85**	Pad abdominal, 20 cm x 20 cm	6 pcs.
89.	**39 12 51**	Pad, cotton, eye, 12's	1 pkt
90.	**39 12 86**	Pad, non-adherent 8 cm x 10 cm	100 pcs.
91.	**39 13 51**	Safety pin, rustless	100 pcs.
92.	**39 14 61**	Scrubbing brush, hand	2 pcs.
93.	**39 12 26**	Sheath, rubber, 3's	Sufficient qty.
94.	**39 13 46**	Sheet, waterproof, 110 cm x 180 cm	2 sht
95.	**39 13 64**	Skin closure, adhesive surgical, 6 mm, 25's	2 pkt
96.	**39 13 66**	Skin closure, adhesive sutureless, 10 cm x 8 cm	10 pcs.
97.	**39 14 11**	Suture, tapered, 1/2 circle, 12's	1 pkt
98.	**39 14 12**	Suture, armed, 1/2 circle, 12's	2 pkt
99.	**39 14 13**	Suture, armed 3/8 circle, 12's	1 pkt
100.	**39 14 14**	Suture, armed, polyester, 3/8 circle, 12's	1 pkt
101.	**39 14 15**	Suture removal kit	1 kit
102.		Syringe, glass	
	39 12 97	(a) 2 ml	4 pcs.
	98	(b) 5 ml	4 pcs.
	99	(c) 20 ml	2 pcs.
103.		Syringe, plastic, disposable	
	39 13 10	(a) 2 ml w/hypodermic needle, 1/2 mm, 16 mm	50 pcs.
	13	(b) 2 ml w/intramuscular needle, 1 mm, 5 cm	50 pcs.
	11	(c) 5 ml w/intramuscular needle, 1 mm, 5 cm	30 pcs.
104.	**39 14 38**	Test strip and colour chart 100's	1 btl.
105.	**39 14 46**	Test tablets, kit, glucose in urine, 36's	3 pkt
106.	**39 14 91**	Tissues, facial	6 box
107.	**39 14 22**	Thermometer, clinical, fever	6 pcs.
108.	**39 14 29**	Tourniquet, non-pneumatic, blood taking type	1 pc.

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(to be continued)

WHO Number	CODE	Description	Quantity required
109.	**39 14 26**	Tongue depressor, wooden	100 pcs.
110.	**39 14 92**	Towels, paper, sterile, disposable, 12's	2 pkt
111.	**39 14 93**	Towels, surgical, cotton, 12's	1 pkt
112.	**39 14 94**	Wrapping material	1 pkt

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Medical Stores required for United Kingdom Merchant Ships and Fishing Vessels

The Merchant Shipping and Fishing Vessels (Medical Stores) Regulations 1995 SI No.1802 (as amended 1996 SI No.2821)

Medical Stores Categories

The categories of vessels and the consequent requirements for medical stores and equipment are set out in the directive and the implementing legislation. The vessel categories are:

Category A : Sea going or sea-fishing vessels with no limitation on length of trips.

Category B : Sea going or sea-fishing vessels making trips of less than 150 nautical miles from the nearest port with adequate medical equipment. This category is extended to seagoing or sea-fishing vessels which make trips of less than 175 nautical miles from the nearest port with adequate medical equipment and which remain continuously within range of helicopter rescue services.

The requirements and recommended stores are set out in the following schedules.
Schedule 1 : Requirements for Categories A and B vessels.
Notes on schedule 1 : Requirements for categories A and B.
in the attached schedule the columns are as follows :

* Column 1 is the reference number in the EC Directive 92/29. This is included for identification of treatments when seeking or receiving radio medical advice from any European Community Member State.

* Column 2 is the treatment which must be available to comply with the Regulations.

* Column 3 is the medicine and dosage strength which MSA considers best complies with the statutorily required treatment. Owners and operators may substitute exact equivalents on the advice of a qualified medical practitioner or pharmacist, provided they are satisfied that an equivalent level of treatment is assured.

* Column 4 is the quantity of medicine/equipment considered sufficient to provide treatment for a crew of 10 persons or 10 persons in a lifeboat or liferaft.

* Drug supplies should be replenished wherever possible at the same strengths as specified in the British Pharmacopoeia. If drugs are obtained elsewhere, e.g. in the U.S.A., they may be of different strength, and this must be taken into account when administering them.

* The medicines have been chosen to ensure that they can be purchased at minimum cost. However if, for operational reasons, an alternative packaging is preferred this is acceptable. e.g. the use of the word "ampoule" should not exclude the use of a pre-filled syringe where available and preferred.

MEDICAL SUPPLIES

For any items marked * the specified quantity is considered sufficient regardless of crew size.

1	2	CODE	3	4	
Ref. No.	Statutoy Treatment Requirements		Recommended Medicine and Dosage Strength representing best practice	Recommended quantity for 10 workers	
				Cat A	Cat B
1	Cardio vascular				
(a)	Cardio vascular analeptics-Sympathomimetics	**39 08 01**	Adrenaline injection BP 0.5 ml - adrenaline acid tartrate injection 1.0 mg in 1 ml (1 in 1,000)	5*	1*
(b)	Anti-angina preparations	**39 08 02**	Glyceryl Trinitrate Spray 400 micrograms/metered 200 dose aerosol or transdermal patches 5 mg x 2	1 unit	1 unit
(c)	Diuretics	**39 08 03** **04**	Frusemide i) 40 mg tablets ii) 10 mg in 1 ml inj. 2 ml ampoule	 20* 2	 5* -
(d)	Anti-haemorrhagics (including uterotonics if there are women with potential for child bearing working on board)	**39 08 05** **06**	i) Phytomenadione (Vitamin K1) ii) Ergometrine Maleate 500 mg inj. Oxytocin 5 units in 1 ml ampoule	1* 2*	1* 1*

(to be continued)

1	2	CODE	3	4	
Ref. No.	Statutoy Treatment Requirements		Recommended Medicine and Dosage Strength representing best practice	Recommended quantity for 10 workers	
				Cat A	Cat B
(e)	Anti-hypertensive	**39 08 07**	Atenolol 50 mg tablets x 28	1 pack	-
2	Castro intestinal system				
(a)	Medicines for gastric and duodenal disorders - Histamine H_2 receptor anti ulcer antagonists	**39 08 08**	Cimetidine 400 mg tablets 60 tablet pack	1 pack	-
	- Anti-acid mucous dressings	**39 08 09**	Proprietary Antacid of choice	As Reqd	As Reqd
(b)	Anti-emetics	**39 08 10**	i) Prochlorperazine maleate 3 mg buccal tablets	30*	30*
		11	ii) Promethazine hydrochloride 25 mg per ml (1 ml ampoules)	10*	-
(c)	Lubricant laxatives	**39 08 12**	Glycerol Suppository 4 mg mould	12	-
(d)	Anti-diarrhoeals	**39 08 13**	Codeine Phosphate 30 mg tablets	30	30
(e)	Intestinal antiseptics	**39 08 14**	Trimethoprim 200 mg tablets	20	20
(f)	Haemorrhoid preparations	**39 08 15**	Proprietary preparation of choice	As Reqd	As Reqd
3	Analgesics and Antispasmodics				
(a)	Analgesics, anti-pyretics and anti-inflammatory agents	**39 08 16**	i) Paracetamol 500 mg tabs	100	50
		17	ii) Diclofenac sodium 100 mg suppository	10	-
(b)	Powerful anagesics see(2d) Codeine Morphine	**39 08 18**	i) Codeine Phosphate	Use 2d	Use 2d
		19	ii) Morphine Sulphate 10 mg in 1 ml injection	10	-
(c)	Anti-Spasmolytics	**39 08 20**	Hyoscine hydrobromide 0.3 mg tabs.	60	60
4	Nervous system				
(a)	Anxiolitics	**39 08 21**	i) Diazepam Injection 5 mg per ml, 2 ml ampoules	5*	-
		22	ii) Diazepam 10 mg tablets	20*	-
(b)	Neuroleptics	**39 08 23**	i) Chlorpromazine hydrochloride 25 mg injection	5*	-
		24	ii) Chlorpromazine hydrochloride 25 mg tabs	40*	10*
(c)	Seasickness remedies	**39 08 25**	Hyoscine hydrobromide	Use 3 (c)	Use 3 (c)
(d)	Anti-epileptics	**39 08 26**	Diazepam rectal dispenser 10 mg in 2.5 ml	4	4
5	Anti-allergics and anti-anaphylactics				
(a)	H1 Anti-histamines	**39 08 27**	Astemizole 10 mg tabs	30*	30*
(b)	Injectable glucocorticoids	**39 08 28**	i) Hydrocortisone injection powder for reconstitution 100 mgm vial with 2 ml water for injection	3	1
		29	ii) Prednisolone 5 mg tabs	10	5
6	Respiratory System				
(a)	Bronchospasm preparations	**39 08 30**	i) Salbutamol inhaler 100 micrograms per metared dose. 200 dose inhaler with volumatic	1	1
		31	ii) Beclomethasone 50 micrograms per metered dose. 200 dose inhaler	1	1
(b)	Anti-tussives	**39 08 32**	Codeine phosphate tab. (cough suppressant)	Use 2d	Use 2d
(c)	Medicines used for colds and sinusitis	**39 08 33**	Paracetamol	Use 3a	Use 3a
7	Anti-infection				
(a)	Antibiotics(of at least two families)	**39 08 34**	i) Benzylpenicillin-benzylpenicillin sodium 600 mg injection (powder for reconstitution in a rubber capped and metal topped vial)and water for injection 2 ml	10	1
		35	ii) Ciprofloxacin as hydrochloride 500 mgm tablet	10	10
	(◆to be carried in category A vessels which may be more than 48 hours from medical assistance)	**36**	◆iii) Cefuroxime injection 750 mgm vial and water for injection	20	-
		37	iv) Erythromycin 250 mg tablets	40	20
		38	v) Doxycycline 100 mg capsules	10	-
(b)	Anti-bacterial sulphamide	**39 08 39**	Trimethroprim 200 mg tablets	20	-
(c)	Urinary antiseptics	**39 08 40**	Trimethroprim	Use 7b	Use 7b
(d)	Anti-parasitics	**39 08 41**	Mebendazole 100 mg tabs. 6 tablet pack	1*	1*
(e)	Intestinal anti-infectives	**39 08 42**	Metronidazole suppositories 1 gm	10	-
		43	Metronidazole tabs.400 mg tabs	14	14

(to be continued)

1	2	CODE	3	4	
Ref. No.	Statutoy Treatment Requirements		Recommended Medicine and Dosage Strength representing best practice	Recommended quantity for 10 workers	
				Cat A	Cat B
(f)	Anti-tetanus vaccines and immunoglobulins	**39 08 44**	Tetanus Vaccine 0.5 ml ampoule	5*	1*
		45	Tetanus Immunoglobulin ampoule for injection	1*	1*
8	Compounds promoting rehydration, caloric intake and plasma expansion				
		39 08 46	Sodium chloride & dextrose rehydration salts 8 g sachets of Oral Rehydration Salts, Formula A. BP Oral powder in sachet to provide Na=35 mmol, K=20 mmol, Cl-37 mmol, HCO^3 18 mmol and glucose 200 mmol when reconstituted in a litre of water	12	12
9	Medicines for External Use				
(a)	Skin medicines				
	- Antiseptic solutions	**39 08 47**	100 ml solution or preimpregnated wipes containing 0.015% w/v cholorhexidine and 0.15% w/v cetrimide	1* bottle or 1 pack wipes	1* bottle or 1 pack wipes
	- Antibiotic ointments	**39 08 48**	Cicatrin cream 15 mg tube	1	1
	- Anti-inflammatory and analgesic ointments	**39 08 49**	i) Hydrocortisone 1% cream 15 g tube	2	-
		39 08 50	ii) Benzoic Acid Ointment BP 50 mg (benzoic acid 6%, salicylic acid 3% in emulsifying ointment 15 g)	3	1
	- Anti-mycotic skin creams	**39 08 51**	Miconazole nitrate 2% topical cream 30 g	2	1
	- Burn preparations	**39 08 52**	Silver Sulphadiazine 1% cream 50 g tube	2	1
		39 08 53	Miscellaneous skin preparations i) Permethrin 1% in a basis containing isopropylalcohol 20% Cream Rinse	2*	-
		39 08 54	ii) Zinc ointment, BP (containing zinc oxide 15%) 25 g	1*	-
		39 08 55	iii) Potassium permanganate crystals 10 g container	1*	-
(b)	Eye medicines				
		39 08 56	Antibiotic ointment Framycetin sulphate 0.5% ointment 5 g tube	4	1
	- Antibiotic and anti-inflammatory drops	**57**	Betamethasone sodium phosphate 0.1% neomycin sulphate 0.5% eyedrops 5 ml	2	1*
	- Anaesthetic drops	**58**	Amethocaine hydrochloride 0.5% 5 ml	5*	5*
	- Hypotonic myotic drops	**39 08 59**	Pilocarpine hydrochloride eyedrops 0.5% 10 ml	1*	1*
		60	Detection of foreign bodies Fluorescein Sodin 1% eye-drops	1*	-
(c)	Ear medicines				
	- Antibiotic solutions	**39 08 61**	Antibiotic eardrops containing in each ml; neomycin 3,400 units, polymixin B sulphate 10,000 units, hydrocortisone 10 mg 5 ml dropper bottle	1*	1*
	- Anaesthetic and anti-inflammatory solutions	**39 08 62**	Ephedrine nasal drops BP 0.5% ephedrine hydrochloride 10 ml	1*	1*
(d)	Medicines for oral and throat infections				
	- Antibiotic or antiseptic mouthwashes	**39 08 63**	Chlorhexidine gluconate 0.2% mouthwash 300 ml	1	1
(e)	Local Anaesthetics				
	- Local anaesthetics using freezing	**39 08 64**	Ethyl chloride liquid spray 50 mg	1*	1*
	- Local anaesthetics given by subcutaneous injections	**39 08 65**	Lignocaine hydrochloride 1% 25 mg in 5 ml for injection	5	5
	- Dental anaesthetics and antiseptic mixtures	**39 08 66**	i) Lignocaine Gel 20 g (lignocaine hydrochloride 2% in a water miscible (bass) gel	1	-
		67	ii) Oil of Cloves 10 ml	1*	1*

MEDICAL EQUPMENT

Required Equipment	CODE	Recommended Specification	A	B
1. Resuscitation Equipment				
Manual resuscitation appliance				
Appliance for the administration of oxygen	**39 20 01**	Oxygen Giving Set comprising the following; 1) Oxygen reservoir 2) 1 flow meter unit giving a minimum setting of 4 litres per minute 3) 1 pressure regulating unit 4) 1 set of tubing 5) 5 x 24% oxygen disposable face masks 6) 5 x 35% oxygen disposable face masks each part constructed so that it can only be assembled in the correct manner	1	1
Mechanical aspirator to clear upper respiratory	**39 20 02**	Aspirator to clear airways (manual, hand operated) + two catheters	1	1
Equipment for mouth to mouth resuscitation	**39 20 03** **04**	Laerdal Pocket Mask Guedal Airway Sizes 3 and 4	1 1	1 1
2 Dressing and suturing equipment				
Disposable suture stapler or suture kit with needles	 **39 20 05** **06** **07**	Suture and needle pack Sterile non absorbable, sutures BP, of monofilament nylon or silk, swaged to a 26 mm, and 40 mm half circle needle with a cutting edge. Each needle and suture to be in a sealed pack (1) 26 mm half circle needle (2) 40 mm half circle needle (3) sterile absorbable sutures BP of catgut swaged to a 40 mm half circle cutting needle	 3 3 26	 - - -
Adhesive elastic bandage	**39 20 08** **09**	Adhesive Elastic Bandege 7.5 cm x 4 m Crepe bandege 7.5 cm x 4.5 m when stretched	4 4	1 1
Tubular gauze bandage, seamless, of a size suitable for finger dressings	**39 20 10**	20 m length with applicator	1	1
Sterile gauze compresses	**39 20 11**	Packet containing 5 sterile gauze pads BP size 7.5 cm x 7.5 cms	10	5
Cotton wool	 **39 20 12** **13**	Absorbent cotton and viscose wadding db, in a roll, in damp proof packaging (1) 15 gm, sterile (2) 100 gm, non-sterile	 6 3	 3 1
Sterile sheet for burns victims	**39 20 14**		1	1
Triangular sling	**39 20 15**	Calico, with two sides @90 cm and base @127 cm	4	4
Disposable polyethylene gloves	**39 20 16**	Large size	25	25
Adhesive dressings	**39 20 17**	Assorted, sterile	40	40
Sterile compression bandages	**39 20 18** **19** **20**	(1) No.13 Standard dressings (2) No.14 Standard dressings (3) No.15 Standard dressings	5 5 4	3 3 2
Adhesive sutures or zinc oxide bandages	**39 20 21**	75 mm adhesive suture strips	6	6
Non-absorbable sutures with needles		Use Equipment items 2(1) and 2(2)	Use 2(1) & 2(2)	Use 2(1) & 2(2)
Vaseline gauze	**39 20 22**	Paraffin gauze dressings, size 10 cm x 10 cm	40	40
3 Instruments				
Disposable scalpels	**39 20 23**		2	-
Stainless-steel instrument box	**39 20 24**		1	1
Scissors	**39 20 25**	- about 18 cm one blade sharp pointed and the other round-ended	1	1
	39 20 26	- 12.5 cm, both blades sharp pointed	1	1
Dissecting forceps	**39 20 27**		1	1
Haemostatic Clamps	**39 20 28**		1	1
Needle Forceps	**39 20 29**		1	-
Disposable razors	**39 20 30**		5	-
4 Examination and monitoring equipment				
Reactive strips for urine analysis	**39 20 31**		50	-
Temperature charts	**39 20 32**		1 pad	-
Disposable tongue depressors	**39 20 33**		10	10

(to be continued)

Required Equipment	CODE	Recommended Specification	A	B
Medical evaluation reports	**39 20 34**	(SCMG/3)	1 pad	1 pad
Stethoscope	**39 20 35**		1	1
Aneroid sphygmomanometer	**39 20 36**		1	1
Standard medical thermometer	**39 20 37**		3	1
Hypothermic thermometer	**39 20 38**		1	1
Additional equipment	**39 20 39** **40**	Sputum cup with cover (disposable) Specimen jars (strong glass or plastic with airtight lid 50 ml with black labels)	2 2	- -
5 Equipment for injection, perfusion, puncture and catheterization				
Bladder drainage instruments	**39 20 41**	Bladder drainage set (including bag, spigots and tube)	1	-
Rectal drip set	**39 20 42**		1	-
Disposable filter infuser	**39 20 43**	Integral in UK equipment. Foreign produced items may require a separate filter	if Reqd	if Reqd
Urine drainage bag		Use bladder drainage set	Use 5 (1)	Use 5 (1)
Disposable syringes and needle	**39 20 44**	2 ml, 5 ml, 10 ml, quantities of each size	6	3
Catheter	**39 20 45** **46** **47**	1) Foley type 16, Charriere guage, 5 ml balloon (Short/medium term use in adults) 2) Nelaton size 16 Charrire guage (with no balloon) 3) Penile sheath set	1 1 1	- - -
6 General Medical Equipment				
Bedpan	**39 20 48**	(stainless steel or sterilisable plastic)	1	-
Hot water bottle	**39 20 49**	with fabric cover	1	-
Urine container	**39 20 50**		1	-
Icebag	**39 20 51**		1	-
7 Immobilization and setting equipment				
Malleable finger splint	**39 20 52**		1	1
Malleable forearm and hand splint	**39 20 53**		1	1
Inflatable splints	**39 20 54**	Set of four (half-leg, full leg, half arm, and full arm)	1	1
Thigh splint	**39 20 55**		1	1
Collar for neck immobilisation	**39 20 56**	(Adult size set of 3, small, medium and large)	1	1
Thomas splint	**39 20 57**		1	-
8 Disinfection, Disinsectization and Prophylaxis				
Water-disinfection compound	**39 20 58**	In liquid form - litres	5	-
Liquid insecticide	**39 20 59**	In liquid form - litres	5	-

REQUIRED ADDITIONAL EQUIPMENT

Required Equipment	CODE	A	B
First Aid Kits - Vessels with a crew of more than 10 should carry first aid kits to be distributed in appropriate locations on the ship e.g. in the galley and engine room. (For passenger vessels see Schedule 3) The kit should include the following items to be kept in a portable waterproof container. (1) 4 x triangular bandages (90 cms × 127 cms base) (2) 6 x standard dressings no.8 or 13 BPC (3) 2 x standard dressings no.9 or 14 BPC (4) 2 x extra large unmedicated dressings, 28 cms ×17.5 cms (5) 6 medium safety pins, rustless (6) 20 assorted elastic adhesive dressings medicated BPC (7) 2 x sterile eye pads with attacthment (8) 2 x packeges containing 15 grammes sterile cotton wool (9) 5 pairs large size disposable polythene gloves	**39 20 60**	3 max	3 max

(to be continued)

Recommended additional equipment				
	Face masks disposable	**39 20 61**	6	6
	Plastic measuring jug 1/2 litre size	**39 20 62**	1	1
	Disposable paper towels	**39 20 63**	100	100
	Latex gloves surgical quality - sterile (large)	**39 20 64**	5 prs	5 prs
	Waterproof plastic sheeting, size 1 m × 2 m	**39 20 65**	2	2
	"Sharps" disposal box	**39 20 66**	1	1
	Lotion bowl (Size at least 200 mm × 90 mm, stainless steel or sterilisable plastic, to be marked "medical"	**39 20 67**	1	-
	Kidney dish (Size 250 mm stainless steel or sterilisable plastic)	**39 20 68**	1	-
	Safety pins, rustless medium	**39 20 69**	6	6
	Magnifying glass 7.5 cm diameter on handle	**39 20 70**	1	1
	Nail brush	**39 20 71**	1	1
	Stretcher equipment (A system for trauma management, i.e. immobilisation and stretcher equipment most suited for treatment on the vessel concerned).	**39 20 72**	1	-
	Baby bag - Large size	**39 20 73**	1	1
	Vessels in malarial areas only Microscope slides in individual transit containers	**39 20 74**	5	5
	1) Excavator double ended Guys' pattern G2 2) Filling paste inserter (for inserting filling paste into the tooth) 3) Dental mirror size 4 on handle 4) Cavit (temporary dental filling) tube	**39 20 75**	1 set all items	-
	Kit for protection against blood transmitted diseases (to be carried in all vessels trading in known malarial areas and in areas where medical facilities are limited and emergency shore based treatment is necessary). To be kept in a heavy gauge polythene bag, and labelled "to be used only for the treatment of ..." (insert the name of the seafarer going ashore for emergency treatment) Each kit to contain the following: (1) 10 × 2 ml syringes (2) 10 × 10 ml syringes (3) 20 × 21 swg 0.8 mm needles (4) 1 blood giving set (5) 1 blood taking set (6) pack of pre-injection site swabs (7) Disposable plastic gloves 2 prs. (large size)	**39 20 76**	1	-

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Mapping of the medicines in the third edition of the Guide to the quantities in the second edition, the Australian and UK guidelines for ships

Quantification Addendum on International Medical Guide for Ships 3rd edition has been published to update the list of recommended medicines in 3rd edition, and also mapping the current medicines list to the quantities in the previous second edition and also to the Australian and UK guidelines for ships. The listing will be standardized to quantities per number of crew, and the definition of categories for each guideline is listed below.

Guideline	Definition	
	Category A	Category B
2nd edition of the Guide	Ocean-going merchant vessels without a doctor on board.	Merchant vessels engaged in coastal trade or going to nearby ports, and not more than 24 hours away from a port of call.
UK Guidelines	Seagoing or sea-fishing vessels with no limitation on length of trips.	Seagoing or sea-fishing vessels making trips of less than 150 nautical miles from the nearest port with adequate medical equipment. This category is extended to seagoing or sea-fishing vessels which make trips of less than 175 nautical miles from the nearest port that has adequate medical equipment and which remain continuously within range of helicopter rescue services.
Australian Guidelines	Seagoing vessel on unlimited voyages, and assumes that supplies can be re-stocked if necessary from wayports.	Seagoing vessel on short voyages, generally not extending more than 150 miles from the nearest port. Can be extended up to 200 miles if continuously within range of a helicopter rescue service.

CODE	Recommended Item, Dosage form, Strength	Indication	Quantity Guideline			Notes on the guidelines
			Guide	Category		
				A	B	
39 17 01	Acetylsalicylic acid, 300 mg tablet	Pain, fever, blood clots	2nd edition	600	300	No other anti-inflammatories
			UK	-	-	Other NSAIDs* recommended
			Australia	-	-	
39 17 02	Aciclovir 400 mg tablet	Herpes simplex/ zoster	2nd edition	-	-	No equivalent recommended
			UK	-	-	No alternative recommended
			Australia	-	-	
39 17 03	Adrenaline 1 mg/ml ampoule	Anaphylaxis	2nd edition	20	10	Epinephrine
			UK	10+	5+	And/or Epipen® also carried
			Australia	5+	5+	
39 17 05	Amoxicillin/clavulanic acid, 875 mg/125 mg tablet	Infections	2nd edition	-	-	Ampicillin only oral beta-lactam
			UK	-	-	Alternative oral antibiotics recommended
			Australia	-	-	
39 17 06	Artemether, 80 mg/ml ampoule	Malaria treatment	2nd edition	20*	-	Quinine 600 mg injection
			UK	-	-	No parenteral recommended
			Australia	-	-	
39 17 07	Artemether + lumefantrine, 20 mg/120 mg tablet	Malaria treatment	2nd edition	200*	100*	Quinine tablets (A); chloroquine (B/C)
			UK	-	-	Alternative oral treatments recommended
			Australia	-	-	
39 17 08	Atropine, 1.2 mg/ml ampoule	MI/organophosphate poisoning	2nd edition	60	10	0.5 mg/ml
			UK	-	-	Only recommended for 'doctors bag'
			Australia	15	15	Only for ships carrying dangerous goods
39 17 09	Azithromycin, 500 mg tablet	Infections	2nd edition	300*	100*	Erythromycin only macrolide
			UK	28*	28*	Erythromycin 250 mg tablets
			Australia	100*	50*	
39 17 10	Ceftriaxone, 1 g ampoule	Infections	2nd edition	-	-	Benzyl penicillin only
			UK	20*	-	Cefuroxime 750 mg ampoule; cat. B carry benzyl penicillin
			Australia	20	-	Cat. B carry benzyl penicillin
39 17 11	Cetirizine, 10 mg tablet	Hayfever/hives/ dermatitis	2nd edition	60*	20*	Chlorphenamine 4 mg tablets
			UK	30+	30+	
			Australia	30*+	30*+	Loratadine 10 mg tablets
39 17 12	Charcoal, activated, powder	Poisoning	2nd edition	120 g	120 g	
			UK	-	-	No alternative recommended
			Australia	200*	200*	300 mg tablets; only for ships carrying dangerous goods
39 17 13	Ciprofloxacin, 250 mg tablet	Infections	2nd edition	-	-	No equivalent recommended
			UK	20	10	
			Australia	28	14	
39 17 14	Cloves, oil of, liquid	Toothache	2nd edition	40 ml	20 ml	
			UK	10 ml+	10 ml+	
			Australia	15 ml	15 ml+	
39 17 15	Dexamethasone, 4 mg/ml ampoule	Severe asthma/ anaphylaxis	2nd edition	5*	-	Hydrocortisone 100 mg amp
			UK	3*	1*	
			Australia	5*	-	
39 04 62	Diazepam, 5 mg tablet	Alcohol withdrawal	2nd edition	200	100	
			UK	28+	-	Also recommends 5 x diazepam amp
			Australia	40+	20+	Also recommends 2 x diazepam amp
39 17 17	Docusate with senna, 50 mg/8 mg tablet	Constipation	2nd edition	-	-	No equivalent recommended
			UK	12*	-	Glycerine suppositories
			Australia	12*	-	

(to be continued)

CODE	Recommended Item, Dosage form, Strength	Indication	Quantity Guideline			Notes on the guidelines
			Guide	Category		
				A	B	
39 06 31	Doxycycline, 100 mg tablet	Infections	2nd edition	200	-	
			UK	8	-	
			Australia	21	7	
39 17 19	Ethanol, hand cleanser, 70% gel	Hand cleaning	2nd edition	-	-	Ethanol liquid only
			UK	-	-	No equivalent recommended
			Australia	-	-	
39 17 20	Ethanol, 70% liquid	Disinfect instruments	2nd edition	3,000 ml	1,000 ml	For hand sanitization also
			UK	100 ml*	100 ml*	Cetrimide + chlorhexidine solution or 100 impregnated swabs
			Australia	2,400 ml*+	1,200 ml*+	Cetrimide + chlorhexidine solution plus 100 alcohol impregnated swabs
39 17 21	Fluorescein, 1% eye strips	Detect corneal damage	2nd edition	200	-	
			UK	20	20	Individual disposable units
			Australia	20*+	20*+	
39 17 22	Frusemide, 40 mg/4 ml ampoule	Pulmonary oedema	2nd edition	-	-	Frusemide 40 mg tablets only (A)
			UK	2*	-	20 mg/2 ml ampoules; also frusemide tabs
			Australia	5*	5*	
39 17 23	Glucagon, 1 mg ampoule	Hypoglycaemia	2nd edition	-	-	No equivalent recommended
			UK	-	-	
			Australia	-	-	
39 17 24	Haloperidol, 5 mg/ml ampoule	Psychosis/severe agitation	2nd edition	20*	10*	Chlorpromazine 25 mg/ml
			UK	5*	-	Chlorpromazine 25 mg ampoules; also tabs for Cat A and B
			Australia	10*+	5*+	Chlorpromazine 25 mg ampoules; also tabs
39 06 44	Hydrocortisone, 1% cream	Allergy/inflammatory skin	2nd edition	6*	2*	Ointment; also for rectal use
			UK	2	-	30 g tubes
			Australia	2	1	
39 17 26	Ibuprofen, 400 mg tablet	Inflammation/pain	2nd edition	-	-	Aspirin only NSAID*
			UK	100	50	Diclofenac suppositories also for Cat A
			Australia	48	24	200 mg or 400 mg tabs; alternative NSAIDs* also provided
39 17 27	Isosorbide dinitrate, 5 mg tablet	Angina/MI	2nd edition	40*	20*	Glyceryl trinitrate
			UK	1*	1*	GTN* spray or patches
			Australia	2*	1*	GTN* sublingual spray
39 17 28	Lignocaine, 1%, 5 ml ampoule	Suturing/minor surgery	2nd edition	12	-	
			UK	5	5	Lignocaine gel for Cat A
			Australia	25*	5*	2 ml amps
39 17 29	Loperamide, 2 mg tablet	Diarrhoea	2nd edition	100*	100*	Codeine 30 mg tabs; also for cough
			UK	30	30	
			Australia	24	16	Also list codeine tabs
39 17 30	Mebendazole, 100 mg tablet	Intestinal worms	2nd edition	-	-	No equivalent recommended
			UK	6+	6+	
			Australia	6+	6+	
39 17 31	Metoprolol, 100 mg tablet	HTN/AF/Angina/ Migraine	2nd edition	-	-	No equivalent recommended
			UK	28*	-	Atenolol tablets
			Australia	28*	-	Atenolol 50 mg tabs
39 17 32	Metronidazole, 500 mg tablet	Infections	2nd edition	500*	200*	200 mg tablets
			UK	21	21	Suppositories also for Cat A
			Australia	42*	21*	400 mg tabs; tinidazole also recommended

(to be continued)

CODE	Recommended Item, Dosage form, Strength	Indication	Quantity Guideline			Notes on the guidelines
			Guide	Category		
				A	B	
39 06 52	Miconazole, 2% cream	Fungal skin infections	2nd edition	5*	2*	Vaginal cream 80 g; pessaries also
			UK	2	1	30 g tubes; Benzoic acid ointment also
			Australia	2	1	30 g tubes; vaginal preparations also recommended; benzoic acid ointment also
39 17 34	Midazolam, 5 mg/ml ampoule	Epileptic fits	2nd edition	20*	-	Diazepam 10 mg/ml
			UK	5*	5*	Diazepam 10 mg rectal preparation
			Australia	5*	5*	
39 17 35	Misoprostol, 200 ug tablet	Post-partum haemorrhage	2nd edition	-	-	No equivalent recommended
			UK	-	-	
			Australia	-	-	
39 03 90	Morphine, 10 mg/ml ampoule	Severe pain	2nd edition	20	10	
			UK	10	10	
			Australia	10	5	
39 17 37	Morphine, 1 mg/ml liquid	Severe pain in patients able to eat and drink	2nd edition	-	-	
			UK	28*	28*	Codeine phosphate 30 mg
			Australia	60*	30*	
39 06 56	Naloxone, 0.4 mg/ml ampoule	Opiate overdose	2nd edition	-	-	
			UK	-	-	No equivalent recommended
			Australia	5	5	
39 17 39	Omeprazole, 20 mg tablet	Reflux, peptic ulcers	2nd edition	-	-	
			UK	-	-	Cimetidine 400 mg
			Australia	-	-	
39 17 40	Ondansetron, 4 mg tablet	Vomiting, sea-sickness	2nd edition	-	-	Cyclizine 50 mg
			UK	-	-	Prochlorperazine 3 mg buccal tablets
			Australia	-	-	Prochlorperazine 5 mg
39 06 58	Oral Rehydration Solution, sachet powder	Dehydration due to diarrhoea	2nd edition	50*	20*	Each sachet makes 1 ltr
			UK	16-20	16-20	
			Australia	120	40	Each sachet makes 200 ml
39 17 42	Oxymetazoline, 0.50% Nasal drop	Nasal obstruction/ drain sinuses	2nd edition	-	-	Only ephedrine tablets (A)
			UK	1*+	1*+	Ephedrine nasal drops
			Australia	2*+	1*+	Ephedrine 0.5% nasal drops
39 06 60	Paracetamol, 500 ml tablet	Pain and fever	2nd edition	300	150	
			UK	100	50	
			Australia	500	500	
39 17 44	Permethrin, 1% lotion	Lice	2nd edition	12*	2*	Lindane cream 60 g tubes; also for scabies
			UK	2+	-	2 bottle, size not stated
			Australia	200 ml+	-	
39 17 45	Permethrin, 5% lotion	Scabies	2nd edition	12*	2*	Lindane cream 60 g tubes; also for lice
			UK	-	-	
			Australia	6*	2*	Permethrin 5% cream x 30 g tubes
39 17 46	Povidone iodine, 10% ointment	Disinfect skin/wounds	2nd edition	-	-	Iodine solution recommended
			UK	-	-	Silver sulfadiazine cream for burns
			Australia	-	-	
39 17 48	Povidone iodine, 10% liquid	Disinfect skin/wounds	2nd edition	400 ml*	200 ml*	Iodine solution
			UK	100 ml*+	100 ml*+	Certrimide + chlorhexidine solution; also used to disinfect
			Australia	2,400 ml*+	1,200 ml*+	
39 17 47	Prednisone, 25 mg tablet	Asthma/inflammatory conditions	2nd edition	-	-	Hydrocortisone injection only
			UK	28*	28*	5 mg tablets
			Australia	60*	60*	

(to be continued)

CODE	Recommended Item, Dosage form, Strength	Indication	Quantity Guideline			Notes on the guidelines
			Guide	Category		
				A	B	
39 06 72	Salbutamol, 100 ug/ dose inhalation	Asthma/bronchitis/ emphysema	2nd edition	2	1	
			UK	1	1	
			Australia	2	1	
39 06 73	Sodium chloride, 0.9%, 1 litre liquid	Fluid replacement	2nd edition	6	2	
			UK	-	-	
			Australia	5*	3*	Only for ships carrying dangerous goods
39 17 04	Tetracaine [amethocaine], 0.50% eye drop	Eye examination	2nd edition	2	1	10ml bottles
			UK	20	20	Unit dose minims
			Australia	20+	20+	
39 17 50	Tetracycline, 1% eye ointment	Minor eye infections	2nd edition	6	3	
			UK	4*	1*	Chloramphenicol eye ointment
			Australia	5*	2*	Framycetin eye ointment
39 17 51	Vitamin K, 10 mg/ml ampoule	Reverse warfarin or similar	2nd edition	-	-	
			UK	-	-	Only paediatric recommended
			Australia	10*	-	Only paediatric recommended; adult strength only for carrying dangerous goods
39 06 82	Water for injection, 5 ml ampoule	Reconstitute infections	2nd edition	30	20	
			UK	-	-	
			Australia	20	5	For reconstituting benzyl penicillin
39 17 53	Zidovudine + lamivudine, 300 mg/150 mg tablet	Needle-stick injury prophylaxis	2nd edition	-	-	No equivalent recommended
			UK	-	-	
			Australia	-	-	
39 06 83	Zinc oxide, 20% paste/ointment	Irritated skin	2nd edition	12	3	30 g tubes of zinc oxide paste
			UK	25 g+	-	
			Australia	100 g+	100 g+	

* 2nd edition of the guide: Quantities are based on six months' inventory for a crew of 25-40 persons for Category A, and for a crew of approximately 25 persons for Category B.
* UK guidelines: Quantities are per 10 crew for Category A and B ships unless otherwise marked.
* Australian guidelines: Quantities are based on 20 crew for Category A unless otherwise marked.
* Quantities marked with a '+'are recommended irrespective of crew size.
* Quantities marked with '*' are those for an alternative drug/dose/indication described in the Notes section.
* NSAID: non-steroidal anti-inflammatory drug.
* GTN: glyceryl trinitrate.

Medicines

The medicines and medical equipment required on board ocean going commercial and passenger vessels are available below as outlined by the World Health Organization and the Merchant Shipping Notice for United Kingdom merchant ships and fishing vessels on medical precautions. The medications and equipment are available in a complete medical chest set or individually where they may be required. In addition, some more commonly used medications have also been provided for everyday minor ailments.

Whenever using or prescribing medications always be sure to follow the respective instructions carefully.

WHO Medical Chests

Medicines and medical equipment in accordance with WHO (World Health Organization). International Medical Requirements for ocean going vessels without a doctor aboard. The quantities of medicaments are based on an estimated 6-month inventory for a crew complement of 25-40 persons.

39 01 11	WHO Medical Chest, capacity for 25 - 40 persons	Set

Medical Stores required for United Kingdom Merchant Ships and Fishing Vessels

The Merchant Shipping and Fishing Vessels (Medical Stores) Regulations 1995 SI No.1802 (as amended 1996 SI No.2821) The United Kingdom implemented the requirements of Council Directive 92/29/EEC which sets out minimum standards for ships' medical stores by introducing the Merchant Shipping and Fishing Vessel (Medical Stores) Regulation 1995, as amended by the Merchant Shipping and Fishing Vessel(Medical Stores) Amendment Regulations 1996.

The requirements for medical stores set out in M1607 and M1608 have been reviewed and are replaced by this Notice.

39 01 06	Medical stores required for U.K. merchant ships and fishing vessels, Regulation 1995 SI No. 1802 Category A	Set
39 01 07	Medical stores required for U.K. merchant ships and fishing vessels, Regulation 1995 SI No. 1802 Category B	"

The following list of medical supplies and medications are those which may not be included in the World Health Organization or DTI medical lists for ocean going vessels but which are used commonly on ships for mild illnesses and injuries. A variety of the more popular over the counter medicines are listed with their uses and code numbers for easy referencing.

CODE	Descriptions	Virtue	Contents	Unit
39 01 20	Adrenaline Injection	For the rare cases of collapse following treatment with penicillin. Each ampoule contains 1 ml and 10 ampoules in a packet.	10 amp	Pkt
39 01 26	Medical Alcohol	95% ethyl alcohol bottled in a 500 ml container. Used as a local anti-infective (as 70 percent W/V solution and solvent). Not for ingestion or internal use!	500 ml	Btl
39 01 28	Surgical Alcohol (Dilute Alcohol)	75% ethyl alcohol for disinfection and anti-microbe. Bottled in 500 ml. For external use only.	500 ml	Btl
39 01 30	Rubbing Alcohol	Isopropyl alcohol for external use only. Bottled in 500 ml bottles.	500 ml	Btl
39 01 36	Aminophylline Tablets	For carditis, angina pectoris, asthma and nephritis.	100 mg, 60 tab	Pkt
39 01 38	Ampicillin Capsules	An antibiotic for tonsillitis, gonorrhoea, otitis media, bronchitis, pharyngitis and suppurative diseases. Each capsule contains 250 mg and 100 capsules in a packet.	250 mg, 100 cap	Pkt
39 01 40	Amyl Nitrite Capsules	For angina pectoris. A capsule is crushed and the vapors are inhaled to relieve oncoming angina attacks.	6-cap	Pkt
39 01 46 **47** **48**	Analgesic Tablets "Bufferin"	For headaches, general pain relief, and colds.	20 tab 40 tab 80 tab	Pkt " "
39 01 50	Analgesic Tablets "Excedrine"	For general pain relief for headaches, toothaches, neuralgia, etc.	36 tab	Pkt
39 01 52	Analgesic Tablets "Saridon"	For analgesic and antipyretic symptoms such as headaches, toothaches, migraines, lumbago, etc.	100 tab	Pkt
39 01 56	Antacid Tablets	For heartburn, upset stomach, and acid indigestion.	120 tab	Pkt
39 01 58	Antibiotic Ointment	An antibiotic for minor cuts and scratches.	25 grm	Tub
39 01 60	Antihistamine Tablets (Anti-Allergy Tablets)	For relief of allergic symptoms such as hay fever, allergic asthma, urticaria, drug rash, and sea sickness.	40 tab	Btl
39 01 62	Anti-Scabies Ointment	For the treatment of scabies and for the symptomatic treatment of pruritic skin.	50 grm	Jar
39 01 66	Antiseptic Cream	For application to broken skin or as a barrier against bacterial infection.	50 grm	Tub
	Antibiotic Skin Ointment	See Tetracycline Ointment.		
39 01 68	Antiseptic Powder	For secondary infections from burns and superficial suppurative skin diseases.	10 grm × 5 btl	Pkt
39 01 69 **70**	Antiseptic Solution	Used as a general antiseptic for the cleaning of wounds, burns, etc. Also used for the disinfection or surgical instruments.	200 ml 500 ml	Btl "
39 01 74	Anti-Tetanus Injections	For the treatment or prevention of tetanus.	10 ml, 12,000 unit	Pkt
39 01 80	Arachis Oil	For soothing eczema or other skin irritations. Also used to soften wax in the ear or lubricate catheters.	500 ml	Btl
39 01 82	Aromatic Spirit of Ammonia	Stimulant to revive persons who feel faint.	100 ml	Btl
39 01 86	Aspirin Tablet	Analgesic for the relief of headaches, toothaches, muscular pains, etc.	100 tab	Btl
39 01 88	"Bayer" Aspirin Tablets	Same properties as above aspirin branded "Bayer". 30 tablets in a packet.	20 tab	Pkt
39 01 92	Athlete's Foot Liquid (Ringworm Liquid)	For athlete's foot and ringworm.	60 ml	Btl
39 01 94 **97**	Athlete's Foot Powder (Ringworm Powder)	Same as above for athlete's foot and ringworm.	90 grm 32 grm	Tin "
39 01 96	Athlete's Foot Ointment (Whitfield's Ointment)	For the treatment of athlete's foot and ringworm.	30 grm	Tub
39 02 01 **02**	Benzyl Benzoate Applications	25% Benzyl Benzoate. For use in the treatment of scabies.	80 ml 500 ml	Btl "
39 02 04	Boric Acid Powder	Used as an antiseptic eyewash or for gargling.	500 grm	Pkt
39 02 08	Burn Ointment	For burns, minor cuts and bruises.	15 grm	Tub
39 02 20 **19** **21**	Calamine Lotion	Provides fast relief for heat rashes, insect bites, sunburn, etc.	60 ml 100 ml 260 ml	Btl " "

(to be continued)

CODE	Descriptions	Virtue	Contents	Unit
39 02 22 23	Castor Oil	Used to safely induce vomiting in the treatment of poisoning.	20 ml 500 ml	Btl "
39 02 26	Cetrimide Solution, Strong	Sudsing emollient skin cleaner for personal cleaning and skin care. Furnished in 150 ml bottle.	150 ml	Btl
39 02 30	Chloramphenicol Tablets	An antibiotic for colds, pneumonia, dysentery, tonsillitis, diarrhoea, gonorrhoea, empyema, and suppurative diseases.	250 mg, 100 tab	Pkt
39 02 34	Codeine Phosphate Tablets	An analgesic more powerful than regular aspirin for the relief of headaches or toothaches. Each tablet contains 3 mg of dihydrocodeine phosphate.	3 mg, 100 tab	Btl
39 02 38 39 40	Cold Remedy "Vicks Vaporub"	For the relief of congestion and coughs due to colds.	50 grm 70 grm 100 grm	Jar " "
39 02 42 43	Cold Capsules "Contac 600"	For common colds and acute rhinitis.	10 caps 20 caps	Pkt "
39 02 46	Cold Tablets	For common colds and headaches caused by colds.	90 tab	Btl
39 02 50	Concentrated Antiseptics	Antibacterial skin cleanser.	500 ml	Btl
39 02 52	Corticosteroid Ointment	Synthetic corticosteroid with antibiotic for skin diseases such as eczema, dermatitis, otitis externa, insect bites, etc.	10 grm	Tub
39 02 54	Cortisone Ointment	Ointment for the relief of skin conditions like dermatitis, eczema, or discomfort from insect bites.	25 grm	Tub
39 02 60	Cough Drops "Vicks"	For a sore throat or cough.	20 drop	Pkt
39 02 62	Cough Linctus	Cough suppressant and expectorant.	60 ml	Btl
39 02 63 64	Cough Mixture	An antitussive, expectorant, and antihistamine mixture. Furnished in a 1,000 ml bottle.	500 ml 1,000 ml	Btl "
39 02 65 66	Cough Tablets	For relief of a cough or the symptoms of bronchitis.	36 tab 50 tab	Btl "
39 02 79 80	Dermatologic Purulent Infection Spray	For the treatment of eczema, burns, cuts and minor wounds. Serves to prevent infection during the healing period.	35.5 grm 85 grm	Tin "
39 02 82	Diarrhoea Tablets	For the treatment and relief of diarrhoea.	40 tab	Btl
39 02 84	Digoxin Tablets	For heart failure, asthma, and use as a diuretic.	20 tab	Btl
39 02 86	Dover's Powder Tablets	Medicated powder tablets for the relief of a cough, headache, and fever related to colds.	100 tab	Pkt
39 03 02	Ear Drops	For otitis media and internal and external otitis.	15 ml	Btl
39 03 04	Eczema Ointment	For the treatment of eczema.	20 grm	Tub
39 03 06	Ephedrine Tablets	For asthma, bronchitis and cough. Contains 30 tablets in a bottle.	30 tab	Btl
39 03 08	Ergometrine Injections	For use in the treatment of bleeding due to abortion or miscarriage in women. Contains 10 ampoules in a packet.	10 amp	Pkt
39 03 12	Eye Drops, Anesthetic	Serves as ophthalmic anesthetic. 2 - 3 drops as needed. 20 ml in a bottle.	20 ml	Btl
39 03 14	Eye Drops, Antiseptic	To clean and relieve the eyes from irritation or slight infections such as conjunctivitis. Furnished in a 15 ml bottle.	12 ml	Btl
39 03 16 17 18	Eye Wash (Eye Lotion)	For irrigation of the eyes to remove particles or irritants.	130 ml 330 ml 200 ml	Btl " "
39 03 30 31 32	Heart Tablets (Nitroglycerin Tablets)	For the prevention of episodes of angina pectoris.	20 tab 40 tab 100 tab	Btl " "
39 03 34	Hemorrhoidal Ointment (Piles Ointment)	For internal and external hemorrhoids, bleeding, and anal fistula.	15 grm	Tub
39 03 36	Hemorrhoidal Suppositories	For the relief of discomfort caused by hemorrhoids.	10 pcs	Pkt
39 03 38	Hydro-Chlorothiazide Tablets (Dropsy Tablets)	For the treatment of hypertension and diuresis.	25 mg, 100 tab	Pkt
39 03 40	Hydrogen Peroxide Solution	Serves as a germicide and antiseptic for cuts and abrasions.	500 ml	Btl
39 03 50	Inhalation Mixture (Friar's Balsam) (Benzoin Compound Tincture)	For the treatment of tonsilitis, bronchitis, laryngitis, and sinus conditions.	100 ml	Btl
39 03 52	Insect Repellent, Aerosol	For the prevention of insect bites. One spraying will have a continuous effect for hours. 80 ml in an aerosol tin.	80 ml	Tin
39 03 54	Insecticide Powder	An effective delousing agent.	30 grm	Pkt

(to be continued)

CODE	Descriptions	Virtue	Contents	Unit
39 03 60	Kaolin Poultices	Antiphlogistines for sprains, etc.	200 grm	Pkt
39 03 66	Local Anaesthetic Ointment	For pains from minor cuts and burns, etc.	25 grm	Btl
39 03 67	Pain Relieving Patch	For relief of aches and pains associated with muscle fatigue, muscle pain, stiff shoulder and simple backache, etc.	6.5 x 4.2cm (20's)	Pkt
39 03 68	Local Anaesthetic Spray	An anaesthetic for external use which stops pain and swelling from contusions or minor cuts.	80 grm	Tin
39 03 70	Liquid Laxative (Milk of Magnesium Liquid)	For the relief of constipation.	12 fl-oz	Btl
39 03 72	Milk of Magnesium Tablets	Serves as an antacid and laxative to relieve gastric discomfort.	150 tab	Btl
39 03 78 79	Magnesium Sulphate (Epsom Salt)	Serves to induce vomiting in case of the ingestion of poison.	25 grm 500 grm	Pkt "
39 03 81	Malaria Tablets	For the treatment of malaria.	100 tab	Pkt
39 03 83 84	Mercurochrome Solution	Used as an antiseptic or germicidal agent.	100 ml 500 ml	Btl "
39 03 85 86	Merthiolate Tincture	To wash and disinfect the skin prior to surgery or for the first aid cleaning of a contaminated wound.	250 ml 500 ml	Btl "
39 03 88	Methyl Salicylate Liniment	For rheumatism, neuralgia, and arthritis.	500 ml	Btl
39 03 90	Morphine Injection Controlled Substance	For severe pain after an operation, or for serious wounds. Each ampoule contains 15 mg. 10 ampoules per packet.	15 mg, 10 amp	Pkt
39 03 92	Morphine Tablets Controlled Substance	For headaches, toothaches, lumbago, myalgia, neuralgia, dismenorrhea, traumatic pain, chill, fever, articular pain, muscular pain, etc.	120 tab	Pkt
39 03 94 95 97	Mouthwash "Listerine"	For general oral hygiene and the prevention of bad breath.	12 fl-oz 500 ml 1,000 ml	Btl " "
39 03 96	Mouthwash & Gargle "Astring O-Sol"	A germicidal and antiseptic mouth wash.	4 fl-oz	Btl
39 04 02	Nasal Spray (Nose Drops)	For acute or chronic rhinitis, allergic rhinitis, and sinusitis.	15 ml	Btl
39 04 04	Nikethamide Injections	For the treatment of respiratory trouble.	1 mg, 10 amp	Pkt
39 04 06	Normal Saline Injections	For diseases requiring a nutritional supplement or a heart stimulant. Supplied in 500 ml bottles and furnished with a solution administration set.	500 ml	Btl
39 04 20	Oxy-Tetracycline Capsules	An antibiotic for pneumonia, dysentery, gonorrhoea, pyelitis, tonsillitis, otitis media, and suppurative diseases.	250 mg, 100 caps	Tub
39 04 22	Oxy-Tetracycline Injections	An antibiotic intramuscular solution for gonorrhoea, pneumonia, otitis media, and tonsillitis.	100 mg, 10 amp	Pkt
39 04 24	Oxy-tetracycline Eye Ointment	An antibiotic for superficial infections of the eye and eyelid, including conjunctivitis, uveitis, corneitis, blepharitis, and trachoma.	3.5 grm	Tub
39 04 34	Penicillin Injections	For gonorrhoea, pneumonia, and suppurative diseases. One vial contains 250 mg of oxacillin sodium with 10 vials in a packet.	250 mg, 10 vials	Pkt
39 04 36	Penicillin Ointment	An antibiotic for minor cuts, irritations, and burns.	10 grm	Tub
39 04 38	Penicillin Tablets	For the treatment of perilous wounds, illness, infections, and gonorrhoea. Each tablet contains 200,000 units, 125 mg, 100 tablets in a packet.	200,000 units, 100 tab	Pkt
39 04 42	Phenobarbitone Tablets	A sedative used for epilepsy. Contains 30 mg and 50 tablets in a bottle. Controlled Substance: Patients taking this medication should not drink alcohol.	30 mg, 50 tab	Btl
39 04 44	Potassium Permanganate Capsules	Used to cleanse the mouth and stomach eliminating germs or bacteria which may be present.	50 caps	Btl
39 04 46	Proguanil Hydrochloride Tablets	Used for the prevention of malaria. Contains 100 tablets in a bottle.	100 tab	Btl
39 04 55 56	Salt Tablets	A salt supplement for men working in high temperatures and humidity. These tablets will replenish salts lost from excessive perspiration.	500 tab 1,000 tab	Btl "
39 04 58	Salt Tablets Enteric Coated	Salt tablets with an enteric coating for the protection of the stomach.	750 tab	Btl
39 04 60	Seasickness Tablets	Used for the prevention and treatment of nausea, vomiting, or vertigo related to motion sickness.	100 tab	Btl

(to be continued)

CODE	Descriptions	Virtue	Contents	Unit
39 04 62 63	Sedative (Diazepam) Tablets	A sedative for sleeping. This tablet is required by both WHO and DTI scale I, however, they are different in chemical components as described below. When ordering, specify WHO or DTI.	WHO, 50 mg, 100 tab DTI, 10 mg, 100 tab	Btl "
39 04 66	Sleeping Tablets	A mild sedative used to induce sleep.	100 tab	Btl
39 04 68	S.M.P. (Sulfamethoxypyridazine) Tablets	For chancroid, gonorrhoea, bacillary dysentery, colibacillary diseases, urinary tract infections and surgical suppurative diseases.	100 tab	Btl
39 04 70	Sodium Bicarbonate Powder	To counteract gastric acidity or flatulence. Also used with aspirin to counteract acidity. Will also sooth the burning and irritation of insect bites.	125 grm	Tin
39 04 72	Soft Paraffin (Vaseline)	Acid free Vaseline for use as a soothing dressing for minor skin irritations such as burns, scratches, abrasions, and detergent burns on the hands.	50 grm	Jar
39 04 76	Spirit Soap (Tincture of Iodine)	An excellent skin and scalp cleanser.	500 ml	Btl
39 04 80	Stomach Powder (Indigestion Powder)	For indigestion, hyperacidity, overeating, overdrinking, gastroenteric catarrh and stomachaches.	140 grm	Tin
39 04 82	Stomach Tablets (Indigestion Tablets)	For indigestion, heartburn, overeating and overdrinking.	120 tab	Btl
39 04 84 85	Stomach Pills "Seirogan"	For stomachache, mild or chronic indigestion and other stomach diseases.	250 pills 500 pills	Btl "
39 04 88	Streptomycin Injection	An antibiotic for tuberculosis.	1 grm, 10 vial	Pkt
39 04 90	Sulfa Drug Powder (Antiseptic Powder)	To facilitate the healing of cuts, scratches, abrasions and minor burns.	100 grm	Btl
39 04 92	Sulphaguanidine Tablets	For colds, dysentery, diarrhoea, etc.	100 tab	Pkt
39 04 94	Sulfonamide Tablets	For pneumonia, gonorrhoea, tonsillitis, otitis media and suppurative diseases.	100 tab	Btl
39 05 02	Tetracycline Capsules	An antibiotic for the treatment of pneumonia, gonorrhoea, otitis media, diarrhoea and suppurative diseases. One packet contains one hundred 250 mg capsules.	250 mg, 100 caps	Pkt
39 05 04 05	Tetracycline Ointment (Antibiotic Skin Ointment)	For the treatment of superficial wounds, burns, minor skin irritation and minor cuts. Furnished in 5 grm or 25 grm tubes.	5 grm 25 grm	Tub "
39 05 08	Throat Lozenges (Troches)	For sore throats and coughs due to colds.	24's	Pkt
39 05 10 11	Ticture of Iodine	Use as a disinfectant and germicide to clean minor wounds.	100 ml 500 ml	Btl "
39 05 14	Tooth Anaesthetic (Oil of Clove)	A remedy for toothaches. Contains 30 ml in one bottle.	30 ml	Btl
39 05 16	Topical Analgesic Gels "Ben-Gay"	For muscle aches and minor arthritis pain.	35.5 grm	Tub
39 05 18	Topical Analgesic Ointment "Salomethyl"	For muscular fatigue, stiff joints, contusions, sprains, neuralgia, arthritis, etc.	30 grm	Tub
39 05 20	Topical Analgesic Ointment (Tiger-Balm)	For muscular pain, stiff joints, sprains, contusions neuralgia, rheumatism, etc.	19.4 grm	Jar
39 05 22	Topical Analgesic Spray "Air Salonpas"	For the relief of muscular pain, stiff joints, sprains, bruises, and rheumatism.	120 ml	Tin
39 05 26	Tranquillizer Tablets (Chlorpromazine HCL Tablets)	Provides a sedative effect to ease the symptoms of neurosis, anxiety neurosis, mental tension, and depression. Each tablet contains 50 mg of chlorpromazine hydrochloride.	50 mg, 20 tab	Btl
39 05 40	Vegetable Laxative Tablets (Senna Laxative Tablets)	For the relief of acute and chronic constipation. Furnished 100 tablets in a packet.	100 tab	Pkt
39 05 41 42	Vitamin B1 Tablets	For beriberi, neuralgia, and fatigue.	25 mg, 80 tab 25 mg, 120 tab	Btl "
39 05 44 45	Vitamin C Tablets	For the prevention and treatment of colds.	250 mg. 200 tab 500 mg, 100 tab	Btl "
39 05 48	Vitamin C Tablets "Cebion"	Tablets are taken after being dissolved in water. Effective for the prevention and treatment of colds. Each tablet contains 1,000 mg of ascorbic acid.	1 grm, 10 tab	Btl
39 05 50	Multi Vitamin Tablets	For fatigue, anorexia, anemia, and as a nutritional supplement.	120 tab	Btl
39 05 60 61	Water for Injections	Furnished on 5 ml ampoules.	5 ml x 10 amp 5 ml x 50 amp	Pkt "
39 05 70 71	Zinc Dusting Powder (Talcum Powder)	For soothing irritated skin or heat rashes.	113 grm (4 oz) 255 grm (10 oz)	Tin "
39 05 74	Zinc Ointment	For the soothing and protection of eczema and psoriasis.	100 grm	Jar

Dressings and Medical Instruments & Equipment

Vendajes e Instrumentos Y Equipo Medicos
包帯類、医療器具　敷料和医疗器械

The following is a supplemental items of basic medical supplies and equipment. These items are provided with photographs to make them easy to recognize and compare with the current inventory in the ships medical chest.

Bandages

Vendas　包帯　绷带



Adhesive & Elastic Bandage

Venda Adhesiva y Elástica
伸縮・自着包帯　粘合剂和弹性绷带

Furnished 5 cm width and 4.5 mtr in length.

39 10 01	Bandage, adhesive & elastic 5 cm × 4.5 mtr	Rls
02	" 7.5 cm × 4.5 mtr	"

Crepe Bandages

Vendas de Crepe　弾力包帯　绉布绷带



Available in 5, 7.5 and 10 cm width with 9 mtrs of bandage per roll.

39 10 06	Bandage, crepe　5　cm × 9 mtr	Rls
07	"　7.5　cm × 9 mtr	"
08	"　10　cm × 9 mtr	"

Elastic Bandages

Vendas Elásticas　伸縮包帯　弹性绷带

Available in 5 to 10 cm width with a length of 4.5 mtrs.

39 10 11	Bandage, elastic 5 cm width × 4.5 mtr	Rls
12	" 7.5 cm width × 4.5 mtr	"
13	" 10 cm width × 4.5 mtr	"

Gauze Bandages

Vendas de Gasa　伸縮包帯　纱布绷带



Available in 2.5 to 10 cm width with a length of 9 mtrs. Contains 12 rolls in a packet.

39 10 16	Bandage, gauze　2.5 cm × 9 mtr	Pkt
17	"　5　cm × 9 mtr	"
18	"　7.5 cm × 9 mtr	"
19	"　10　cm × 9 mtr	"

Triangular Bandages

Vendas Triangulares　三角布　三角绷带



One 90 x 105 cm sized bandage furnished per packet.

39 10 22	Bandage, triangular, 90 × 105 cm	Pkt

Tube Gauze Bandages

Vendas de Gasa en Tubo
チューブタイプ包帯　管状纱布绷带



Suitable for wounds on the finger. Furnished in 2.5 cm x 18 mtr rolls. Dressings also available for arm, hand, foot, shoulder, and head fittings.

39 10 26	Bandage, tube gauge, for finger 25 cm × 18 mtr	Pkt

Johnson & Johnson "Band-Aid"

Johnson y Johnson "Tiritas"
ジョンソン "バンドエイド"　强生邦迪



Contains 50 pieces of four assorted sizes per tin. Also available in a tin of 150 bandages of one size. Specify when ordering.

39 10 31	Band-aid　50 pcs, 4 assorted size	Tin
32	Band-aid 150 pcs, 2 × 7.5 cm	Box

Absorbent Cotton

Algodón Absorbente
脱脂綿　脱脂綿



For a variety of uses applying disinfectants or cleaning wounds.

39 10 36	Absorbent cotton,　25 grm	Pkt
37	"　50 grm	"
38	"　100 grm	"
39	"　500 grm	"
39 10 40	Absorbent cotton, compressed 20 grm	Pkt

Cotton Tips *(Applicators)*

Bastoncillos　綿棒　棉棒



Sterilized long double-tip swabs. Contains 75 tips per box.

39 10 44	Cotton tip, (applicator),　75 pcs.	Pkt
45	"　100 pcs.	"

Dressings

Vendas　包帯　绷带类

Adhesive Strip Dressings

Apósitos de Tiras Adhesivas
粘着性包帯　粘性条状敷料



An absorbent strip with adhesive plaster. Furnished with two 6.3 cm x 50 cm sized strips in packet.

39 10 48	Dressing, adhesive strip 6.3 × 50 cm 2's	Pkt

Burn & Wound Dressing, Individual

Apósito para Quemaduras y Heridas, Individual
熱傷・創傷用包帯　烧伤和伤口敷料，单件

Sterile tulle dressing lined with Fradomycin Sulfate.

39 10 51	Dressing, burn & wound, individual, 10 × 10 cm, 10's	Pkt

Burn & Wound Dressing

Apósitos para Quemaduras y Heridas
火傷・創傷用包帯　烧伤和伤口敷料

Sterile, plain gauze evenly lined with yellow paraffin (vaseline). Furnished in a size 15 cm wide and 5 mtr in length. Furnished in a plastic container.

39 10 52	Dressing, burn & wound, 15 cm × 5 mtr	Pkt

Standard Dressings (First Aid/Emergency Dressings)

Apósitos Estándar
(Apósitos de Primeros Auxilios/Emergencia)
救急 / 緊急用包帯
标准敷料（急救 / 紧急敷料）



Contains a gauze pad with a bandage. Able to furnish sizes No. 13 to 15.

Unit Per Pkt

CODE	No.	Description
39 10 56	13	Gauze pad 7.5 × 10 cm & bandage 5 cm × 2.3 mtr
57	14	Gauze pad 10 × 15 cm & bandage 6 cm × 2.7 mtr
58	15	Gauze pad 15 × 20 cm & bandage 7.5 cm × 3.5 mtr

Gauze Pads

Cojincillos de Gasa　ガーゼパット　纱布垫



Ready to cut, sterilized gauze. Packed 10 sheets per packet.

Unit Per Pkt

CODE	Size	CODE	Size
39 10 61	5 × 5 cm	**39 10 63**	10 × 10 cm
62	7.5 × 7.5 cm		

Plain Gauze

Gasa Sencilla　ガーゼ　普通纱布

Absorbent gauze rolls for wrapping open or seething wounds.

39 10 66	Gauze, plain 30 cm × 1 mtr	Pkt
67	" 5 mtr	"
68	" 10 mtr	"

Alcohol Disinfectant Sprays

Aerosoles Desinfectantes con Alcohol
アルコール消毒剤　酒精消毒喷雾剂



Alcohol disinfectant contains a high percentage of alcohol and is used to eliminate bacteria, viruses, and other microorganisms on surfaces, skin, or other objects. Commonly used for medical purposes, but also used in households, offices and other places to sanitize surfaces.

39 10 69	Alcohol disinfectant spray alc. 70% 60 ml	Btl
73	Alcohol disinfectant spray alc. 70% 500 ml	Btl

Alcohol Swabs

Torunda con alcohol
アルコール消毒綿　酒精消毒棉



For preparation of the skin prior to injection, and for first aid to decrease germs in minor cuts, scrapes and burns.

39 10 71	Swab, alcohol, 60 × 30 mm, 100's	Pkt

Anti-Bacterial Wipes

Toallitas Antibacterianas　抗菌シート　抗菌湿巾



Anti-bacterial wipes useful to wipe skin and other objects to clean surfaces. Alcohol-containing products are more effective to clean those surfaces, but non-alcohol type is also available for sensitive skin.

39 10 74	Anti-bacterial disinfectant wipes with alcohol 80's	Pkt
75	Anti-bacterial disinfectant wipes non- alcohol 80's	Pkt

Hand Sanitizers

Desinfectantes de Manos　手指消毒剤　洗手液



Gel type hand sanitizers usually contain alcohol and are used for killing or reducing the number of bacteria, virus, and other microorganisms on the hands. Gel type or liquid types are available.

39 10 78	Hand sanitizer gel type 25 ml Alc. 30%	Btl
79	Hand sanitizer gel type 500 ml Alc. 62%	"
80	Hand sanitizer gel type 500 ml Alc. 75%	"

Jaconets

Telas Impermeables　防水布　防水布



Sterile, waterproof bandage sheets. Furnished in a sheet 80 cm wide and 2 mtrs long.

39 10 72	Jaconet, 80 cm × 2 mtr	Pkt

Absorbent Lint

Gasa Absorbente　リント布　医用纱布



Dressing for wounds. Packed in individual sheets.

39 10 76	Absorbent lint, 15 × 30 cm	Pkt
77	" 30 × 30 cm	"

Adhesive Plaster
(Zinc Oxide Plaster)

Yeso adhesivo 絆創膏 粘合石膏



To protect minor cuts or relieve pain. Furnished in widths of 2.5, 5, and 7.5 cm. Each roll is 5 mtrs in length.

39 10 81	Plaster, adhesive, 2.5 cm × 5 mtr	Rls
82	" 5 cm × 5 mtr	"
83	" 7.5 cm × 5 mtr	"

First Aid Satchels

Maletines para Primeros Auxilios
応急かばん 急救包



Furnishable in accordance with DTI requirements.

Contents

1.	4 pcs	Triangular bandages
2.	6 pcs	Standard dressing, No.8
3.	2 pcs	Standard dressing, No.9
4.	2 pcs	Sterile unmedicated dressing, 28 cm × 17.5 cm
5.	6 pcs	Medium size safety pin
6.	20 pcs	Assorted dressing strips
7.	2 pcs	Sterile eye pads
8.	2 pcs	Sterile cotton wool, 15 grm
9.	5 prs	Disposable polythene gloves

How to order

39 10 92	First aid satchel, conforms to DTI scale IA requirement	Set

Medical Instruments & Eqiupment

Instrumentos y Equipos Médicos
医療機器・設備 医疗仪器和设备

Artificial Airways
(Artificial Respirators)

Respiradores Artificiales
人工呼吸器 人工呼吸器



Facilitates mouth to mouth resuscitation without oral contact.

39 12 01	Artificial Airway "Brook-type"	Pc.

Medical Basins

Palanganas Médicas 洗面器
医用脸盆



A white enameled basin for sterilizing hands, etc. with antiseptic solution. Has 320 mm in diam and 90 mm in depth.

39 12 06	Medical basin, enameled	Pc.

Bedpans

Orinales 洋式便器 床用便盆



Plastic or enamel made bedpan. Used in bed for urination and defecation.

39 12 08	Bedpan	Pc.

Medical Empty Bottles

Frascos para Medicamentos 医療用空瓶 配药瓶

Dispensing Bottles

Botella Dispensadora ディスペンサーボトル 配药瓶



60 ml and 200 ml plastic bottles with a screw on cap.

39 12 10	Bottle, dispensing, medical 60 ml	Pc.
11	" 200 ml	"

Poison Bottles (Medical "Poison" Empty Bottles)

Botellas de Veneno 毒瓶 毒药瓶



Amber coloured, glass bottles with a screw on cap. Furnished in 60 ml bottles.

39 12 14	Bottle, poison, glass, 60 ml	Pc.

Plastic Bottles with Screw Cap

Botellas de Plástico con Tapón de Rosca
スクリューキャップ付きプラスチックボトル
带螺旋盖的塑料瓶



Furnished with a screw on cap to hold liquid samples or test oils safely. Capacity : 500 cc.

39 12 16	Bottle, plastic, 500 cc with screw cap	Pc.

Sample Glass Bottles

Botellas de Vidrio para Muestras
サンプル用ガラス瓶 样品玻璃瓶



Amber coloured, or clear glass bottles with sealable cap for taking liquid or oil sample. Sealable cap can be purchased separately.

Unit Per Btl/Pc.

CODE	Colour	Size (ml)	CODE	Colour	Size (ml)
Sample Bottle			Sealable Cap		
39 12 12	Amber	100	39 12 24	Amber	100
13		250	25		250
15		500	27		500
39 12 17	Clear	100	39 12 29	Clear	100
18		250	31		250
19		500	34		500
21		1,000	35		1,000

Condoms
(Prophylactic Rubbers)
Condones　コンドーム　避孕套

For protection against sexually transmitted diseases and for contraception.

39 12 26	Condom (prophylactic rubber) 12's	Pc.

Containers
Recipientes　容器　容器

Ointment Containers
Recipientes para Pomadas　軟膏容器　药膏容器



For dispensing ointment.

39 12 28	Container, ointment plastic	Pc.

Tablet Containers
Pastilleros　錠剤容器　药片容器

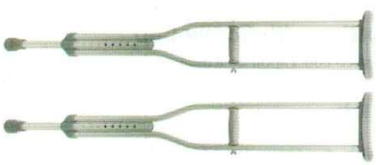


Plastic bottles for holding tablets.

39 12 30	Container, Tablet, plastic	Pc.

Crutches
Muleras　松葉杖　拐杖

The length of these crutches is adjustable and the bottom of the crutches are covered with rubber to prevent slipping.



39 12 32	Crutches	Pr.

Enema Kits
Equipos para Enema
エネマ・キット　灌腸用具包



Stainless steel cylinder with a lid and hanger at the top and rubber tubing at the bottom. Used to inject liquid into the intestine.

39 12 40	Enema kit	Set

Enema Syringes
Jeringas para Enema
エネマ・シリンジ　灌腸注射器



Made of rubber with an overall length of 75 cm.

39 12 42	Enema syringe, rubber	Set

Dispensing Envelopes
Sobres para Medicamentos　投薬袋　分药袋



Furnished in packs of 100 sheets.

39 12 44	Envelope, dispensing, 100's	Pkt

Eye Baths
(Eye Cups)
Lavaoios (Vasos para Ojos)
洗眼コップ　洗眼杯



Plastic cup which withstands boiling. Has a rubber bulb on the side to splash liquids on the eye.

39 12 46	Eye bath with 2 spare bulbs	Set

Eye Droppers
Cuentagotas　点眼器　滴管



Glass tube with rubber bulb.

39 12 48	Eye dropper	Pc.

Eye Patches
(Eye Shades)
Parches para los Ojos　眼帯　眼罩



For covering an infected eye to protect it from foreign particles. Furnished with cleaning pads for the eye and the skin.

39 12 50	Eye patch	Pc.

Fingerstalls (Finger Sacks)
Dedales　指サック　指套



Available in rubber and leather. Can be provided in a variety of sizes. Specify the size required when ordering.

Unit Per Pc.

CODE	Material	Application
39 12 62	Rubber	Specify for which finger
63	Leather	For the thumb
64		For the fingers except the thumb

Forceps
Fórceps　ピンセット　镊子

Dental Packing Forceps
Pinzas Dentales　歯科用ピンセット　牙科包装钳



Made of stainless steel. Overall length is 16 cm.

39 12 66	Forceps, dental packing, stainless steel	Pr.

Hemostatic Forceps

Pinzas Hemostáticas 止血鉗子 止血钳



For stopping blood flow of a severed vessel by clamping it. Made of stainless steel. Overall length is 15 cm.

39 12 67	Forceps, hemostatic, stainless steel	Pr.

Sinus Forceps

Pinzas Sinusales 消息子 鼻窦钳



Made of stainless steel. Overall length is 18 cm.

39 12 68	Forceps, sinus, stainless steel	Pc.

Splinter Forceps (Epilation Forceps)

Pinzas para Astillas 刺抜きピンセット 镊子



For use in surgical operations. Made of stainless steel. Overall length is 13 cm.

39 12 69	Forceps, splinter, stainless steel	Pr.

Dissecting Forceps (Surgical Forceps)

Pinzas de Disección 外科用ピンセット 解剖钳



For use in a surgical operation. Made of stainless steel in a length of 13 cm.

39 12 70	Forceps, dissecting, stainless steel 13 cm	Pr.

Spencer Wells' Forceps

Pinzas Spencer Wells 持針器
斯宾塞－韦尔斯镊子



For holding a suture needle. Made of stainless steel with an overall length of 16 cm.

39 12 71	Forceps, Spencer Wells', stainless steel	Pr.

Gown Disposable for Isolation

Bata Desechable para Aislamiento
医療用使い捨てガウン 一次性隔离衣



Used to protect not only patients, but also yourself from spread of infection or diseases. Typically made of lightweight and breathable materials and providing full coverage and protection from liquid splashes, blood, and other bodily fluids. It is single use and can dispose after each use to minimize the risk of cross-contamination and spread of infections.

39 12 79	Gown disposble for isolation	Pc.

Surgical Gloves

Guantes Quirurgicos
手術用手袋 手术用手套



For use in a surgical operation. Made of rubber.

39 12 80	Gloves, surgical, rubber	Pr.
81	" " disposable	"

Gauze Masks

Mascarillas de Gaza
ガーゼマスク 纱布口罩



To prevent the inhalation of dirt, dust, or foreign particles, and to prevent possible infection of the patient during a surgical procedure.

39 12 82	Mask gauze	Pc.

Air Masks

Mascarilla de aire エアマスク 隐形口罩



Designed for sterilizing and deodorizing the room by just attaching the cloths or hanging on the neck. It contains chlorine dioxide which eliminate the disinfecting bacteria, and effective for 1m³, 99% of germs, bacteria and virus will be removed within 120 minutes. CLO2 will be slowly released and never exceed 0.017ppm, lasting for 1 month. Good personal protection from colds, influenza and pollen etc. FDA Class 1 Registered Disinfectant.

Remark: Not effective in open space on deck, only for indoor use.

39 12 85	Air Masks	Pc.

Hot Water Bottles

Bolsa de Agua Caliente 湯たんぽ 热水瓶



Made of rubber.

39 12 90	Hot water bottle, rubber	Pc.

Ice Bags

Bolsas para Hielo 氷のう 冰包



Screw cap sealed ice bags made of soft rubberized fabric to conform to the shape of the area on which it is applied.

39 12 92	Ice bag, rubber	Pc.

Disposable Hypodermic Syringes *with Needle*

Jeringas Hipodérmica Desechables
使い捨て消毒済注射器 带针头的一次性皮下注射器



Disposable, sterile syringe made of a plastic resin. Furnished with an injection needle.

39 13 10	Syringe, hypodermic, disposable, 2.5 ml w/needle	Set
11	" 5 ml w/needle	"

Disposable Hypodermic Needles

Agujas Hipodérmicas Desechables
使い捨て皮下注射針　一次性皮下注射针头



Sterile, disposable needle packed in a plastic cylinder.

39 13 12	Needle, hypodermic, disposable	Pc.

Kidney Dishes
(Surgical Instrument Trays)

Platos para Riñon (Riñoneras Metálicas)
腰盆　腰盆（外科器械托盘）



Made of stainless steel. Standard size of 210 mm but other sizes are available on request.

39 13 16	Kidney dish, stainless steel, 210 mm	Pc.

Biohazard Bags

Bolsas de Riesgo Biológico
バイオハザードバッグ　生物危害袋



Made with durable materials such as polypropylene or polyethylene, and are also labeled with biohazard symbol and word "BIOHAZARD" or "INFECTIOUS WASTE". Used for safe transportation and disposal for biohazardous items such as used needles, syringes, gloves, gowns and other contaminated materials, and also autoclave sterilizable.

39 13 17	Biohazard Bag (S), 310 x 660 mm	Pc.
18	Biohazard Bag (M), 415 x 600 mm	"
19	Biohazard Bag (L), 610 x 880 mm	"

Medical Labels

Etiquetas　ラベル　标签

Plain Labels

Etiquetas Lisas　白ラベル　普通标签



Furnished 100 sheets in a packet.

39 13 21	Label, plain, 100's/pkt	Pkt

Poison Labels

Etiquetas de veneno　劇薬ラベル　毒药标签



Furnished 50 sheets in a packet.

39 13 22	Label, poison, 50's/pkt	Pkt

Ligature Catgut
(Sutures)

Catgut para Ligatura (Suturas Catgut)
糸付き縫合針（内科用）
内科用绷带肠线



Sterile suture for external and internal stitching. Furnished with a needle.

39 13 24	Ligature catgut	Pkt

Lotion Bowls

Tazones para Loción
ローション・ボール　消毒水盆

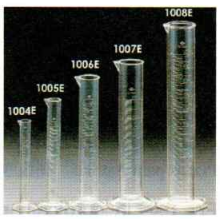


Stainless steel basin used when sterilizing the hands. 230 mm in diameter and 80 mm high.

39 13 26	Lotion bowl, stainless steel	Pc.

Medical Measure Glasses
(Graduated Cylinders)

Vasos Graduados Medicos
(Cilindros Graduados)
計量グラス　医用量杯（量筒）

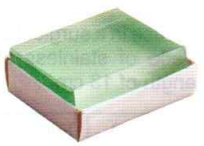


Unit Per Pc.

CODE	Capacity	CODE	Capacity
39 13 31	20 ml	39 13 30	200 ml
32	50 ml	33	500 ml
29	100 ml		

Microscope Slides

Portaobjetos para Microscopio
顕微鏡用載物ガラス　显微镜载玻片



Transparent plain glass.

39 13 34	Microscope slide glass	Pc.

Palette Knives

Cuchillos de Paleta
軟膏ヘラ　刮刀



For dispensing and applying ointments. Stainless steel blade with a wooden handle.

39 13 42	Palette knife	Pc.

Rubber Sheeting for Operation

Sábana de Goma para Operación
防水布　手术用橡皮垫布



Rubber coated water proof sheets.
2 mtr long and 1 mtr wide.

39 13 46	Rubber sheeting for operation 1 × 2 mtr	Sht

Safety Pins

Pasadores de Seguridad　安全ピン　安全针



Safety pins are 5 cm in length and furnished in packets of 12 pcs.

39 13 51	Safety pin, medical, 12's	Pkt

Scalpels

Escalpelos　メス　解剖刀

For use in surgical operations. The blade and handle are ordered separately. Specify the blade number when ordering.



Handle No. 3



Blade No. 10



Blade No. 11

Unit Per Pc.

CODE	Items	CODE	Items
39 13 53	**Handle** No. 3	39 13 55 39 13 56	**Blade** No. 10 No. 11

Medical Scissors

Tijeras　医療用バサミ　剪刀

One-Point & One-Blunt Scissors

Tijeras de una punta y una punta roma
片刃バサミ　単点和単钝剪刀



Stainless steel scissors with one blunt tip and one pointed tip. Overall length is 14.5 cm.

39 13 60	Scissors, one-point & one-blunt, Stainless steel	Pr.

Surgical Scissors

Tijeras Quirúrgicas
外科バサミ　外科手术剪刀



Made of stainless steel with both ends blunt for use in an operation. Overall length is 16 cm.

39 13 61	Scissors, surgical, stainless steel	Pr.

Bandage Scissors

Tijeras Para Vendajes
包带用ハサミ　绷带剪刀



Designed specially to cut bandage without scratching the skin beneath. Stainless steel. Overall length 16 cm.

39 13 62	Scissors, bandage, stainless steel	Pr.

Skin Closures

(Butterfly Closures)

Malla Quirúgica
皮膚接合用絆創膏
蝶形敷料贴



A sterile, waterproof bandage for forming skin closures on superficial lacerations. The bandage has non-adhering film on the center section to prevent the bandage from sticking to the wound. 100 large closures (7 cm x 1.3 cm) in a packet.

39 13 66	Skin closure, 7 × 1.3 cm 100's	Pkt

Sphygmomanometers

Baumanómetros
血圧計　血压计



Mercury filled blood pressure monitor. Measurement range of 0 - 300 mmHg. Enclosed in a hard plastic case.

39 13 68	Sphygmomanometer, mercury	Set

Digital Sphygmomanometers

Esfigmomanómetros digitales
数字血压计　デジタル血圧計





Compact and lightweight, battery operated sphygmomanometer. Power source is two R6P (UM-3 • AA) batteries. The measuring range is 0 – 300 mmHg. The unit is furnished with batteries and is enclosed in a soft leather case.

39 13 69	Sphygmomanometer, digital	Set

Emergency Air Splints

Férulas Neumáticas de Emergencia
应急エア副子　紧急气垫夹板



Made of double-walled transparent vinyl plastic, comfortably shapes itself to the contour of the limb and applies uniform pressure to injured arm or leg. Bone fractures with wounds can be treated at the same time. Completely washable and reusable, and can be sterilized by gas or cold solution.

Set includes; Sprint size S/M/L, Vacuum pump, Sterile gauge size S/M/L and storage bag.

39 13 78	Emergency air splint inflatable, full set	Set

Sterilizers with Alcohol Lamp

Esterilizadores con Lámpara de Alcohol
アルコールランプ付き滅菌器
酒精灯灭菌器



A set comprised of an alcohol lamp, a tripod, and a stainless steel tray with a lid. The tray size is 250 x 85 x 55 mm. Alcohol is not furnished with the lamp.

39 13 84	Sterilizer with alcohol lamp	Set

Electric Steam Sterilizers
(Autoclaves)

Esterilizadores Eléctricos de Vapor
電気式蒸気滅菌器 电力蒸汽消毒器（高压消毒蒸锅）

Portable, high speed steam pressure autoclave suitable for sterilizing and drying dressing materials, gauze and sanitary cotton as well as syringes and hypodermic needles. Stainless steel construction that weighs less than 10 kg. Furnished with a stainless steel standard tray sized 12 x 36 x 4 cm.



Standard Tray

Specification

Chamber Size mm		Outer Size mm			Net Weight
ID	Depth	W	L	H	
150	380	240	460	320	9.2 kg

Unit Per Set

CODE	Electricity	Working Pressure
39 13 86	100 - 110V	1 kgf/cm² - 2 kgf/cm² 121°C - 132°C
87	220V	

Stretchers

Camillas 担架 担架

Both of the stretchers illustrated below, the "Neil Robertson type" or the "Basket Type", can be furnished upon request.



Neil Robertson



Basket

Unit Per Pc.

CODE	Description
39 13 90	Neil Robertson Type
91	Basket Type

Stomach Tubes with Funnel

Tubos para el Estómago con Embudo
胃管用カテーテル 带漏斗的胃管

1.9 mtrs length of rubber tube with rubber funnel.



39 13 94	Stomach tube with funnel	Set

Fully Isolated Rescue Hooks

Gancho de Rescate Totalmente Aislado
感電傷者救助フック
完全隔离式救援钩



Designed for the recovery of patients from a circuit, to use for low voltages up to 1,000 volts. S-shaped single made hook with double arch design to take persons out of the circuit of low voltage lines, machines, etc., by for example pulling on arms, legs, shoulder caves, by the ankle area, etc.

39 13 95	Fully Isolated Rescue Hook	Pc.

Suspensory Bandages
with Understrap

Vendas Suspensoras con Cinta Interna
パンツ式サポーター 悬挂式绷带

Available in a large or medium size.



Unit Per Pc.

CODE	**33 13 96**	**33 13 97**
Size	Medium	Lange

Suture Strips, Non-Stitch

Cintas para Sutura, sin Puntada
サージカル・テープ 非缝合式缝合带

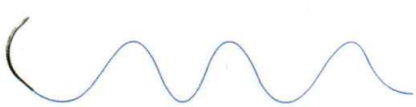
Supplied in packs of 12 rolls.



39 14 02	Suture strip, non-stitch 2.5 cm × 9.1 mtr	Pkt

Sutures with Needle

Suturas con aguja 糸付き縫合針（外科用） 外科用缝针锋线



Silk suture fitted to an eyeless needle for surgical suturing. Vacuum sealed in a sterile packet.

39 14 04	Suture with needle, medium	Pkt
05	" , large	"

Temperature Charts

Diagramas de Temperatura
体温表　体温单

Charts for recording and monitoring measurements of temperature, pulse, and respiration.



39 14 20	Temperature chart	Pc.

Digital Clinical Thermometers

Termómetros Clínicos Digitales
デジタル体温計　数字式临床体温计



Battery operated thermometer graduated in increments of 0.1°C. Furnished with batteries and a protective case.

39 14 24	Thermometer, clinical, digital	Pc.

Tongue Depressors

Depresor　舌压子　压舌板



Wooden tongue depressors with an overall length of 15 cm.

39 14 26	Tongue depressor, wooden	Pc.

Tourniquets

Torniquetes 止血带　止血带



Esmarch type tourniquet for stopping excessive bleeding. Furnished with a rubber bandage and rubber tubing with a chain and hook for securing the ends.

39 14 28	Tourniquet, Esmarch type	Set

Urine Bottles

Frascos para Orina　尿瓶　尿瓶



Made of plastic with a handle attached.

39 14 40	Urine bottle, plastic	Pc.

Urine Test Paper

Papel Reactivo para Orina
尿試験紙　尿试纸



Rapid and convenient reagent strips for determining protein (albumin), glucose (sugar), and chloride (salt) levels in urine.

CODE	Description		Unit
39 14 42	Albumin/Sugar	300's	Btl
43	Albumin	100's	"
44	Sugar	100's	"
45	Salt	60's	Pkt

Test Tubes

Tubos de Ensayo　試験管　試管

Glass tube closed at one end and used for preparation of chemicals, medicines.



39 14 71	Test tube, glass, plain	Pc.
73	Test tube stand for 6 tubes	"
74	Test tube stand for 12 tubes	"

Beakers

Vaso de Precipitados　ビーカー　烧杯

A Cylindrical shaped glass for mixing or heating liquids for laboratory use. Capacity: 2 ltr.



Unit Per Pc.

CODE	Material	Capacity
39 14 76	Plastic	2 ltr
77	Glass	2 ltr

Infrared Digital Thermometers for Medical Use

Termómetros Digitales de Infrarrojos para Uso Médico
医療用非接触型デジタル体温計
医用红外线数字温度计

A medical infrared thermometer for body and surface temperature. Simply point the sensor of infrared thermometer at patient's forehead and will display an accurate temperature within seconds.



39 18 25	Infrared digital thermometer for medical use	Set

Marine Automated External Defibrillator (AED) LIFEFORCE

Desfibrilador Exrerno Automático (DEA) Naval LIFEFORCE
自動体外式除細動器
航海用自動體外除顫儀（AED）LIFEFORCE



Lifeforce is the world's first and only specialist marine Type Approved automated external defibrillator (AED).

Sudden cardiac arrest (SCA) is the world's biggest killer, killing over 3 million people worldwide every year. The only proven way to treat SCA is by delivering an electric shock to the heart to restore a normal heart rhythm. Lifeforce has been designed to be used by non-medically trained crew, with clear verbal and visual instructions and bright, oversized buttons, for the quick, safe and portable delivery of a shock to the heart. Lifeforce automatically detects when a shock is required, ensuring that a shock is only delivered when required.

Lifeforce has been Type Approved by Germanischer Lloyd (GL) and tested to prove its reliability in accordance with electromagnetic compatibility, humidity, pressure, radio frequency interference, saline mist, temperature and vibration. Lifeforce is manufactured under ISO 13485:2003, cleared by the FDA and CE marked to the Medical Devices Directive 93/42/EEC and supported by a 5 year warranty.

39 15 01	Marine automated external defibrillator "LIFEFORCE"	Set

Name of Mfr.: Martek Marine Ltd.

Glucometers

Glucómetros
血糖値測定器
血糖仪



A measuring device to determine the concentration of glucose in the blood, obtained by pricking the skin with a lancet (Capillary blood sampling device).

39 15 02	Glucometer with blood sampling device	Set

Antigen/COVID-19 Rapid Test Kit

Kit de prueba rápida de antígeno/COVID-19
抗原検査キット　抗原 /COVID-19 快速检测试剂盒

An antigen rapid test kit is used to detect the presence of antigen such as covid-19, flu and other viral antigen in a person's body.
It usually involves taking a sample from person's body with a nasal or throat swab, and places on a test strip or in a test cartridge to detect antigens in the body. It usually comes up with visible signal such as a color change to indicate positive result.

Relatively lower cost and quicker result, but less accurate than PCR test.

CODE	Size mm	Unit
39 15 03	Antigen Test Kit Self-Saliva Testing type	Set
04	COVID-19 Test Kit	Pc.
05	COVID-19 Test Kit 2's	Pkt
06	COVID-19 Test Kit 5's	Pkt
07	COVID-19 Test Kit 20's	Box

Publications

Publicaciones　出版物　出版物

Each of the following publications is required on vessels without a doctor on board by the WHO or DTI regulations.

Unit Per Vol

CODE	Type
37 06 74	International Medical Guide for Ships
75	Merchant Shipping Medical Scale
76	Ships Captain Medical Guide
77	Supplement for Ship Captain's Medical Guide

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We want to help you operate efficiently - www.marinestoresguide.com

Supporting your professional career with education and training
We partner with leading industry bodies - www.impa-education.com

Bringing the industry together to learn, network and debate
We organise world-leading maritime events - www.impaevents.com

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Petroleum Products

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Gasoline
(Petrol)
Gasolina ガソリン 汽油



Regular car gasoline which can be used to fuel torches, lifeboat and machinery engines, or can be used for cleaning paint and other general purposes.

45 01 01	Gasoline,	4 ltr	Can
02	"	18 ltr	"
03	"	200 ltr	Drum

Kerosene
(Paraffin Oil)
Keroseno 白灯油 煤油



Regular kerosene for use with stoves, torches, or as a paint thinner or cleaning agent for machinery parts or tools. Supplied in containers of 4 or 18 ltr, or in 200 ltr drums.

45 01 06	Kerosene,	4 ltr	Can
07	"	18 ltr	"
08	"	200 ltr	Drum

Diesel Oil
(Gas Oil/Light Engine Oil)
Diesel 軽油 柴油



A light engine oil or gas oil for use in diesel engines, generators, or for cleaning machinery and parts.

45 01 11	Diesel oil,	4 ltr	Can
12	"	18 ltr	"
13	"	200 ltr	Drum

Cutting Oil
Aeite para Corte 切削油 切削油

Quality special purpose oil that cools, speeds metal removal, produces smooth, clean threads, and prevents chips from welding to dies. Will not become rancid and is excellent for drilling, turning, and other cutting operations. Can be used to prolong the life of handtools or power tools.
Non-water soluble type for finishing will be supplied unless specified otherwise. Water soluble oil is also available upon request.

45 01 15	Cutting oil, spray, 350 ml	Can
16	Cutting oil, non-water soluble, 4 ltr	"
17	Cutting oil, non-water soluble, 18 ltr	"

Penetrating Oil
Aceite Penetrante 浸透油 渗透（润滑）油

1. A rapid penetrating and rust solvent for removing rusty nuts and for piping repair jobs.
2. A practical, all-purpose oil used as an additive to engine lubricating oil and fuel.
3. For use in wire cable treatment.

45 01 21	Penetrating oil	4 ltr	Can
22	"	18 ltr	"

White Spirit
(White Gasoline)
Aguarrás ホワイトスピリット 石油溶剤油（无铅汽油）



Commonly known as white gasoline, used as a high quality paint thinner. Furnished in containers of 4 ltr, 18 ltr, or 200 ltr large drums.

45 01 26	White spirit	4 ltr	Can
27	"	18 ltr	"
28	"	200 ltr	Drum

Rust Preventives
Desoxidante 防錆油 防锈剂（油）

For preventing parts, machinery, or tanks from rusting. Displaces and seals out moisture with a dry transparent coating. Products from a variety of global manufacturers are listed in the order table below. To order, **select the code number for Rust Preventives and indicate the brand you require separately.**

CODE	Brand	Product	Unit
45 02 11	ENEOS	Antirust Terami LS-PH	20 ltr/Can
45 02 16	Mobil	Mobilarma 778	20 ltr/Drum
17		Mobilarma 798	20 ltr/Drum
18		Mobilarma 245	250 ltr/Can
45 02 20	B.P./Castrol	Rustilo DW 330	ltr
	Chevron/Caltex	Rustproof Compound L	18 kg/can

Hydraulic Fluid
Líquido Hidraulico/Líquido para Aparatos Hidráulicos
油圧作動油 液压机液体

Suitable for use as a lubricant for high speed hydraulic tool machines. Oils of viscosity grade 5 - 10 are known as spindle oils which resist emulsion, sludge formation, oxidation, and foaming. When ordering from the table below, **select a code for the grade of oil which you require. Along with the code number, please specify the brand which you require**.

Unit Per Ltr

CODE	**45 02 21**	**45 02 22**	**45 02 23**
Grade	15.5 mm^2/s	32.5 mm^2/s	46.7 mm^2/s
Shell	Tellus S2 VX 15	Tellus S2 VX 32	**45 02 36** Tellus S2 VX 46 (20 ltr)
Mobil	**45 02 54** Mobil DTE 10, Excel 15, (20 ltr)	**45 02 55** Mobil DTE10, Excel 32, (20 ltr)	Mobil DTE 10 Excel 46
ENEOS	Super Hyrando 22	Super Hyrando 32	Super Hyrando 46
B.P./ Castrol	Bartran HV 15 or Castrol Hyspin AWS 22	Bartran HV 32 or Castrol Hyspin AWS 32	Bartran HV 46 or Castrol Hyspin AWS 46
Chevron/ Caltex	-	Chevron Hydraulic Oil AW 32 or Clarity Hydraulic Oils AW 32	Chevron Hydraulic Oil AW 46 or Clarity Hydraulic Oils AW 46

(to be continued)

Unit Per Ltr

CODE	45 02 24	45 02 25	45 02 26
Grade	68.5 mm²/s	102 mm²/s	153 mm²/s
Shell	Tellus S2 VX 68	Tellus S2 VX 100	-
Mobil	Mobil DTE 10 Excel 68	Mobil DTE 10 Excel 100	Mobil DTE 10 Excel 150
ENEOS	Super Hyrando 68	Super Hyrando 100	Super Hyrando 150
B.P./ Castrol	Bartran HV 68 or Castrol Hyspin AWS 68	Bartran HV 100 or Castrol Hyspin AWS 100	Bartran HV 150 or Castrol Hyspin AWS 150
Chevron/ Caltex	Chevron AW 68 or Clarity AW 68	Clarity AW 100	-

Hydraulic Fluids —Viscosity mm²/s at 40°C

Refrigerating Machine Oil

Aceite para Máquina Refrigerante　冷凍機油　制冷机油

Oil for the lubrication of bearings and crankshaft of the compressor setup for cargo refrigeration systems. These lubricants have the correct viscosity, film strength and stability, both chemical and thermal for the operating conditions. The oils are compatible with refrigerants. Straight mineral elements with additives to prevent foaming and inhibit against chemical action with refrigerants and system metals. When ordering, **select a code number for the appropriate grade of oil and indicate the brand require**.

Unit Per Ltr

CODE	45 02 75	45 02 76	45 02 77
Grade	30.4 mm²/s	49.2 mm²/s	64.0 mm²/s
Shell	**45 02 61** S4 FR-F 32, (20 ltr)	-	**45 02 63** S4 FR-F 68, (20 ltr)
Mobil	**45 02 71** Gargoyle Arctic 155 (20 ltr) or **45 02 78** EAL Arctic 32 (20 ltr)	**45 02 72** Gargoyle Arctic C Heavy (20 ltr) or **45 02 79** EAL Arctic 46 (20 ltr)	Gargoyle Arctic 300 (20 ltr) or **45 02 80** EAL Arctic 68 (20 ltr)
ENEOS	**45 02 66** Atmos 32(N) (20 ltr)	Atmos 46(N)	Atmos 68(N)
B.P./ Castrol	Energol LPT 32 or Aircol LPT 32	Energol LPT 46 or Aircol LPT 46	Energol LPT 68 or Aircol LPT 68
Chevron/ Caltex	Capella Oil WF 32	-	Capella Oil WF 68

Machine Oil

Aceite para Máquina　マシンオイル　机械油

Viscosity grade 46 or 56 machine oils suitable for use as a general industrial lubricant. Available in various sized containers. Please specify the volume required when ordering.

45 03 01	Machine Oil	100 ml	Can
02	"	1 ltr	"
03	"	18 ltr	"

Note: VG (Viscosity Grade) 5 ~ 10 - Spindle Oil
VG (Viscosity Grade) 46 ~ 56 - Machine Oil
VG (Viscosity Grade) 150 and over - Gear Oil

Liquid Paraffin

(White Oil)

Aceite Mineral (Parafina Líquida)
流動パラフィン（精密機械油）　液体石蜡

So-called white oil or sewing machine oil suitable for precision machine lubricants. Specify size of container.

45 03 11	Liquid paraffin	500 cc	Can
12	"	100 cc	"
13	"	280 cc	"
14	"	4 ltr	"

Brake Fluid

Líquido para Frenos　ブレーキ油　制动液

For hydraulic break and clutch systems requiring heavy duty synthetic hydraulic fluids.

45 03 16	Brake fluid,	500 cc	Can
17	"	1 ltr	"
18	"	4 ltr	"

Anti-freeze Liquid

Líquido Anti-congelante　不凍液　防冻液

Liquid additives for lowering the freezing point of oil.

Unit Per Can

CODE	Contents	CODE	Contents
45 03 25	4 ltr	**45 03 26**	18 ltr

Turpentine

Trementina　ターペンタイン（テレビン油）　沥青

For thinning paints, varnishes. Available in 4 and 18 ltr containers or 200 ltr drums.

25 14 61	Turpentine,	4 ltr	Can
62	"	18 ltr	"
63	"	200 ltr	Drum

Fish Oil

Aceite de Pesfado　魚油　鱼油

Oil compound for cleaning and preserving decks, scaling down rust, and slushing wire rope, anchor chains and other deck equipment. Furnished in 18 ltr square cans or 200 ltr drums.

25 14 66	Fish Oil	18 ltr	Can
67	"	200 ltr	Drum

Multipurpose Grease

Grasa Multi-usos　万能グリース　多功能黄油

For the lubrication and protection of almost all kinds of gears and a variety of other uses. Listed below are some products from a variety of global manufacturers. Select the grade and brand of grease that you require from the table below. When ordering, **select a code number for the appropriate grade and specify the required brand.**

Unit Per Kgs.

CODE	45 01 55	45 01 56	45 01 57
Grade	NLGI No. 1	NLGI No. 2	NLGI No. 3
Shell	**45 01 41** Gadus S2 V100 1 (16 kg)	**45 01 42** Gadus S2 V100 2 (16 kg)	**45 01 43** Gadus S2 V100 3 (16 kg)
Mobil	Mobilux EP1	**45 01 52** Mobilux EP2 (18 kg)	Mobilux EP3
ENEOS	**45 01 46** Toughlix Grease MP1 (16 kg)	**45 01 47** Toughlix Grease MP2 (16 kg)	-
B.P.	Energrease LS-EP 1	Energrease LS-EP 2	Energrease LS-EP 3
Chevron/ Caltex	-	Marfak Multipurpose 2	Marfak Multipurpose 3

Note: NLGI denotes National Lubricating Grease Institute (U.S.A.)

Extreme Pressure Grease

Grasa de Presión Extrema　極圧万能グリース　（耐）特圧潤滑脂

Lithium based, multipurpose grease with corrosion and oxidation inhibitors and an extreme pressure additive. Similar products are listed below from a variety of global manufacturers. Products from other manufacturers may be available upon request. When ordering, **select a code number for the appropriate grade and specify the brand required.**

Unit Per Kgs.

CODE	45 01 75	45 01 76	45 01 77
Grade	NLGI 0	NLGI 1	NLGI 3
Shell	**45 01 61** Gadus S2 V220 1 (16 kg)	**45 01 62** Gadus S2 V220 2 (16 kg)	**45 01 63** Gadus S2 V220 3 (16 kg)
Mobil	Mobilux EP-0	**45 01 71** Mobilux EP-1 (16 kg)	**45 01 72** Mobilux EP 3 (16 kg)
ENEOS	**45 01 66** Epnoc Grease AP(N)0 (16 kg)	**45 01 67** Epnoc Grease AP(N)1 (16 kg)	**45 01 68** Epnoc Grease AP(N)3 (16 kg)
B.P.	Energrease SY 4600	Energrease SY-1501	-
Chevron	Multifak EP0	Multifak EP1	-

Note: NLGI denotes National Lubricating Grease Institute (U.S.A.)

Gear Grease

Grasa para Engranajes　ギア・グリース　齿轮润滑脂

High-viscosity, residual type lubricants recommended principally for open gears and other applications where an adhesive product is required, e.g. wire rope. A variety of products are listed in the order table below. When ordering, **select a code number for the appropriate grade and specify the brand required**.

Unit Per Kgs.

CODE	45 01 94	45 01 95	45 01 96
Grade	NLGI No. 0	NLGI No. 1	NLGI No. 2
Shell	Gadus S2 OGH 0	-	-
Mobil		Mobiltac MM	Mobiltac QQ
Chevron	Open Gear Grease	-	-
Caltex	Crater 2X	-	-

Note: NLGI denotes National Lubricating Grease Institute (U.S.A.)

Low Temperature Grease

Grasa para Baja Temperatura　低温グリース　低温润滑剂

Antifreeze grease suitable for ball and roller bearings and especially sealed bearings for use in very low temperatures. Supplied in 16 kg cans. Please specify the maker and the product name which you require.

45 03 21	Grease, low temperature 16 kg	Can

Cup Grease

Grasa (Gruesa) para Copa de Engrase　カップグリース　粘稠润滑油

A thick grease used for the lubrication of couplings, shafts, and gears which operate at low speed revolution. This product is not recommended for use with high load gears or in high temperature environments. Supplied in 2.5 or 16 kg cans with a spring shaft dispenser.

45 03 31	Grease, cup, 2.5 kg	Can
32	" 16 kg	"

Bearing Grease

Grasa para Rodamientos　ベアリンググリース　轴承润滑脂

Smooth, non-fibrous grease with high oil content to assure lubrication and smooth starting and running torque. Suitable for general service and has a high resistance to moisture. Furnished in 2.5 and 16 kg cans.

45 03 36	Grease, bearing, 2.5 kg	Can
37	" 16 kg	"

Wire Rope Grease

Grasa para Cables de Acero　ワイヤーグリース　钢索润滑脂

A non-gumming, anticorrosive petroleum lubricant which will penetrate inside of wire rope to prevent corrosion from fresh water, salt water, and other elements.

45 03 41	Grease, wire rope, 16 kg	Can

Biodegradable Products (EAL)

Compliance of US EPA VGP 2013/VIDA

Productos Biodegradables (EAL)
Cumplimiento de US EPA VGP 2013/VIDA
生分解性グリース・潤滑油 (VGP2013/VIDA 適合)
生物降解润滑脂和润滑剂（符合 VGP2013/VIDA 标准）

U.S. Environmental Protection Agency (EPA) issued the Vessel General Permit (VGP), with an effective date of 19th December, 2013, and will officially implement VIDA (Vessel Incidental Discharge Act) which was signed on December, 2018. Under the VIDA, EPA will work together closely with USCG to develop the standards and regulations for incidental discharges, primarily from commercial vessels. VIDA will apply to non-recreational, non-armed forces vessels that are 79 feet in length and above, and apply in waters of the US, extending out 12 miles from shore. Currently VGP 2013 is still in effect until VIDA will be officially implemented.

VGP 2013 continues to require that all vessels must use environmentally acceptable lubricants (EALs) in all oil-to-sea interfaces (stern tubes, thrusters, controllable pitch propeller,

rudder stocks and pintle bearing), unless technically infeasible.

In VIDA, oil-to-sea interfaces fall under "Oil Management" in General Standards and have been covered in great detail. In addition to those described interfaces in VGP, interfaces will be from any equipment seals or surfaces where the design is such that small quantities of oil can escape into the surrounding sea during normal vessel operations, which will include on-deck equipment such as hose handling, cranes, hydraulic system provision cranes, hydraulic cranes, and hydraulic stern ramps.

Although the guidance regarding equivalent overseas programs that certify biodegradable lubricants will be removed, it is expected that manufacturers will continue to provide EALs that they certify to be biodegradable, minimally-toxic and non-bioaccumulative.

Please see the definition of terms in VGP 2013 Appendix A.

Appendix A– Definitions

"Biodegradable" means the following for purposes of the VGP:

- Regarding environmentally acceptable lubricants and greases, biodegradable means lubricant formulations that contain at least 90% (w/w (weight in weight concentration)) or grease formulations that contain at least 75% (w/w) of a constituent substance or constituent substances (only stated substances present above 0.10% shall be assessed) that each demonstrate either the removal of at least 70 percent of dissolved organic carbon, production of at least 60 percent of the theoretical carbon dioxide, or consumption of at least 60 percent of the theoretical oxygen demand within 28 days. Acceptable test methods include : Organization for Economic Co-operation and Development Test Guidelines 301 A-F, 306, and 310, ASTM 5864, ASTM D-7373, OCSPP Harmonized Guideline 835.3110, and International Organization for Standardization 14593:1999. For lubricant formulations, the 10% (w/w) of the formulation that need not meet the above biodegradability requirements, up to 5% (w/w) may be nonbiodegradable (but not bioaccumulative) while the remainder mut be inherently biodegradable. For grease formulations, the 25% (w/w) of the formulation that need not meet the above biodegradability requirement, the constituent substances may be either inherently biodegradable or non-biodegradable, but may not be bioaccumulative. Acceptable test methods to demonstrate inherent biodegradability include: OECD Test Guidelines 302C (>70% biodegradation after 28 days) or OECD Test Guidelines 301 A-F (>20% but <60% biodegradation after 28 days).
- Regarding cleaning products, biodegradable means products that demonstrate either the removal of at least 70 percent of dissolved organic carbon, production of at least 60 percent of the theoretical carbon dioxide, or consumption of at least 60 percent of the theoretical oxygen demand within 28 days. Acceptable test methods include: Organization for Economic Co-operation and Development Test Guidelines 301 A-F, 306, and 310, and International Organization for Standardization 14593:1999.

Biodegradable Multi-Purpose Grease

Grasa biodegradable multiusos
生分解性汎用グリース
生物可降解多用途润滑脂



Heavy duty and multi-purpose grease containing proprietary EP additive to combat against seizing, galling of bearings and rust. It protects bearings wear through outstanding film strength under severe conditions of shock loading. Resists water wash-out from bearings under the most arduous conditions and provides long service life through high oxidation resistance.

NLGI Grade: 2, EAL and EPA / VGP Compliance product.

45 01 60	Multi-Purpose Grease, Biodegradable, 450 grm per can(24 cans per carton)	C/T

Biodegradable Wire Rope Grease

Grasa biodegradable de cable de acero
生分解性ワイヤーロープグリース
生物可降解钢丝绳润滑脂



A wire rope conditioner & lubricant that exhibits excellent lubrication and anti-corrosion properties. Specially developed as environmentally friendly biodegradable grease as VGP compliance, minimally toxic and non-bioaccumulative. It is used whenever protection against rust and/or lubrication is needed: Wire ropes, Crane wires, Winches, Mooring wires, Lifeboat-davits falls, Derricks, Open gears shackles, Backsprings, Tankcover-screws, Hoists, Lashings, Hatch-cover wheels, Valves, Bearings, Screws & bolts, etc.

Unit Per Can

CODE	Contents ltr	CODE	Contents ltr
45 03 42	20	**45 03 43**	200

Environmentally Acceptable Lubricants (EAL)

Lubricantes ecológicos　生分解性潤滑油　生物可降解润滑油

High performance, specially developed rapidly biodegradable lubricants for use in all oil-to-sea interferences such as stern tubes, thrusters and rudder systems, pitch propeller etc. There are many brands of EAL available as VGP compliance, but adoption of EAL will depend on the approval by each machinery manufactures.

Please make sure to specify the EAL brand which is accepted by machinery maker when ordering.

Unit Per Ltr

CODE	Description	Application
45 03 45	Stern Tube Oil	For Stern Tube Seal
48	Wire Rope Oil	For mooring wire, deck crane wire, cables, drive and conveyor chains
49	Hydraulic Oil	For hydraulic systems, bow thrusters and rudder systems, winches and hydraulic pitch adjusters
50	Gear Oil	For gear boxes, roller bearings and slide bearings

Comparison Table of Biodegradable Grease (EAL)
(Compliance of US EPA Vessel General Permit 2013)

Application \ Maker	Teho Rope (Singapore)	Panolin (Swiss)	LUKOIL	Shell
Wire Rope Grease **CODE 45 03 42 (20 ltr)** **CODE 45 03 43 (200 ltr)**	**Biolubri Greasekote 100** A canola based wire rope conditioner and lubricant providing excellent lubrication and rust protection. It meets requirements according to Swedish Standard SS 155470. Biodegradability is >60% within 28 days according to OECD 301B. Viscosity NLGI Grade: 2	**BIOGREASE LL EP2** Lithium soap based synthetic multipurpose grease, ultimately biodegradable, good mechanical stability, high oxidation stability, good anti-wear and anti-corrosion behavior. Biodegradability is >60% within 28 days according to OECD 301B. KPE 2 K-30 in DIN 51'502 standard	**PLANTOGEL 2S** Synthetic Ester based grease, excellent performance on wire ropes. NLGI Grade 2, approved DIN 51 502:KPE 2 K-40 OG2 K-40 **NAVIGREASE BIO 2** Lithium thicker and synthetic ester based grease, suitable for wide range of deck and engine applications. NLGI Grade 2, approved DIN 51 502:KPE 2 K-30 OG2 K-30	**Naturelle S2 Lubricant A** Formulated with renewable base fluids and contains a select blend of additives for corrosion resistance and high load carrying performance. High resistance to water wash off. Biodegradability is >60% within 28 days according to OECD 301B.

Comparison Table of Biodegradable Oil
(Compliance of US EPA Vessel General Permit 2013)

Description \ Maker		Panolin(Swiss)	LUKOIL	SHELL	Exxon Mobil
Stern Tube Seals **CODE 45 03 45**	Brand	**Stella Maris 100**	**PLANTOGEAR 100S**	**Naturelle S4**	**Mobil SHC Aware ST100/220**
	Base Oil	Fully Saturated Synthetic Ester	Fully Saturated Synthetic Ester	Fully Saturated Ester	Synthetic
	Biodegradability (OECD 301B)	> 60%	-	> 60%	> 60%
	Viscosity	96.5 mm^2/s (40°C)	94 mm^2/s (40°C)	137 (ISO2909)	100/220
	Standard	ABS/ European Eco-Label-Category 3	EU Eco-Label, DIN51 517-3(CLP), ISO12925-1: CKC/CKD/CKE .	ISO 3448 VG100 Ecolabel license DE/027/134	US EPA 2013 VGP
Wire Rope Oil **CODE 45 03 48**	Brand	**Biotrack E**	-	-	-
	Base Oil	ECL(Environmentally Considerate Lubricant)	-	-	-
	Biodegradability (OECD 301B)	> 60%	-	-	-
	Viscosity	-	-	-	-
	Standard	-	-	-	-
Hydraulic Oil **CODE 45 03 49**	Brand	**HLP Synth 46**	**PLANTOSYN HVI**	**Naturelle HF-E46**	**Mobil SHC Aware H32/46/68**
	Base Oil	Fully Saturated Synthetic ester basis with special additives	Fully Saturated Synthetic Ester	Unsaturated Ester	Formulated Ester Base
	Biodegradability (OECD 301B)	> 60%	> 60%	> 60%	> 60%
	Viscosity	46.7 mm^2/s (40°C)	148 (DIN ISO2909)	188 (ISO2909)	32/46/68(40 °C)
	Standard	ABS/German Blue Angel	EU Eco-Label, DIN 51 517-3(CLP), ISO12925-1: CKC/CKD/CKE	EU Eco-label, Swedish Standard SS 15 54 34, SP listed. ISO 15380 HEES	US EPA 2013 VGP

Description	Maker	Panolin(Swiss)	LUKOIL	SHELL	Exxon Mobil
Gear Oil CODE 45 03 50	Brand	EP Gear Synth 100	PLANTOGEAR 100S	Naturelle S4 Gear Fluid	Mobil SHC Aware Gear 100
	Base Oil	Fully Saturated Synthetic high performance Oil	Fully Saturated Synthetic Ester	Fully Saturated Ester	-
	Biodegradability (OECD 301B)	> 60%	-	> 60%	84% (OECD301 B)
	Viscosity	100 mm^2 (40°C)	94 mm^2 (40°C)	Grade 68, 100, 150	100
	Standard	DIN 51'517/CLP, FZG Test A 16.6/140 load stage 12	EU Eco-Label, DIN51 517-3(CLP), ISO12925-1:CKC/CKD/CKE	DIN 51517/3 CLP-E, pass the FZG load test above load stage 13 according to ISO 14635 A20	US EPA 2013 VGP, AGMA 9005-E02-EP, ISO 12925-1 1996, ISO-L-CKC, ISO 12925-1 1996, ISO-L-CKD

Remark: **The adoption of biodegradable Oil is determined by approval of each machinery manufacturers. Please make sure the types of oil approved by each machinery manufacturer when ordering.**

Graphite Grease

Geasa Grafitada グラファイトグリース 石墨润滑脂

A grease with the adhesive consistency particularly suitable for use on machine gears and bearings which are exposed to weather elements or high temperatures. This grease is also effective for lubricating and preserving wire rope.

45 03 46	Grease, graphite	2.5 kg	Can
47	"	16 kg	"

Asphalt Compounds

Compuestos asfálticos アスファルト 沥青混合料

Asphalt often used as a protective, waterproof coating on deck. When dry this asphalt has a non-slip, glossy black surface. Supplied in 18 kg cans.

45 03 51	Asphalt compound, 18 kg	Can

Coal Tar

Alquitán de Hulla, Brea Mineral コールタール 煤焦油

Used as a protective coating on deck for the prevention of rust and for the waterproofing of pipes and other fixtures. Supplied in 16 kg cans.

45 03 56	Coal tar, 16 kg	Can

Pitch

Brea ピッチ 沥青

Black bituminous putty which bonds to any material surface, wood, metal, brick, concrete, glass, etc. Contained in 18 kg square cans.

45 03 61	Pitch, 18 kg	Can

Tallow

Sebo 牛脂 牛脂

A grease derived from cow fat which has a thick consistency. Used for lubricating, wire rigging, etc.

45 03 71	Tallow, 16 kg	Can

Ferryl Anticorrosive Grease

Grasa Anti-corrosiva Ferryl フェリルグリース 铁器防腐蚀油



The Ferryl anticorrosive product range relies on chemical properties for the best possible results in rust prevention and lubrication. The special rust-inhibitors in the Ferryl greases, oils and coatings enable long-lasting rust protection at a low cost.

Ferryl 202 Standard Anticorrosive Grease features excellent penetration and lubrication, a high melting point, and special adhesive properties due to its rubberised binders and semi-drying film, such that the grease is resistant to high winds and seawater. The grease is excellent for all running gear and wires, crane wires, mooring wires, lifeboat falls, back springs, inside bearings on hatch cover wheels, valves, shackles, spring wire, screws, and bolts.

The Ferryl product range is provided in the order table below.

CODE	Product No./Unit	Application
45 04 01	Ferryl 101 Anticorrosive Oil 25 ltr/drum	Rust-protection and lubrication of wire ropes. Oil with enhanced penetration into wire. Specially designed for cold-climate use and fast-moving wires. Can be mixed with Ferryl 202 Standard Anticorrosive Grease.
45 04 02	Ferryl 103 Anticorrosive Drying Oil 25 ltr/drum	Drying oil. Forms water resistance film for short or long-term rust protection of metal (spare parts, machine parts, chains, propeller shafts).
45 04 03	Ferryl 202 Standard Anticorrosive Grease 25 kg/drum	Rust-protection and lubrication of wire ropes. Properties: penetration into wire, high melting point (70°C), rust inhibition, adhesion (binds to wire), semi-drying film, lubrication. For use in all climates.
45 04 04	Ferryl 202 S Anticorrosive Grease 25 kg/drum	Rust-protection and lubrication of wire ropes. Properties: penetration into wire, high melting point (80°C), rust inhibition, adhesion (binds to wire), semi-drying film, lubrication. For use in all climates.

(to be continued)

CODE	Product No./Unit	Application
45 04 05	Ferryl 202 White Anticorrosive Grease 30 kg/drum	Rust-protection and lubrication of wire ropes. White in colour. Properties: penetration into wire, high melting point (100°C), rust inhibition, adhesion (binds to wire), semi-drying film, lubrication. For use in all climates.
45 04 06	Ferryl 202 Aluminium Anticorrosive Grease 30 kg/drum	Rust-protection and lubrication of hatchcover rails, crane rails, container lashings, tank cover screws & bolts. Aluminium-coloured, non-cracking 'grease paint' with excellent coverage and sea-water resistance.
45 04 11	Ferryl 400R Anticorrosive White Coating 12 kg/drum (See sec 25)	One-component product applied like paint. Flexible, non-cracking plastic-like coating. Used on non-rotating wires, standing rigging, rubber insulated electrical cables and (hydraulic) hoses.
45 04 12	Ferryl 401 Anticorrosive Transparent Coating 1 kg/tin (See Sec 25)	One-component product applied like paint. Flexible, non-cracking, plastic-like coating. For preservation of metals' original colour (steel, brass, bronze, copper). Also used as a wood varnish.
45 04 13	Ferryl 404 Dilution & Cleaning Liquid 10 ltr/drum (See Sec 25)	Solvent for cleaning and dilution of the Ferryl coatings. Used as a general thinner.
45 04 17	Ferryl 502 Anticorrosive Fluorescent Coating 1 kg/tin (See Sec 25)	One-component product applied like paint. Fluorescent orange-red colour. Flexible, non-cracking, plastic-like coating. Used for safety applications. (life-saving equipment, warnings, bridge, low beams / steps).
45 04 15	Ferryl 505 Anticorrosive Fluorescent Coating 1 kg/tin (See Sec 25)	One-component product applied like paint. Fluorescent yellow colour. Flexible, non-cracking, plastic-like coating. Used for high visibility marking applications (stairs, walkways, zone markings).
45 04 19	Ferryl Armacit Pipe Sealant 150 grm/tube (See Sec 81)	Paste-like packing that dries hard for permanent sealing of threaded pipes and flanges. Resistant to oil, petrol, most gases. Temperature and pressure-resistant.
45 04 20 22	Ferryl Rustoil Penetrating Oil 450 ml/spray can 10 ltr/drum	Pre-treatment of wire ropes: penetrates into core of wires to remove rust and moisture. Releases rust and hardened grease/oil from bolts, flanges, machine parts.
45 04 23	Ferrycid Rustremover 25 ltr/drum (See Sec 55)	Efficient removal of light and heavy rust on steel, cleaning of (wooden) decks, rust stain removal on painted surfaces, removal of limescale and cement.
45 04 24	Ferryl Cleaning Fluid Oil & Grease Remover 25 ltr/drum (See Sec 55)	Water-soluble, emulsifying, solvent-based degreaser. Removes light and heavy deposits of oil and grease on decks, engine parts, oil preheaters, tools.
45 04 26 32	Ferryl Fermaid Alkaline Cleaning Liquid 25 ltr/drum 1 ltr/bottle (See Sec 55)	Alkaline cleaning liquid concentrate for general cleaning and light degreasing of decks, containers/ chambers, refrigerators, fishing vessels.
45 04 28 27	Ferryl Electroclean 450 ml/spray can 25 ltr/drum (See Sec 55)	Safe cleaning liquid with a high flash point and quick evaporation for cleaning of electrical equipment and machine parts.
45 04 29	Ferryl Cabin Clean General Cleaning Liquid 25 ltr/drum (See Sec 55)	Cleaning liquid concentrate for general cleaning of cabins, mess rooms, bathrooms, sanitary installations.
45 04 30 31	Ferryl Air refreshment Bad Odour Neutraliser 500 ml/spray bottle 25 ltr/drum (See Sec 55)	Chemically neutralises bacteria in the air, removing bad odour, leaving fresh scent. For cabins, bathrooms, cargo holds, freezers, fishing vessels.

Name of Mfr.: Ferryl Sales Limited.

(to be continued)

Weicon Allround Lubricant

Lubricante multiusos Weicon

ウェイコン潤滑剤 WEICON 润滑剂



CODE	Name	Description	Content
45 04 35	AL-M 400K	Strong bonding and high pressure resistant long-life grease. Classification according to DIN 51 502: KF 2K-20	Cartridge 400 grm
36	AL-M 1000		1 kg/Tin
37	AL-W 400 K	Special lubricant and corrosion protection, also for underwater applications. Classification according to DIN51 502: KPL 1-2E -25. Effective protection against aggressive liquids (e.g. salt water, sewage water) in maritime environments and in wet plants.	Cartridge 400 grm
38	AL-W 1000		1 kg/Tin
39	AL-H 400K	Odourless and tasteless high-temperature grease for the foodstuffs technology. Classification according to DIN 51 502: KP HC 1P -40 NSF registered, NSF H1 LMBG Section 31 and Section 21	Cartridge 400 grm
40	AL-H 1000		1 kg/Tin
41	AL-F 350	Allround high performance grease for lubricating roller and sliding bearings and for all grease lubrication points, also in the foodstuffs industry. Classification according to DIN 51 502: KLF 2K -20. NSF registered, NSF H2; LMBG Section 31 and Section 5.	350 grm /Tin
42	AL-F 400 K		Cartridge 400 grm
43	AL-F 1000		1 kg/Tin
45 04 44	AL-T 400 K	Allround high-temperature grease for long-life lubrication. Classification acc. to DIN 51 502: KPL 2 R-20. Temperature resistance: -25°C to +190°C (briefly +200°C)	Cartridge 400 grm
45	AL-T 1000		1 kg/Tin

Name of Mfr. : Weicon GmbH & Co. KG

Molybdenum Disulfide Lubricant Products

Productos Lubricantes de Sulfuro de Molibdeno
住鉱潤滑剤　二硫化钼润滑剂产品



Recommended for the lubrication of machinery parts during assembly.

For operational applications involving low speed at a heavy load capacity more MoS_2 is required than for light load operations at high speed. MoS_2 is also an effective lubricant for machinery operating at high or low temperatures. Many examples for use are available. MoS_2 is also quite effective as a lubricant restoring material for overheated machines.

To meet various applications and conditions, various types of products are available. The most common oil, grease, and aerosol products are listed below. When ordering, please specify the item and container size required.

Unit Per Can

CODE	Item	Size	Application
Anti-Seizure paste for Metal			
45 04 51	Moly Paste 500 No. 2	500 grm	An anti-seizure paste formulated with a high concentration of molybdenum disulfide (MoS_2). Positioned as the standard product in the series.
52		16 kg	
Durable Grease			
45 04 61	Molyspeed Grease No. 2	2.5 kg	A Bentone grease formulated with molybdenum disulfide (MoS_2) that has excellent wear resistance and anti-seizure properties. Can withstand momentary exposure to high temperature up to 230°C.
62		16 kg	
45 04 63	Molytone Grease No. 2	2.5 kg	A variant of Moly Speed Grease formulated with a high concentration of molybdenum disulfide (MoS_2). It excels in wear resistance.
64		16 kg	
45 04 65	Moly PS Grease No. 2	2.5 kg	A Benton grease with a further enhanced anti-seizure property over Moly Speed Grease, made possible by the addition of an extreme pressure agent.
66		16 kg	
Heat Resistant Grease			
45 04 71	Molytherm No. 2	2.5 kg	An inorganic grease formulated with a high concentration of molybdenum disulfide (MoS_2) that has excellent wear resistance and anti-seizure properties. Its excellent heat resistance enables it to tolerate momentary exposure to high temperature up to 290°C.
72		16 kg	
45 04 73	Hi-Moly Grease	2.5 kg	An inorganic grease formulated with molybdenum disulfide (MoS_2) and grafite. Switches to solid film lubrication at high temperature courtesy of its low-residue synthetic base oil.
74		15 kg	
Lithium Soap Greases for Heavy Load			
45 04 81	Moly LG Grease No. 2	2.5 kg	A lithium soap grease formulated with a high concentration of molybdenum sulfide (MoS_2). Has exceptional wear resistance and anti-seizure properties. Ideal for heavy-duty bearings, sliding parts and gears.
82		16 kg	
83	Cartridge Moly LG Grease No. 2	400 g/tube	
Open Gear Grease			
45 04 86	Moly Gear Compound 900	2.5 kg	Gear compounds containing molybdenum disulfide (MoS_2). Produce a semi-dry film with superior lubricity under heavy loads.
87		16 kg	
Wire Rope Grease			
45 04 89	Moly Rope Dresser No. 0	2.5 kg	A Bentone grease containing molybdenum disulfide ((MoS_2). Capable of penetrating deep into a wire rope to reduce inter-wire friction and prevent eccentric deformation and corrosion. Hardening and breaking off under low temperature conditions also reduced.
90		16 kg	
Open Gear Grease Spray			
45 04 88	Moly Gear 1500 Spray	420 ml/tin	Ideal for open gears. Produces a semi-dry film excellent in shear stability with regard to tooth faces.
Wire Rope Grease Spray			
45 04 91	Moly Rope Spray	420 ml/tin	Designed for wire ropes. Reduces wear and prevents eccentric deformation and corrosion by penetrating deep into inter-wire spaces.

Name of Mfr. Sumico

(to be continued)

Molykote Products

Productos de Molykote　モリコート製品
Molykote 产品



To lubricate and prevent the seizing of machine parts during repair or reassembly. Product types for a variety of applications are listed below. When ordering, please specify the product type and the container size required.

Unit Per Can

CODE	Type	Contents per Can	Description
Powder			
45 05 01	Z	1 kg	Can be used as run-in aid, in press-fittings, in heavy loads and slow speeds applications.
04	Micro size	0.5 kg	
05		2 kg	

(to be continued)

Unit Per Can

CODE	Type	Contents per Can	Description
Paste			
45 05 11	G-n	0.5 kg	Multi-purpose Assembly paste can be used at high loads and low speed application, screw, press-fit, slides and metal working.
12		1 kg	
13		5 kg	
45 05 14	G-Rapid Spray	330 ml (aerosol)	Multi-purpose molybdenum disulfide spray lubricant for preventing mechanical failures, fretting corrosion, seizure. Easy application for all running-in ns assembly.
45 05 15	U	0.5 kg	High temperature paste does not develop oil ash, suitable for screws and sliding parts, and assembly. Better compatibility with rubber can be used for O-ring lubrication.
16		2 kg	
45 05 18	M-77	0.5 kg	Suitable for assembling and lubricating plastics and rubber parts. The silicone paste can be used for wide service temperature.
19		2 kg	
45 05 20	1000	300 ml (Aerosol)	Suitable for fasteners, bolts and nuts that are subjected to high temperatures up to 650°C (1,202°F) and to corrosive effects.
21		1 kg	
22		5 kg	
45 05 23	P-37	500 grn	Lubricant paste for screws, nuts and bolts that are subjected to extremely high temperatures (1,400°C).
Grease			
45 05 26	BR-2 Plus	1 kg	Used successfully on roller bearings, plain bearings, sliding guides, roller guides, ball-and-socket joints, splined shafts and threaded spindles.
27		16 kg	
45 05 51	111 Compound	150 grm	Seal grease for vacuum and pressure systems and outdoor equipment, subject to water washing and harsh environmental exposure.
53		5 kg	
45 05 54	6169	1 kg	Fluorinated grease for use in valves and other components under low temperatures to high temperatures, corrosive, solvent, liquefied natural gasses, high vacuum, etc.
45 05 56	HP-870	100 grm	Fluorinated grease for harsh condition, high temperatures, corrosive, solvent, liquefied natural gasses, high vacuum, etc.
57		750 grm	
45 05 40	HP-300	100 grm	Fluorinated grease for harsh condition, high temperatures. Used for low to medium pressure Hydrogen value
45 05 49		500 grm	
45 05 50	55M	5 kg	Silicone grease for Pneumatic system O-ring and Valves.
Lubricant			
45 05 31	Supergliss	300 ml (Aerosol)	Quick penetration even in areas difficult to access, loosens rusted screw connections as well as other components, thus facilitating disassembly.

(to be continued)

45 05 34	M	1 ltr	Micro MoS_2 gear oil additive – Used for gears at slow speeds and extreme pressures, Oil-lubricated plane bearings.
35		4 ltr	
45 05 36	M-30	1 ltr	Micro MoS_2 dispersion for high temperature chains and rollers.
Lubricant Film			
45 05 41	M-8800	360 ml (Aerosol)	Air-curing dry film lubricant for metal/metal combinations with slow to medium fast movements and high loads. It also prevents sticking rubber parts.
42		1 ltr	
43		4 ltr	
45 05 44	D 321R	223 ml (Aerosol)	Air-curing dry film lubricant for metal/metal combinations with slow to medium fast movements and high loads and the running-in of highly stressed gear wheel.
45		1 ltr	
46		4 ltr	
45 05 47	106	1 ltr	Heat cured dry film lubricant for highly stressed friction combinations with low speeds or oscillating operation.
48		4 ltr	

Tanks Compounds

Compuestos para Tanques　アペキシャー　罐油柜保护膜

A protective coating. No. 1 is for interior surfaces of pressure steam tanks including boilers, economizers, calorifiers, turbines and hot water tanks of temperature above 100°C (212°C). No. 3 is for wet surfaces of a temperature below 50°C (125°C) or for dry, hot surfaces up to a temperature of 200°C (400°C).

45 05 61	Apexior compound	No. 1 1 gal	Can
62	"	No. 3 1 gal	"

MolySlip Anti-Seize Compounds

Compuestos Antifricción
モリスリップ焼付防止剤　防粘混合物



Copaslip™

A high-performance compound specifically formulated to protect fasteners from seizure-induced by extremes of temperature, pressure, and corrosion. The semi-synthetic base fluid is reinforced with anti-oxidants, corrosion inhibitors and ultra-pure copper particles to provide outstanding protection to threads and components.

CODE	Contents	Unit
45 05 65	400 ml (Aerosol)	Tin
66	500 grm	"
64	5 kg	Keg

Molyslip® AS 40



A high-performance lubricant containing molybdenum disulphide (MoS_2) and graphite, formed into a soft paste. Designed for use in situations where a hydrodynamic oil film cannot be tolerated or is impossible to achieve – for example during component assembly, machine start-up and high load/slow speed operations.

CODE	Contents	Unit
45 05 94	500 grm	Tin
95	5 kg	Keg

Alumslip



A high temperature anti-seize compound formulated to protect fasteners from seizure induced by extremes of temperature, pressure and corrosion. The mineral oil base fluid contains micronized particles of metal and non-metal fillers to provide excellent lubrication and protection to threads and components.

CODE	Contents	Unit
45 05 93	500 grm	Tin
97	5 kg	Keg

Molyslip Products

Productos de Molyslip　モリスリップ製品　工業用産品



CODE	Type	Contents	Application	Unit
45 05 68	ARVINA MB2	450 g	A mineral oil based, non-melting organo-modified clay thickened grease designed to lubricate bearings operating in variety of extreme conditions.	Tin
60		4.5 kg		Keg
45 05 69	ARVINA OG0	500 g	Heavy duty lubrication for extreme conditions. Tough, adhesive tenacity, won't be thrown off by gears or scraped off by motion.	Tin
70		4.5 kg		Keg
45 05 71	ARVINA HX2	450 g	A premium quality, heavy duty grease designed for the lubrication of ball, roller and plain bearings operating in arduous conditions.	Tin
72		4.5 kg		Keg
45 05 73	Liquid Grease L.Q.G.	400 ml (Aerosol)	Liquid grease for spraying into inaccessible places, it will not drain away like an oil. Will remain in place for months reducing friction and preventing metal to metal vibration and squeaking.	Tin
74		5 ltr		Tin
45 05 75	Dry Moly Spray	400 ml (Aerosol)	Molybdenum disulphide dry film lubricant. For lubrication in situations where oil or grease are not acceptable. Good for preassembly treatment.	Tin

(to be continued)

45 05 77	Combat	400 ml (Aerosol)	Multi purpose lubricating spray with water displacing, penetrating and anti rust protective film properties.	Tin
45 05 78	WRL-C5	400 ml (Aerosol)	Semi-fluid grease with Moly and graphite. Ideal for wire ropes and chains. Highly water repellent and tenacious – will not fling off.	Tin
79		4.5 kg		Tin
80		18 kg		Drm
45 05 88	SLIPCLEAN DL	400 ml (Aerosol)	Designed for the safe and effective removal of a wide range of industrial soils / contaminants including oil(s), grease, tar/bitumen wax compounds, carbon deposits, inks, and semi-cured adhesives.	Tin

SAF-T-EZE Anti-Seize Products

Productos Antifricción de SAF-T-EAE
サフ・ティ・イーズ製品
SAF-T-EZE 防粘制品



Compounded from fine metallic particles and graphite in a heat resistant lubricant. For ultimate protection to over 2,000°F use to speed assembly and prevent cold welding or carbon fusion as well as rust and other corrosion.

Unit Per Tin

CODE	No./Name	Applications	Contents
45 06 61	Regular Anti-Seize SL-16	Service to 2,000°F. Produced from copper, aluminium and graphite in grease. Resists corrosion and galvanic attack even in the presence of salt water.	16 oz/Can
45 06 62	Regular Anti-Seize SBT-8		8 oz/Can (Brush Top)
45 06 65	Nickel Anti-Seize SL-16N	Service to 2,600°F. Compounded from nickel, aluminium and graphite in a heat resistant lubricant. Recommended when very different metals are used together. Works well on stainless steel.	16 oz/Can
45 06 66	Nickel Anti-Seize SBT-8N		8 oz/Can (Brush Top)
45 06 71	Moly-Grade M-16	Service to 650°F. Compounded with molybdenum disulphide for extreme pressure applications. Prevents wear or galling on gears or splines operating under high load at low speed. Withstands pressures to 0.5 million psi.	16 oz/Can
45 06 72	Moly-Grade MBT-16		16 oz/Can (Brush Top)

Name of Mfr.: SAF-T-LOK Corporation

Anti-Seize Lubricants

Loctite® LB8150 (Silver Grade Anti-Seize 767)

Lubricantes Antigripantes 焼付き防止剤
防卡死润滑剂



Heavy-duty, temperature-resistant, petroleum-based lubricant compound fortified with graphite and metallic flake.

Inert, will not evaporate or harden in extreme cold or heat. For use in assemblies up to 1,600°C (871°C).

CODE	Contents	Unit
45 06 81	454 grm	Can
88	210 grm	Brush Top

Loctite® LB771 (Nickel Anti-Seize)



Copper-free.

Recommended for stainless steel and other metal fitting.

For preventing corrosion, seizing, and galling in harsh, chemical environments, and temperatures to 2,400°F (1,315°C).

CODE	Contents	Unit
45 06 82	454 grm	Can

Copper Anti-Seize Lubricant

Loctite® C5-A® LB8007/8008

Anti-Seize Products アンチシーズ 防胶着剤



Exclusive formula suspends copper and graphite in a high quality grease. Protects metal parts from rust, corrosion, galling, and seizing at temperatures to 982°C (1,800°F). Tested to MIL-PRF-907E. Copper colour is available.

Typically applications include original equipment and maintenance, and equipment associated with petroleum chemicals, steel mills, power plants, marine and foundries.

Unit Per Can

CODE	Product No.	Contents	Colour
45 06 83	8007	12 oz/400 ml aerosol	Copper
84	8008	13 oz	
85		1 lb/454 grm can	
86		8 lb/3.6 kg can	
87		1 lb/454 grm brush-top can	
89		210 grm brush top	

Heavy Duty Anti-Seize

Loctite® LB8009

Anti-Seize Products アンチシーズ HD
重载抗咬合剂



Excellent lubricity. Metal-free formulation provides outstanding lubrication to all metals including stainless steel, aluminium, and soft metals up to 1,315°C (2,400°F). Typical applications of this product includes bolts, screws, studs, pipe joints, nuts, plugs, bushings, metal bending, mechanical packings, etc. Black colour is available.

Unit Per Can

CODE	Contents	Colour
45 06 91	1.2 lb brush-top can	Black
92	2.3 lb	

Marine Grade Anti-Seize

Loctite® LB8023

Productos Antifricción, Loctite Maritimo
アンチシーズマリングレード 海事抗咬合剂



Metal-free formulation to protect assemblies exposed directly or indirectly to fresh or salt water. Loctite® Marine Grade Anti-Seize works especially well in high humidity conditions. It has excellent lubricity, superior water-washout and water spray resistance and prevents galvanic corrosion. Protects in temperatures from -29 to 1,315°C (-20 to 2,400°F). Typical applications are bolts, screws, studs, pipe joints, nuts, shafts, bushings, splines, chains, and cables in marine applications, dressing for water pump gaskets and flanges, pulp and papermills, water and waste water treatment plants.

Unit Per Can

CODE	Contents	Colour
45 06 93	8 oz	Black
94	16 oz/454 grm	

Freeze & Release

Loctite® LB8040

Antioxidante Freeze & Release
錆びたボルトの取り外し用潤滑剤
Freeze & Release 除锈冷冻松脱剂



Releases rusted, corroded and seized components by the shock-freezing effect; wicks directly into the rust by capillary action; released parts remain lubricated and protected from corrosion.

CODE	Contents	Unit
45 07 07	400 ml	Can

Five Way Spray

Loctite® LB8201

Lubricante Five Way Spray
錆止めファイブ・ウェイ・スプレー 防锈喷雾剂



General Purpose Lubricant.

For light lubrication of metals; cleans parts, displaces moisture and prevents corrosion.

CODE	Contents	Unit
45 07 08	400 ml	Can

Multi-Purpose Maintain Lube

Loctite® ML-11™

Mantenimiento multipropósito de lubricante
多用途潤滑剤 多用途维护润滑油



Oil base spray, provide lubrication, cleaning and rust prevention for protecting metal surface. Expel, eliminate and prevent water and moisture of various electrical devices. Penetrate smoothly to deep inside area for lubrication and rust prevention. Help the

devices operate smoothly by reducing preparatory motion or noise.

Unit Per Can

CODE	Contents	Colour
45 07 09	360 ml	Clear/Straw

Biodegradable Anti-Seize Compound

Compuesto antiadherente biodegradable
生分解性焼付き防止剤　生物可降解防卡剂



Bio-based high temperature and EP grease. This grease is fortified with additives that provide excellent lubricating properties, stability and anti-wear capabilities. It is non-gumming, no-petroleum based grease. It has no drop point, so it will not run out of threads when heated. It sticks to the metal threads and lets joints in pipe or nuts on bolts or studs make up less torque.

NLGI Grade: 1, an EAL and EPA/VGP Compliance product.

45 06 73	Anti-Seize Compound, Biodegradable 450 grm per can (24 cans per carton)	C/T

Aerosol Products

Aerosol Products　エアゾール製品　气雾剂产品



A wide range of CRC products are available according to their applications, i.e. lubricating, penetrating, demoisturizing, anticorrosion, degreasing, rust removing, electrical cleaning, etc.

The most common items are listed below. These aerosol products do not emit harmful fluorocarbons and are ozone safe. Liquid types are also available upon request.

For further detailed information or instructions for use, please write or ask local supplier for catalogues before ordering.

Unit Per Tin

CODE	Name	Contents	Description
For Mechanical use			
45 05 81	3-36	500 ml	Rust and corrosion preventive. Penetrating and Moisture-off.
82	5-56 Power Spray	400 ml	Removing rust and corrosion, lubricant and penetrating.
83	Brakleen	500 ml	Broken parts cleaner.
84	6-66	300 ml	Moisture-off, penetrating and lubricating.
86	Seal Coat	11 oz	Rust preventing.
87	Zinc-IT	13 oz	Cold galvanize rust protector.
For Electrical Use			
45 05 91	2-26	500 ml	Moisture-off corrosion preventing, lubricating and penetrating.
92	Lectra Clean II	500 ml	Electric motor and equipment cleaner.
Cleaners for Precision Use			
45 09 01	Contact Cleaner	14 oz	Solvent cleaner for light contaminants on electric or electronic parts. Compatible with most plastics.
45 09 02	N.F. Precision Cleaner	300 ml	Non-flammable solvent cleaner for light contaminants on electrical or electronic parts.
Cleaners for Heavy Duty			
45 09 05	ECO Complex Blue	750 ml	Non-flammable, slow drying water based cleaner for heavy contaminants in food grade areas.
Anti Corrosion Products for Inhibition			
45 09 11	SP 350	250 ml	Long-term corrosion inhibitor indoor protection up to 2 years.
Anti Corrosion Products for Coatings			
45 09 15	Zinc	500 ml	Cathodic protection, even for damaged galvanized parts. Zinc-based coating with excellent adhesion to metal surfaces.
16	Urethane Coating	11 oz	Protective, urethane based varnish for electronic components.
17	Cold Galvanise	400 ml	High zinc content anti-corrosion paint that offers true cathodic protection to ISO 1461:1999.
18	Bright, Cold Galvanise	400 ml	Repair for hot-dipped galvanise steel: weathers naturally for 'invisible' repairs.
19	Galvanise Zinc Rich	400 ml	High temperature, very fast drying, 'hammered' steel finish silver paint.
Lubricants for Processing			
45 09 21	Supercut II	300 ml	Low viscous cutting liquid for normal, metal-cutting operations.
Lubricants for Oils			
45 09 26	Industrial Silicone	10 oz	Synthetic lubricating oil, suitable for plastic drives and applications at high temperatures.
Welding Products			
45 09 31	Crick 110	500 ml	Solvent cleaner to prepare the surface for examination.
32	Crick 120	500 ml	Penetrating colorant to mark the cracks and failures.
33	Crick 130	500 ml	Developer to make the marked cracks and failures visible.
Anti-corrosion Products			
45 09 35	Rust Remover	250 ml	Removes corrosion and/or rust from metals.

Name of Mfr. : CRC Industries

Fault Detection Freezers

for Electronics

Congelador de detección de averías para electrónica
回路間欠探知フリーザー
电路间歇性故障检测冷冻剂



Use on electronic circuits to identify intermittent faulty components. Non-flammable, F-Gas compliant, low GWP.

45 09 22	Freezer, fault detection for electronics, Freezer/2,400 ml	Tin

Name of Mfr.: CRC Industries (Ambersil)

Remark: F-Gas regulation

Article 13(3) Refrigeration Service Bans:

From 1 January 2020, the use of fluorinated greenhouse gases with a GWP of 2,500 or more, to service or maintain refrigeration equipment with a charge size of 40 tonnes of CO_2 equivalent (CO_2e) or more, shall be prohibited.

(to be continued)

This paragraph shall not apply to:
- military equipment, or
- equipment intended for applications designed to cool products to temperatures below –50°C.
- until 1.1.2030: reclaimed or recycled f-gases providing they have been labelled in accordance with Article 12. Recycled gases may only be used by the undertaking which carried out the recovery... or the undertaking for which the recovery was carried out.
- refrigeration equipment for which received an exemption has been (Quoted from "Guide to updated EU f-gas regulation (517/2014)", published by the Linde Group).

Engine Igniters

Autoarranque イグナイター 发动机点火装置

Diesel engine aerosol igniter. Insures quick engine starts at low temperatures and reduces wear on the engine, starter, and battery. Also serves as a rust inhibitor and lubricant.

45 05 96	Engine Ignitor Aerosol 300 cc	Tin

Krylon Industrial Sprays

Aerosoles Industriales de Krylon クリロン製品 Krylon工业喷涂料

Unit per Tin

CODE	No./Name	Applications	Contents
Coatings			
45 06 01	No. 1304 Ignition Sealer	Seals all electrical connection for quick sure starts.	13 oz
02	No. 1307 Battery Protector	Effectively seals battery terminals, cables, and ignition systems.	13 oz
03	No. 1330 Belt Dressing	Provides belt gripping action. Extends belt life, and reduces machinery down time.	13 oz
04	No. 7004 Insulating Varnish	Use on re-wound motor windings, starter windings, armatures, coils, switch board parts, etc.	13 oz
Lubricants			
45 06 06	No. 1322 Open Gear Lubricant	Constant lubrication at extreme pressure. Forms a continuous film of lubrication under all loads and speed.	13 oz
07	No. 1325 All-purpose Silicone Spray	Penetrates deeply and eliminates sticking, and annoying squeaks caused by friction.	10 oz
08	No. 1332 Let-go	Penetrates deeply to free rusted and corroded parts fast. Excellent for loosening "rust frozen" nuts, bolts, etc.	13 oz
09	No. 1347 Industrial Strength Spray	Lubricates, reduces friction and stops squeaks. Used to penetrate, lubricate and free nuts and bolts, etc.	11 oz
10	No. 1349 Silicone Tube	Used as a release agent, lubricant, and parting agent on metal, plastic, rubber, wood, leather, etc.	10 oz
Cleaners			
45 06 16	No. 1323 Cleaner and Degreaser	Penetrates and dissolves engine oil, grease and grime. Excellent cleaner for all types of engines.	13 oz
45 06 17	No. 1326 Contact & Cleaner Lubricating Spray	Solvent action loosens and dissolves dirt and gummy deposits.	16 oz
18	No. 1327 Electric Motor Cleaner	Instantly penetrates, dissolves and cleans greases, oil and dirt from motors, generators, fans, etc.	16 oz
19	No. 1333 Tuner & Contact Cleaner Lubricant Spray	For contacts, switches, relays. Provides a long-lasting, non-drying film which lubricates the surface and protects against corrosion.	16 oz
20	No. 1336 Battery Cleaner	Cuts through and dissolves power-robbing acid corrosion to clean battery terminals, cable connectors, and frames.	15 oz
21	No. 1351 Electronic Contact Cleaner & Lubricant Spray	Solvent action dissolves oily deposits on switches and other electrical contacts.	10 oz
22	No. 1352 Brake Cleaner	Dissolves and flushes away brake fluid, oil, grease and dirt from brake linings, disc brake pads, etc.	16 oz

(to be continued)

Spanjaard Products

Productos de Spanjaard

スパンヤード製品 Spanjaard 制品



The Spanjaard range of marine products covers the entire spectrum from navy or merchant navy to leisure craft.

Unit Per Tin/Can

CODE	No./Name	Applications	Contents
45 06 45	COLD ZINC GALVANISING SPRAY	A reliable galvanising coating and/or primer for the protection of steel surfaces against corrosion. Zinc-rich touch-up paint for galvanised steel. Guards the quality and integrity of iron and steel in coastal, underground and humid/corrosive conditions.	400 ml/ Spray
45 06 31	SPARK (MULTI-PURPOSE LUBRICANT) NON-FLAMMABLE AEROSOL	A non-flammable version of SPARK (MULTI-PURPOSE LUBRICANT) for use where explosive or fire hazard conditions exist.	500 grm/ Spray
45 06 32	SPARK (MULTI-PURPOSE LUBRICANT)	A water displacing, anti-corrosive, penetrating and lubricating oil for limitless applications. Available in standard and non-flammable versions (in aerosol and bulk form).	300 ml/ Spray

(to be continued)

Unit Per Tin/Can

CODE	No./Name	Applications	Contents
45 06 34	COPPER COMPOUND (ANTI-SEIZE)	Prevents the seizure of nuts and bolts up to 1,100°C or under corrosive conditions. Ensures firmer tightening and easier loosening of threaded connections and mating surfaces.	100 grm/ Tube
33			400 ml/ Spray
35			500 grm/ Tin
45 07 10			500 grm/ Brush Top Tin
45 06 30	FLAW & CRACK DETECTOR SYSTEM	A 3-part non-destructive testing (NDT) system for locating defects on the surfaces of metals. It is essential that all three packs are used: No.1 Cleaner, No.2 Penetrant and No.3 Detector.	350 ml Spray × 3/Set
45 06 46	GEARBOX & DIFFERENTIAL LUBRICANT SUPPLEMENT	A specialised supplement gives excellent performance in automotive gearboxes (non-automatic), steering boxes, differentials and transmissions in passenger, transport, earth-moving, industrial vehicles and equipment. Smoother gear selection and quieter differential. Reduces wear and extends life and reliability of manual gearboxes. Not suitable for automatic transmissions and limited slip differentials.	100 ml/ Tube
47			5 ltr/Tin
48			20 ltr/ Drum
45 06 49	LECTRO KLEEN	Precision contact cleaner spray for use in industry, the office and home. Provides a convenient method of cleaning of electrical and electronic equipment. Degreases and evaporates quickly and completely, leaving no residue. Does not attack metals, plastics, rubbers, painted surfaces or lacquers.	200 ml/ Spray
50			400 ml/ Spray
45 07 11	LECTRO KLEEN (NON-FLAMMABLE AEROSOL)	Non-flammable and non-conductive precision contact cleaner spray for cleaning of electrical and electronic equipment. Leaves no residue. Compatibility with plastics and rubbers must be checked before use.	430 grm/ Spray
45 06 53	MPG (MULTI-PURPOSE GREASE – PREMIUM GRADE)	A premium-quality, non-melting, bentonite grease with good extreme-pressure properties for use in medium to high-load applications. Suitable for working temperatures up to 160°C with intermittent peak use up to 200°C. Anti-wear properties strengthened with molybdenum disulphide (MoS_2). Anti-corrosive in harsh conditions.	500 grm/ Tin
54			5 kg/Tin
55			15 kg/ Keg
45 06 41	OPEN GEAR & WIRE ROPE SPRAY	Provides an economical, high-performance adhesive black open gear and wire rope lubricant and corrosion protector. Reduces gear shatter and will not affect gear tolerances. Penetrates deep into the core of the rope. For use in spur, helical, worm-drive gears and open gears under high-load conditions.	350 ml/ Spray
45 06 43	OPEN GEAR LUBRICANT (OGL) 1279-1.5	Lubricant in the milling industry which is completely water resistant. Suitable as a slow-speed, anti-friction bearing grease when water-resistant properties are important. Heavy-duty open gears of ball and rod mill drives in the milling industry. NLGI consistency of 1.5.	15 kg/ Keg
45 06 44	WIRE ROPE DRESSING 1345	A tacky, semi-synthetic lubricant specifically designed for wire ropes in mining, marine, earth-moving and industrial equipment.	15 kg/ Keg
45 06 56	RAPIDKLEEN	An industrial cleaner and degreaser for metal parts, glass, and ceramics. A convenient and fast drying spray, leaving no residue.	400 ml/ Spray
45 06 57	SPATTER RELEASE #640 (NON-WATER BASED) NON-SILICONE	An environmentally friendly oil-based version of the above. Suitable for surfaces requiring painting or galvanising after welding.	400 ml/ Spray
45 06 58	WR BEARING GREASE (WATER RESISTANT BEARING GREASE)	An extreme-pressure, lithium-based grease with high-adhesion properties. Water and steam-resistant, red bearing grease. Bears heavy loads at slow to medium speeds with its extreme-pressure. Suitable for temperatures of up to 180°C. Popular with agricultural machinery, heavy construction and industrial equipment.	400 grm/ Cartridge
59			15 kg/ Keg
45 07 15	SILICONE PASTE	A white, translucent, non-melting stable paste. An excellent rubber lubricant, electrical insulating compound and release agent with high water resistance. Sealing electrical equipment prevents ingress of water which evades the potential for corrosion. Non-conductive, non-staining and colourless. NSF registered for incidental food contact (Category H1: Reg # 139904).	100 grm/ Tube
45 07 17	TOOL JOINT LUBRICANT	A non-melt, extreme-pressure thread lubricant strengthened with graphite and molybdenum disulphide (MoS_2). Mainly applied to threads in "slim-hole" drilling applications in civil construction including quarries, dams and surface mining. Prevents seizure and galling of threads and joints and facilitates 'breakout' of drill rods after drilling.	15 kg/ Keg
45 07 19	"E" ENGINE OIL SUPPLEMENT	A wear-and-friction-reducing supplement for internal combustion engines. Improves oil pressure without clogging the filter and oil ways. Contains molybdenum disulphide (MoS_2) which maintains lubrication under extreme heat and pressure conditions. Improves fuel economy.	250 ml/ Tin

(to be continued)

WD-40 Products

WD-40

Productos WD-40　WD-40 製品　WD-40 产品



WD-40 products for marine maintenance work are listed below.

Unit Per Tin

CODE	Product	Content	Description
45 07 02	WD-40 Multi-Use Product	350 ml	Protects metal from rust and corrosion, penetrates stuck parts, displaces moisture and lubricates almost anything. It even removes grease, grime and more from most surfaces. Bulk 4 ltr size is ideal for heavy jobs that require soaking and dipping.
36		4 ltr	
45 07 20	WD-40 Specialist White Lithium Grease	360 ml	A high-quality lithium-based grease as its thickener, the white lubricant features high-viscosity long-term lubrication, good adhesion, water and heat resistance and is very suitable for metal to metal lubrication.
45 07 26	WD-40 Specialist Fast Dry Contact Cleaner	360 ml	Remove all kinds of grease, dust, flux residue and coagulation of sensitive electronic components and electrical equipment, featuring quick drying and residue free.
45 07 27	WD-40 Specialist Fast Acting Degreaser	450 ml	A water-based, quickly remove grease, oil stains, dirt and stains without residue. Power foam works immediately on contact and rinses away easily. Can be used to clean all kinds of non-electrical parts, such as marine equipment surface, deck, inner wall of cabin, tools and kitchen.
45 07 28	WD-40 Specialist Rust Remover	1 gal/Btl	Dissolves rust quickly without harming surrounding parts, trim, gaskets or paint. Ideal for restoring rusted parts to bare metal. Rust parts need to be soaked into liquid.
45 07 29	WD-40 Specialist Heavy Duty Grease	396 grm	A calcium sulfonate grease that offers a versatile solution for all extreme conditions. Reliable temperatures of its drop point of >650°F, it provides marine-grade water resistance and protection against rust and corrosion.
45 07 30	WD-40 Specialist Air Conditioning Disinfectant	360 ml	For cooling-fin of air-conditioners, the sprayed foams will clean the dust and disinfect the germs (99.999% sterilizing rate of Bacillus coli).

Multi-Purpose Lubricants

Lubricantes Multi-usos

錆止め浸透潤滑油　多功能润滑油

These lubricants will stop squeaks, displace moisture, penetrate and prevent corrosion. Specify product name and type when ordering.



Boeshield T-9



Three Bond 1801B

Unit Per Tin

CODE	Product	Contents	Type
45 07 03	Boeshield T-9	4 oz	Spray
04	Boeshield T-9	12 oz	Spray
05	Threebond 1801B	180 ml	Spray

Valvoline "Tectyl" Rust Preventives

Anti-oxidante Valvoline "Tectyl"

テクティル製品　"Tectyle" 防锈剂



The most common types of Valvoline products are shown below. For a further variety of products and detailed information, please write or call your local distributor.

Unit Per Tin/Can

CODE	Product	Cont.	Description
45 07 21	506	300 ml (Aerosol)	Excellent for protection of metallic surface for machinery, tools, dies, tubing, stampings, structures, vehicles etc, in long term indoor or outdoor exposure and during domestic and overseas shipment, storage.
22		20 ltr	
23	511M	20 ltr	Designed to protect ferrous and non-ferrous industrial parts and transportation components during covered shipment and inside storage. Polar-chemical water displacer. Self healing film. Packaging preservative for overseas shipment of parts.
24	810	20 ltr	Water emulsifiable, oil concentrate corrosion preventive compound. The film is thin and oily. Excellent lubricity for a variety of industrial metalworking.

"Biral" Aerosol Lubricants

"Biral" Aerosol Lubricants　ビラル潤滑剤

"比拉尔"气溶胶润滑剂



From among various types of Biral products, the two most common types are listed below with their respective specifications.

VG-HT Type

Penetrates deeply into difficult to access parts and sets into a grease type consistency which is very water repellent.

PO Type

An effective rust remover which serves as a lubricant and also prevents against further corrosion. It has exceptional

penetrating qualities reaching all parts of the machine, leaving behind a thin, rust preventing film.

Unit Per Tin

CODE	Product	Cont.	Type	Major use
45 07 31	VG-HT	480 grm	Visco grease high temperature	For chains, sliding surfaces, gear wheels, transmissions, hoists, hinges, wire lubrication for ships, offshore equipment, etc. From –20 to 270°C
32		5 ltr		
33	PO	40 grm	Penetrating Oil	For rusted screws, etc.
34		5 ltr		

Super Extreme Pressure Lubricants, Chlorine-Free

Lubricantes Super Extrema Presión, Sin Cloro
塩素フリー 超極圧潤滑剤　超级极压润滑剂，无氯



Super-strong lubricant spray that forms a special film on metal surfaces and maintains excellent lubrication, rust and moisture protection for a long period. Combined with high penetrating properties, it is excellent for equipment maintenance, removal of adhering fittings, machining work, and various industrial machine parts including gears, chains, hinges, sprockets etc. Environmentally friendly lubricants with chlorine-free.

45 07 35	Super Extreme Pressure Lubricants, Chlorine-Free, 420 ml	Tin

Weicon Spray Products

Weicon Spray Products
ウェイコンスプレー製品
WEICON 喷雾剂产品

High quality spray products for maintenance and repair.



Unit Per Tin

CODE	Name/ Contents	Applications
Cleaning		
45 08 01	Cleaner Spray S 500 ml	Degreases and cleans all metals, glass, ceramics and most plastics. This spray is recommended for the pre-treatment of surfaces in applications with other Weicon products where greasy or oily layers would reduce their effectiveness.
45 08 02	Sealant and Adhesive Remover 400 ml	Quickly and easily removes residues of hardened sealants and adhesives as well as lacquers and paints, even from vertical surfaces. New formulation – free of dichloromethane.
45 08 03	Stainless Steel Care spray 400 ml	Antistatic cleaning and preserving care agent for mat and glossy stainless steel surfaces indoor and outdoor.
45 08 04	Multi-Foam 400 ml	The powerful foam cleaner for metals, plastics, lacquered surfaces, glass, tiles, textiles, carpets and upholstery.
45 08 05	Compressed Air Spray 400 ml	An allround problem solver. It removes dust and fluff quickly and reliably from sensitive surfaces and parts which are not easily accessible.
45 08 06	Visor Cleaner 200 ml	Visor cleaner is the ideal product for the cleaning and care of sensitive plastic and glass surfaces, e.g. visors, safety goggles, welding face shields, protection caps safety glass, etc.
45 08 07	Screen-Cleaner 200 ml	The ideal product for the cleaning and care even of sensitive plastic and glass surfaces. Removes dirt, dust, grease, and nicotine and cleans carefully without leaving residues.
45 08 08	Electro Contact Cleaner 400 ml	Cleaning and degreasing of electrotechnical or mechanical parts, like e.g. electric machines, measuring instruments, balances, switches or sensors. Also ideal for all electric connections, contacts, relays and switchboard plants.
45 08 09	Parts and Assembly Cleaner 500 ml	Cleaner with especially long working time, especially for coarse, oily and greasy soiling as well as for cleaning bigger areas. Due to the high flash point, it corresponds to the VbF Classification A III.
Protection		
45 08 11	Zinc Spray 400 ml	Long term cathodic corrosion protection (< 550 hours salt-spray test acc. to DIN 53167 and DIN 50021) for all metal surface. For priming and touching up hot galvanized parts.
45 08 12	Zinc Spray "Bright Grade" 400 ml	Long term corrosion protection, matches the colour of hot galvanized surfaces, temperature resistant up to 300°C. Very good resistance to salt and water.
45 08 10	Zinc-Alu-Spray 400 ml	Anti corrosion protection, tone approaching hot galvanizing.
45 08 13	Stainless Steel Spray 400 ml	Corrosion and weathering-resistant surface coating, abrasion resistant, heat up to 300°C.
45 08 14	Aluminium Spray A-100 400 ml	Aluminium pigments of a purity of < > 99.5% offer excellent corrosion protection, temperature resistant up to 800°C, abrasion resistant.
45 08 15	Corro-Protection Spray 400 ml	Due to transparent protective film corrosion protection of metal parts for indoor storage. Rust-proofing of tools and precisions parts. TUV approved.
45 08 16	Fitting Spray 200 ml	Fitting spray is a maintenance and care agent with good adhering properties for all movable parts at windows, doors, gates, etc. The transparent product is free of silicones, resins, acids and solvents.
45 08 17	Metal-Fluid 400 ml	Highly-effective product for indoor care, protection and cleaning of mat and polished metal surfaces e.g. stainless steel etc.
Rust Loosener		
45 08 21	W-44T 400 ml	Multifunctions Spray: Loosens seized threads, displaces moisture, eliminates squeaky and creaky noises, cleans dirty metal surfaces, and protects and preserves tools.
45 08 22	Rust-Shock 400 ml	The "Chemical Wrench" frees up rusted threads within seconds by its unique dual-action: chill effect and capillary effect.
45 08 23	Rust Loosener and Contact Spray 400 ml	With 6-fold function: an indispensable aid in all repair, maintenance and servicing jobs.
45 08 20	Rust Converter 400 ml	For the effective neutralisation of rust on rusty cast iron and steel surfaces. Protects from corrosion and is suitable for internal and external use. Based on epoxy resin and forms a metallic-organic iron complex with the rust layer.

(to be continued)

(to be continued)

Unit Per Tin

CODE	Name/ Contents	Applications
Lubricating		
45 08 25	Pneuma-Lub 400 ml	Lubricant for pneumatic equipment, high content of PTFE makes it a multi-purpose product for lubrication, corrosion protection, cleaning, water displacing and conservation. Temperature resistant from -50°C (-58°F) up to +210°C (+410°F).
45 08 26	Top-Lub 400 ml	Long-term lubrication for power transmitting bolts, hinges, guides, bearings, joints and couplings. With high adhering properties and good resistance to centrifugation. Excellent creeping properties.
45 08 27	PTFE-Spray 400 ml	Dry, clean and grease-free PTFE-based lubricant with excellent sliding properties.
45 08 28	Silicone Spray 400 ml	Sliding and release agent for efficient production and maintenance. Temperature resistant from –50°C (-58°F) up to +250°C (+482°F).
45 08 29	Chain and Rope Lube Spray 400 ml	Synthetical chain- and rope Lube spray: high pressure-resistance, temperature resistance from -40°C up to +200°C, with excellent adhering and creeping properties, transparent.
45 08 30	AT 44 400 ml	For use in all sectors of industry and workshops. By its special formula, the product combines effectiveness in corrosion prevention, cleaning, water displacement and lubrication.
45 08 31	Bio-Fluid Spray 500 ml	Free of resins and acids, water-white, high purity mineral oil, especially developed for the use in the food, pharmaceutical and cosmetic industries.
45 08 32	Anti-Friction Spray MoS_2 400 ml	Anti-Friction Spray MoS_2 forms a dust-, dirt- and water-rejecting separation layer with very good resistance to oils, grease and many chemicals. The product can be applied on almost all metals, plastic and wood surfaces.
45 08 33	Spray-on Grease, White 400 ml	All-purpose sprayable grease for highly stressed parts. Contains special wear reduction and corrosion-inhibiting additives.
45 08 34	Universal Spray-on Grease with MoS_2 400 ml	Strong-bonding and high pressure resistant long-life grease with MoS_2. Friction and wear are reduced for a long time.
45 08 35	Adhering Grease - extra strong - 400 ml	Special lubricant and corrosion protection, also for underwater applications. Effective protection against aggressive liquids (e.g. salt water, sewage water) in maritime environments and in wet plants.
Hand Protection		
45 08 36	Hand Protective Foam 200 ml	The "invisible glove" prevents the penetration of soilings in the skin's pores.
Technical Sprays		
45 08 41	Leak Detection Spray 400 ml	Non-flammable compound used for fast, convenient and reliable location of even the smallest leaks in pressurized pipes or tanks. Approved for use in gas pipelines (DIN/DVGW Approval NG-5170AO0666).
45 08 42	Welding Protection Spray 400 ml	Prevents the adhesion of weld spatter to gas nozzles and workplaces without affecting the quality of the weld seam. - Silicone-free -.
45 08 43	Contact Spray 400 ml	Dispels moisture from electrical contacts, prevents leakage current and voltage loss and keeps contacts, fuses, cable connections, etc. free of oxidation and sulphide deposits.
45 08 44	Crack Testing Agent Set	System for the non-destructive material inspection using a dye penetrant procedure. The system consists of three technical sprays: Crack Testing Agent Cleaner, Penetrant and a Developer. Suitable for metals, plastics, ceramics, glass, etc.

Name of Mfr. : Weicon GmbH & Co. KG

(to be continued)

Anti-Seize Products

Productos Antigripantes 焼き付け防止製品 防卡死产品

High-performance assembly pastes and sprays. Used as corrosion protection and high-performance assembly paste for statically high-stressed screw connections and assembly parts as well as for slowly rotating installations in the high temperature range. Anti-Seize Assembly-Paste, reliable protection against corrosion, seizing and cold welding.

Anti-Seize

Unit Per Pc.

CODE	Product	Content	Volume
45 08 71	AS 120 P	Brush-top can	120 grm
45 08 72	AS 400 K	Cartridge	400 grm
45 08 73	AS 450	Can	450 grm
74	AS 1000		1.0 kg
45 08 75	AS 1800	Bucket	1.8 kg
76	AS 5000		5.0 kg
77	AS 10000		10.0 kg
45 08 46	AS 500 P	Brush-top can	500 grm

Name of Mfr. : Weicon GmbH & Co. KG

ASW "High-tech" Metal-Free White

Anti-Seize "High Tech" is used as corrosion protection and high-performance assembly paste for statically high stressed screw connections and assembly parts as well as for slowly rotating installations in the high temperature range. Anti-Seize Assembly-Psate "High-Tech", reliable protection against corrosion, seizing and cold welding, especially on stainless steel.

Unit Per Pc.

CODE	Product	Content	Volume
45 08 81	ASW 120 P	Brush-top can	120 grm
45 08 82	ASW 400 K	Cartridge	400 grm
45 08 83	ASW 450	Can	450 grm
84	ASW 1000		1.0 kg
45 08 85	ASW 1800	Bucket	1.8 kg
86	ASW 5000		5.0 kg
87	ASW 10000		10.0 kg
45 08 47	ASW 500 P	Brush-top can	500 ml

Name of Mfr. : Weicon GmbH & Co. KG

Copper Paste

A protecting, separating and lubricating agent for highly stressed parts, used as assembly lubricant for threaded joints and sliding surfaces of all kinds. The strongly adhering paste consists of special additives and a combination of solid lubricants made of graphite and copper particles. This ensures low friction values in threaded joints and excellent separating characteristics. Copper Paste provides an efficient lubricating and separating layer on plug-in tools, wear bushings and threaded, plugged-in or bayonet joints of all kinds, thus protecting the functional surfaces from corrosion and seizing. Temperature resistant from -20°C (-4°F) up to +1,100°C (+2,012°F).

Unit Per Pc.

CODE	Product	Content	Volume
45 08 88	KP 120P	Brush-top can	120 grm
45 08 89	KP 450	Can	450 grm
45 08 90	KP 500 P	Brush-top can	500 grm
45 08 91	KP 1000	Can	1.0 kg
45 08 92	KP 10000	Bucket	10.0 kg

Name of Mfr. : Weicon GmbH & Co. KG

Silicone Grease/Compounds

Compuestos de Grasa de Silicona
シリコングリース / コンパウンド
硅滑脂



Has superior conductivity and is an effective lubricant in a wide temperature range. Can be applied to most materials, including plastic resin. As a wide variety of products are available, please specify the application of the product and the size of the container required from the code table below.

	CODE	Application	Cont.	Major Usage
Grease	**45 07 51**	Low Temperature (-70 – 160°C)	100 grm/tin	Lubricating of bearings, motor gears and measuring tools.
	52		200 grm/tube	
	53		1 kg/can	
	54		4 kg/can	
	45 07 56	Normal Temperature (-40 – 180°C)	100 grm/tin	Lubricating of bearings, and fan motors.
	57		200 grm/tube	
	58		1 kg/can	
	59		4 kg/can	
	45 07 61	High Temperature (-20 – 250°C)	100 grm/tin	Lubricating of motors, pumps and valve gears of steam turbines.
	62		200 grm/tube	
	63		1 kg/can	
	64		4 kg/can	
Compound	**45 07 65**	General Electric Insulation	200 grm/tube	Insulation for electric contacts, terminals and cables.
	66		1 kg/can	
	67		4 kg/can	
	45 07 71	General Radiation	1 kg/can	Radiation from electric & electronic equipment.
	72		5 kg/can	
	73		15 kg/can	

Heat Resistant Pipe Dressing

Pintura Protección anticorrosiva para Alta/Baja Teperatura
耐熱防錆グリース　耐热防锈管镀膜



Possessing high resistance against both high & low temperature. Surface-drying type and anticorrosion coating agent. It is particularly suitable for dressing hydraulic and steam lines, windlasses and deck winch cylinders, etc.

Specifications

Outward Appearance	Caramel color, with Homogenous soft texture
Cone Penetration	310 - 340 mm
Specific Gravity	0.940
Film Type	Semi-transparent and rubbery
Drying Time	Dries in 48 hours (Surface dry)
Ideal Film Thickness	3 mm - 4 mm
Coverage	0.5 m^2 / kg at 2 mm thick
Contents	16 kg / can

45 07 91	Heat resistant pipe dressing, 16 kg	Can

Charcoal

Carbón de Barbacoa　木炭　木炭



For broiling meat or barbecuing.
Furnished in 6 kg bags.

45 10 01	Charcoal, broiling meat, 6 kg/bag	Kgs.

Miscellaneous Oil

Oil, Colza (Rape-seed) Oil:

An oil produced by the expression of rape seed. It is used as a lubricant, illuminant and in small quantities in the heat treatment (quenching) of steel.

Oil, Fish:

An oil produced by cooking or pressing the bodies of fish, principally the menhaden (moss bunker or pogy fish). It is used in the manufacture of low-grade paints, slushing decks, in the preparation of lubricant compounds such as are used for sluicing down rigging and hawsers, for tempering steel, as a leather dressing, and in the treatment of oil skins, it has a very disagreeable odor.

Oil, Linseed, Boiled:

Made by heating the raw oil (obtained from the flax plant) to a temperature of from 300° to 500°F or by adding about 2% oxide of lead or oxide of manganese, or both, which produces the same effect as boiling. Paint made with boiled oil requires about 24 hours to dry hard.

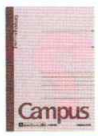
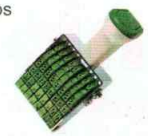
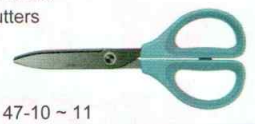
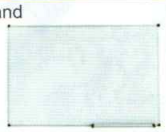
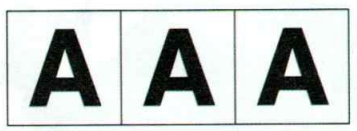
Oil, Linseed, Raw:

Pressed from the seed of the flax plant and used chiefly on surfaces exposed to the weather. It requires about five times longer to dry than boiled linseed oil. However, the addition of driers greatly reduces the time required.

Oil, Storm:

A vegetable or animal oil used to spread on the sea in heavy weather to reduce the breaking crests of the waves. Animal and vegetable oils have better spreading qualities than mineral oil, in the order named, as follows : Soapsuds, sperm, rape seed (colza), linseed, petroleum.

47
Stationery

Notebooks/ Memo Pads  P. 47-1 ~ 2	Files/Paper Holders/ Trays  P. 47-3 ~ 5	Paper Bags/ Envelopes  P. 47-6	Pens/Markers/ Pencil Sharpeners  P. 47-6 ~ 9
Rubber Stamps  P. 47-9	Erasers  P. 47-10	Scissors/ Cutters  P. 47-10 ~ 11	Glue/Paper Fastening Goods  P. 47-11 ~ 13
Tape Writers  P. 47-13 ~ 14	Tapes  P. 47-14 ~ 15	Tags/Labels  P. 47-15 ~ 16	Wrapping/Strings  P. 47-16
Chairs  P. 47-16	Desk Accessories  P. 47-16 ~ 17	Name Card Holders  P. 47-17	Drawing Instruments/ Rules  P. 47-17~ 18
Whiteboards and Accessories  P. 47-18 ~ 19	Security  P. 47-19	Ancillary Equipment for Overhead Projectors (OHP)  P. 47-19 ~ 20	Calculators/ Counters  P. 47-20
Cameras and Accessories  P. 47- 20~ 21	Copy Machines  P. 47-21 ~ 22	Filing Cabinets  P. 47-22	Computer and Ancillary Items  P. 47-22 ~ 27
Self Adhesive Characters  P. 47-28			

Standard Paper Size

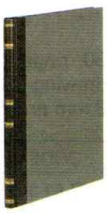
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mm	inch		mm	inch
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594 x 841	23-3/8 x 33-1/8	1	728 x 1030	28-5/8 x 40-1/2
420 x 594	16-1/2 x 23-3/8	2	515 x 728	20-1/4 x 28-5/8
297 x 420	11-5/8 x 16-1/2	3	364 x 515	14-3/8 x 20-1/4
210 x 297	8-1/4 x 11-5/8	4	257 x 364	10-1/8 x 14-3/8
148 x 210	5-7/8 x 8-1/4	5	182 x 257	7-1/8 x 10-1/8
105 x 148	4-1/8 x 5-7/8	6	128 x 182	5 x 7-1/8
74 x 105	2-7/8 x 4-1/8	7	91 x 128	3-5/8 x 5
52 x 74	2 x 2-7/8	8	64 x 91	2-1/2 x 3-5/8

Notebooks

Nota ノート 笔记本

Hard Cover Notebooks

Cuadernos de tapa dura
ハードカバーノート 硬皮笔记本



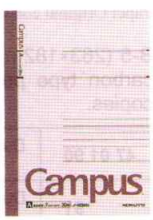
Lined notebooks bound in a hard cover. 100 or 200 page notebooks are available. Pages are not numbered.

Unit Per Vol

CODE	Size No.	Actual Size mm	Pages
47 01 01	A-5	210 × 148	100
47 01 02	B-5	257 × 187	100
03			200
47 01 04	A-4	296 × 220	100
05			200

School Notebooks

Cuadernos escolares
キャンパスノート 学校笔记本



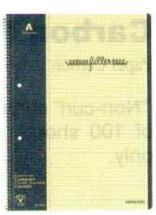
Horizontal lined notebooks.

Unit Per Vol

CODE	Size No.	Actual Size mm	Pages
47 01 10	A-6	148 × 105	96
47 01 11	A-5	210 × 148	60
12			100
13			140
47 01 14	B-5	252 × 179	60
15			80
16			160
17			200
47 01 18	A-4	297 × 210	80

Spiral Back Notebooks

Cuadernos con lomo espiral
フィラーノート 螺旋背笔记本



Horizontal lined pages bound by PVC coated wire spiral.

Unit Per Vol

CODE	Size No.	Actual Size mm	Pages
47 01 21	A-5	210 × 157	80
22	B-5	257 × 191	80

Pocket Notebooks

Cuadernos de bolsillo ポケットノート 袖珍笔记本



Hard cover pocket notebook useful for engineers.

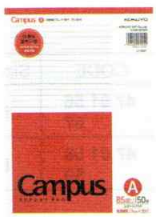
47 01 38	Pocket notebook hard covered 150 pages	Vol

Notepads

Libreta para notas フィラーノート 剥下式笔记本

Report Pads, Lined

Almohadillas para informes, forradas
レポート用紙、報告用紙 报告垫，有衬里



Can be used for drafting reports, etc. Horizontal lined pages of 50 sheets/pad.

Unit Per Pad

CODE	Size No.	Actual Size mm
47 01 26	B-5	251 × 178
27	A-4	300 × 210

Memorandum Pads

Blocs de notas メモ用紙 备忘便笺



Pocket size memo pads for jotting down brief notes whenever required. Furnishable also with "tear off" pages if required.

Unit Per Pad

CODE	Size No.	Actual Size mm	CODE	Size No.	Actual Size mm
47 01 31	B-7	125 × 88	**47 01 33**	A-6	150 × 106
32	Tear Off	134 × 75	**34**	B-6	177 × 125

Scratch Pads

Almohadillas para arañazos 計算用紙 划痕垫



Four rough calculations, sketches, etc. provided with horizontal lines, except in the A-5 size, "Tear off" pages.

Unit Per Pad

CODE	Size No.	Dimensions mm	Remark
47 01 41	A-5	210 × 148	Blank
42	A-4	297 × 210	Rough
43	A-4	297 × 210	Fine
44	A-4	297 × 210	Yellow

Typewriting Paper Pads

Blocs de papel para mecanografía
タイプ用紙 打字纸垫



Specially manufactured typewriting paper, furnished for original or copies, as requested. The regular size is A-4 (297 × 210 mm). Other sizes will have to be specially ordered.

Unit Per Pad

CODE	Size No.	Actual Size mm	Remark	Shts
47 01 50	A-4	297 × 210	Original	50
51	A-4	297 × 210	Copy	50
52	B-4	255 × 358	"	100
53	-	280 × 216	"	50

Airmail Writing Pads

Blocs de notas para correo aéreo
エアメール便箋　空邮写字板



Plain, white, airmail letter writing paper, white or lined. Standard size is 250 × 177 mm (9-3/4 × 7").

Unit Per Pad

CODE	Size No.	Dimensions mm	Remark	Shts
47 01 56	B-5	250 × 177	White	50
57				100
47 01 58	B-5	250 × 177	Lined	40
59				70

Electronic Memo Pads
(Digital Notebooks)

Bloc de notas electrónico (cuaderno digital)
電子メモパッド　数字笔记本



The electronic memo pad which digitizes paper notebooks or memo pad, and automatically adjust angle and shape to fit the screen. You can sort and organize digitized notes, and digitize the handwritten character you wrote and recognize your handwritten character and change to text. (This feature is Japanese only). Also, search notes on your smartphone and tablet, and share your notes by cloud services. Available memo pad type and notebook type with A-5 size.

47 01 54	Memo pad, electronic, A-5	Pc.
55	Notebook, digital, A-5	"

White Paper

Papel Blanco　白洋紙　白纸

Crisp, white paper, which is suitable for typing or writing, of any medium. When ordering, please specify the size and type of paper required.

Unit Per Pkg.

CODE	Type	Size	Package Cont. Papers
47 01 61	Thick bond paper	Foolscap 13 × 8" (300 x 203mm)	500 shts (1 Ream)
62	Thin onion paper		1,000 shts (2 Reams)
63	Thick bond paper	Quarto 11" × 8-1/2" (280 x 216mm)	500 shts (1 Ream)
64	Thin onion paper		1,000 shts (2 Reams)

Note: 500 shts - 1 Ream.

Sectioned Paper

Papel Milimetrado　方眼紙　方眼纸



A thick, white paper with 1 mm square grid lines for drawing, designing, and making statistical charts.

Unit Per Pad/Sht.

CODE	Size			Unit
	Paper Size	Sectioned mm	Square mm	
47 01 70	B-5	220 × 150	1	40/Pad
71	A-4	250 × 180	1	50/Pad
72	B-4	250 × 350	1	25/Pad
73	B-3	350 × 500	1	Sht
74	B-2	500 × 700	1	Sht
75	B-1	700 × 1,000	1	Sht

Design Notebooks
with Square Grid Lines

Cuadernos para Dibujo/Cuadriculado
デザイン帳　带空格线的设计笔记本

30 page, sectioned paper, notebook for designing and drawing. Square grid lines available in 4 sizes (1 mm, 2 mm, 3 mm and 5 mm).

Unit Per Vol

CODE	Grid Size mm	Size No.	Actual Size mm
47 01 80	1	A-5	210 × 148
81	2		
82	3		
83	5		
47 01 84	1	B-5	252 × 179
85	2		
86	3		
87	5		

Duplicate Books

Papel Original con Copia　複写便箋　复写便笺

B-5 (263×182 mm) sized thin duplicate paper. Regular and carbon type papers available. Furnished in books of 50 copies.

47 01 90	Duplicate book,B-5 50 copies, carbon	Pad
91	Duplicate book,B-5 50 copies, carbonless	"

Tracing Paper
(Translucent Paper)

Papel de Calco　トレーシングペーパー　描圖紙

Suitable to use for chart correction, and have a resistance to oil grease and impervious to water. Please specify thickness of paper (grm per square meter) if exact thickness paper is required.

47 01 99	Tracing paper, A-4, 500 sht (1 ream)	Pkt

Carbon Paper

Papel Carbón　カーボン紙　复写纸



"Non-curl" carbon paper furnished in boxes of 100 sheets. Available in black colour only.

Unit Per Box

CODE	Size	Dimens. mm	CODE	Size	Dimens. mm
47 01 94	A-4	216 × 330	**47 01 96**	B-4	260 × 360
95	A-3	297 × 420	**97**	B-3	364 × 515

Hard Cover Letter Files

Archivadores Forrados con Mecanismo de Palanca
ハードカバーファイル　帯杆紧固件的弓形文件夹硬皮信夹

Arch Holder with Lever Fastener

Archivador con Cierre de Palanca　A-Z ファイル　帯杠杆紧固件的拱形夹

Hard cover Z ringed letter file with vinyl reinforced binding. Furnished in A-4 size (307 × 282 × 85 mm).



47 02 01	File, letter, hard cover, w/arch holder & fastener, 307 × 282 × 85 mm "AZ"	Pc.

Arch Holder with Lock Fastener

Soporte para Arcos con Cierre
A-Z ファイル（スモールサイズ）　带锁扣的拱形支架

Same as A-Z files. Vinyl reinforced with a hard cover and a two-ringed clip. Size is 307 x 270 x 60 mm.



47 02 03	File, letter, hard cover, w/arch holder & fastener, 307 × 270 × 60 mm "small"	Pc.

Arch Holder with Clip Fastener

Portaarcos con Cierre de Clip
セミスモールファイル　带夹扣的拱形托架

Semi-small file with hard paper cover and spring clip. Furnished in A-4 size (307 × 260 × 35 mm).



47 02 05	File, letter, hard cover, w/arch holder & fastener, 307 × 260 × 35 mm "semi-small"	Pc.

with Arch Holder

con Soporte para Arco　リングファイル　带拱形支架

Hard cover letter files with "ring type" clip.





Unit Per Pc.

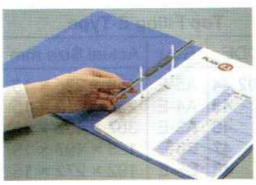
CODE	Size No.	Actual Size mm	No. of Rings
47 02 07	B6-E	138 × 217 × 40	2
08	B5-S	267 × 230 × 50	2
09	A4-S	307 × 247 × 40	2
10	A4-S	307 × 247 × 40	4

Semi-Hard Cover Letter Files

Spring Wire Holder with Fastener

Carpeta de Carton con Gusanillo　スプリングファイル　半硬皮信夹

Semi-hard cover files with spring clips.





Unit Per Pc.

CODE	Size	Height × Width × Thick mm
47 02 14	B-5S	267 × 202 × 30
15	B-4S	267 × 379 × 30
16	A-4S	307 × 225 × 30
17	A-4E	220 × 312 × 30

Letter Files

with Lever Fastener

Carpetas para Cartas con Fastener　レバーファイル　带杆紧固件的信夹

A "pressing" file system which requires no holes to be punched in the paper. Available with hard board or plastic cover in the following colours : red, blue, yellow, green and black.





Unit Per Pc.

CODE	Size No.	Dimensions mm	Remark
47 02 21	B-5S	267 x 218 x 18	Hard Board
22	A-4S	307 x 236 x 18	"
23	B-4S	374 x 288 x 18	"
47 02 24	B-5S	267 x 218 x 16	Plastic
25	A-4S	307 x 236 x 16	"

Hard Cover Letter Files

with Clip Fastener

Carpetas con Cubierta Dura para Cartas con Clip y Fastener
クリップファイル　带夹紧固件的硬皮信夹

Rigid hard cover with strong spring clip for filing paper without holes. When ordering, specify the size and code.



Unit Per Pc

CODE	Size	Dimensions mm
47 02 30	B-5S	267 × 204 × 30
31	A-4S	307 × 232 × 30
32	A-4E	220 × 319 × 30

Soft Cover Letter Files

Carpetas con Cubierta Suave para Cartas　フラットファイル　软皮信夹

Soft but durable paper covers available in pink, blue, yellow or green. Designed for general purpose filing.



S-type (Vertical)　E-type (Horizontal)

Unit Per Pc.

Side Filing S-Type			Top Filing E-Type		
CODE	Size	Actual Size mm	CODE	Size	Actual Size mm
47 02 36	A5-S	220 × 163 × 15	**47 02 44**	A5-E	158 × 225 × 15
37	A4-S	307 × 230 × 15	**45**	A4-E	226 × 312 × 15
38	A3-S	430 × 312 × 15	**46**	A3-E	307 × 435 × 15
39	B6-S	192 × 143 × 15	**47**	B6-E	138 × 197 × 15
40	B5-S	267 × 197 × 15	**48**	B5-E	192 × 272 × 15
47 02 41	B4-S	374 × 272 × 15	**47 02 49**	B4-E	267 × 379 × 15

Box Files

Caja de Archivos　ボックスファイル　盒式文件夹

Throw in type file for temporary sorting of documents, or thin files and folders.

Made of cardboard.



Unit Per Pc.

CODE	Size	Outer Size W×H×D
47 02 51	A-4E	75 × 260 × 317
52		100 × 260 × 317
47 02 53	B-4E	100 × 292 × 384

Pouch Laminators

Máquinas para Laminar en Plástico　書類用ラミネーター　塑封机

An easy way to provide protection to documents and signage from humidity, or deterioration by rough handling. Lamination gives a good appearance enriching colors, and long-term protection for your documents. Please specify the maximum width of laminating pouch to be applied with power source voltage when ordering.



Unit Per Set

CODE	Max. Width	Voltage	CODE	Max. Width	Voltage
47 02 81	230mm (A-4)	AC	**47 02 85**	230mm (A-4)	AC
82	325mm (A-3)	100V	**86**	325mm (A-3)	220V

Laminating Pouch Films

Laminado de Plástico
ラミネート用パウチフィルム
用于层压的小袋薄膜



Unit Per Pkt

20's/Pkt			100's/Pkt		
CODE	Size		CODE	Size	
47 02 88	B-6	138×192 mm	**47 02 94**	B-6	138×192 mm
89	A-5	158×220 mm	**95**	A-5	158×220 mm
90	B-5	188×263 mm	**96**	B-5	188×263 mm
91	A-4	216×303 mm	**97**	A-4	216×303 mm
92	B-4	263×370 mm	**98**	B-4	263×370 mm
47 02 93	A-3	303×426 mm	**47 02 99**	A-3	303×426 mm

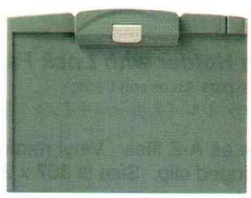
Clip Boards

Portapapels　用箋挟　夹纸记录板夹

Available in a hard backed clip board, with metal reinforced corners, or a plastic clipboard. A strong spring clip holds papers in place while writing, checking, or tallying. Good for use when walking around checking inventory, or surveying the deck area or engine room.



Vertical



Horizontal

Unit Per Pc.

CODE	Size	Height × Width mm	CODE	Size	Height × Width mm
Hard Board					
Vertical Type			**Horizontal Type**		
47 03 01	B-6	210 × 150	**47 03 08**	B-6	150 × 210
02	A-5	240 × 170	**09**	A-5	170 × 240
03	B-5	300 × 210	**10**	B-5	210 × 300
04	A-4	330 × 230	**11**	A-4	230 × 330
05	B-4	390 × 300	**12**	B-4	300 × 390
Plastic					
Vertical Type			**Horizontal Type**		
47 03 16	B-6	198 × 144	**47 03 24**	B-6	144 × 198
17	A-5	226 × 164	**25**	A-5	164 × 226
18	B-5	273 × 198	**26**	B-5	198 × 273
19	A-4	313 × 226	**27**	A-4	226 × 313
20	B-4	380 × 273	**28**	B-4	273 × 380
21	A-3	436 × 313	**29**	A-3	313 × 436

Plastic Card Holders

Fundas de Plástico　クリアーケース　塑料卡片支架

For protecting drawings, lists, or circulars which are handled often. Excellent for storing certificates or other official paperwork to prevent it from being torn or faded.

Hard Plastic Covers



Unit Per Pc.

"A" Sizes			"B" Sizes		
CODE	No.	Size mm	CODE	No.	Size mm
47 03 31	1	599 × 846	**47 03 41**	1	733 × 1,035
32	2	425 × 599	**42**	2	520 × 733
33	3	302 × 425	**43**	3	369 × 520
34	4	215 × 302	**44**	4	262 × 369
35	5	151 × 213	**45**	5	185 × 260

(to be continued)

Unit Per Pc.

"A" Sizes			"B" Sizes		
CODE	No.	Size mm	CODE	No.	Size mm
47 03 36	6	107 × 151	**47 03 46**	6	131 × 185
37	7	76 × 108	**47**	7	93 × 131
-	-	-	**48**	8	66 × 94

Soft Plastic Covers



Unit Per Pc.

"A" Sizes			"B" Sizes		
CODE	No.	Size mm	CODE	No.	Size mm
47 03 51	1	599 × 846	**47 03 61**	1	733 × 1,035
52	2	425 × 599	**62**	2	520 × 733
53	3	302 × 425	**63**	3	369 × 520
54	4	215 × 302	**64**	4	262 × 369
55	5	151 × 213	**65**	5	185 × 260
47 03 56	6	107 × 151	**47 03 66**	6	131 × 185
57	7	76 × 108	**67**	7	93 × 131
-	-	-	**68**	8	66 × 94

Plastic Holders

Folders de Plástico de Colors
カラーホルダー　塑料支架



Convenient file holders with the top and one side open making it easy to take papers from inside. These holders are transparent. Making documents easy to see and safe from being stained. Available in a clear type or in assorted colours.

Unit Per Sht.

A-4		B-5	
CODE	Colour	CODE	Colour
47 03 75	Clear	**47 03 81**	Clear
76	Orange	**82**	Orange
77	Blue	**83**	Blue
78	Yellow	**84**	Yellow
79	Green	**85**	Green

Tab Dividers

Separadores de pestañas
ファイルインデックス　标签分隔线

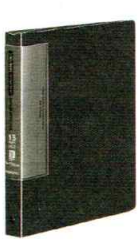


A-4 size tab divider(register) covered with laminated tabs for indexing within the folder and ring files. Available for numerically printed from 1 to 31 dividers and printed from A to Z dividers as complete set.

47 03 86	Tab divider for indexing, A4 size "1-31"	Set
87	Tab divider for indexing, A4 size "A-Z"	Set

Display Books

Carpetas de Plástico con Fundas, Dossier
クリアーブック　显示书目



Bound in stiff black covers for the presentation and protection of documents. There are 20 document holders in each book.

Unit Per Vol.

CODE	Size	Height × Width mm	CODE	Size	Height × Width mm
47 03 90	A-5S	228 × 175	**47 03 93**	B-4S	383 × 285
91	B-5S	275 × 210	**94**	A-3S	438 × 328
92	A-4S	315 × 240			

Refills for Display Books

Clear plastic pockets with multi punched filling. 10 sheets per packet.



Unit Per Pkt.

CODE	Size	Height × Width mm	CODE	Size	Height × Width mm
47 03 95	A-5S	215 × 170	**47 03 98**	B-4S	369 × 275
96	B-5S	262 × 201	**99**	A-3S	426 × 315
97	A-4S	302 × 231			

Letter Trays

Bandeja Portadocumentos de Plástico　レタートレー　字母顺序文件盒

Made in hardboard or plastic types. A matching cover is furnished with the hardboard type.



Hardboad



Plastic

Unit Per Pc.

CODE	Material	Width × Depth × Height
47 04 01	Hardboard	257 × 355 × 68 mm
02	Plastic	252 × 337 × 55 mm

Steel Trays

Bandeja Portadocumentos de Acero
スチールトレー　刚制文件盒



Steel file trays with a painted finish and a labelling index card, on the front, to distinguish what documents are inside. Can be furnished in a one, two, or three tiered tray.

Unit Per Pc.

CODE	Tiers	Size mm W × D × H
47 04 05	Single	241 × 338 × 56
06	Double	241 × 338 × 104
07	Triple	241 × 338 × 152

Letter Cabinets

Archivador para Cartas
レターキャビネット　文件整理盒



A steel cabinet with transparent plastic drawers suitable for storing letters and documents.

Unit Per Pc.

CODE	Number of Drawers	W × D × H mm
47 04 61	3	256 × 330 × 169
62	5	256 × 330 × 261
63	7	256 × 330 × 353
64	10	256 × 330 × 492

Jiffy Bags

Sobre Bolsa Acolchado 小包封筒 大信封



Strong padded envelopes for packaging fragile items.

Unit Per Pc.

CODE	No.	Outer Size mm Width × Length	CODE	No.	Outer Size mm Width × Length
47 04 11	000	100 × 150	**47 04 16**	3	215 × 370
12	00	130 × 255	**17**	4	240 × 370
13	0	150 × 255	**18**	5	265 × 405
14	1	185 × 305	**19**	6	320 × 485
15	2	215 × 305	**20**	7	365 × 510

Envelopes

Sobres 封筒 信封

Kraft Paper Envelope with Sealing String

Sobre de Papel Kraft/con Cordón
ひも付き封筒 公文袋



Kraft paper envelope with a cotton string for sealing the contents inside. Available in flat or expandable type.

Unit Per Pc.

CODE	Type	Size mm
47 04 25	Flat	240 × 332
26	Expandable	240 × 332 × 30

Kraft Paper Envelope

Sobre de Papel Kraft 封筒 信封



Unglued envelopes made of kraft paper. Envelopes of sizes other than those listed below, or envelopes with printed addresses must be made to order.

Unit Per Pc.

CODE	Size mm	CODE	Size mm
47 04 31	120 × 235	**47 04 35**	197 × 267
32	120 × 277	**36**	216 × 277
33	142 × 332	**37**	240 × 332
34	190 × 240	**38**	270 × 382

Kraft Large Paper Envelope

Sobre Grande de Papel Kraft
厚紙大封筒 厚紙大信封



Made of hard, lightweight kraft paper. Economical for bulk mailing.

Unit Per Pc.

CODE	Gauge No.	Size
47 04 41	129	28.5 x 38 cm
42	130	24 x 33 cm
43	133	28.5 x 38 x 4.5 cm
44	134	25 x 33 x 3 cm

White Paper Envelope

Sobre de Papel Blanco 白封筒 白信封



Plain white envelopes for ordinary or personal mail. Furnished in boxes of ten envelopes each.

Unit Per Pc.

CODE	Size	Dimensions mm	Unit
47 04 51	Small	92 × 165	Pkt
52	Medium	98 × 190	"
53	Large	105 × 235	"

Airmail Envelope

Sobre de Correo Aéreo 航空便用封筒
航空信封



Lightweight envelopes with the traditional "airmail" symbol ready printed on the front.

CODE	Size	Dimensions mm	Unit
47 04 56	Small	92 × 165	Pkt
57	Medium	98 × 190	"
58	Large	105 × 235	"

Mechanical Lead Pencils

Lapiceros Portaminas シャープペンシル 自动铅笔

A lead will be projected by knocking pencil head or twisting pencil body.

The leads are a separate order.



47 04 81	Mechanical lead pencil, 0.5 mm	Pc.

Leads for Mechanical Pencil

CODE 16's/Pkt	CODE 40's/Pkt	No.	Size
47 04 86	**47 04 91**	2H	0.5 mm
87	**92**	H	
88	**93**	HB	
89	**94**	B	
90	**95**	2B	

Pencils

Lápices 鉛筆 铅笔

There are various types of lead pencils for a variety of purposes as listed below. These pencils are available with or without eraser tips. Furnished 12 pieces in a box.



Unit Per Doz

Without Rubber Tip			With Rubber Tip		
CODE	No.	Use	CODE	No.	Use
47 05 01	2H	Chart room	**47 05 11**	2H	Chart room
02	H	"	**12**	H	"
47 05 03	HB	Office	**47 05 13**	HB	Office
04	B	"	**14**	B	"
05	2B	"	**15**	2B	"
47 05 06	3B	Carpenter	**47 05 16**	3B	Carpenter
07	4B	"	**17**	4B	"
08	5B	"	**18**	5B	"

Coloured Pencils

Lápices de color 色鉛筆 彩色铅笔

Pencils of the most common assorted colours are supplied with 12 pieces per box. Sets of a dozen pencils supplied in only one colour are also available.



Single Colour			Assorted Colour		
CODE	Colour	Unit	CODE	Colours	Unit
47 05 21	Blue	Pc.	47 05 24	12	Pkt
22	Red	"	25	24	"
23	Blue/Red	"			

Dermatograph Pencils (Chinagraph Pencils)

Lápices dermatográficos (Chinagraph Pencils)

ダーマトペンシル 皮肤图谱铅笔（Chinagraph 铅笔）

Capable of writing on almost any surface : glass, cellophane, plastic, etc. Not necessary to sharpen, just unravel the string to extend the pencil tip.



Unit Per Pc.

CODE	Colour	CODE	Colour	CODE	Colour
47 05 31	Blue	47 05 34	White	47 05 37	Brown
32	Red	35	Green	38	Orange
33	Yellow	36	Black	39	Purple

Pencil Sharpeners

Sacapuntas 鉛筆けずり 削铅笔机

Pencil Sharpeners, Rechargeable

Sacapuntas, recargable

コードレス鉛筆けずり 削笔器，充电式



Compact and lightweight. Auto start when pencil is inserted. Built in safety device. Operated by 4 pcs LR6 (AM-3) batteries.

47 05 41	Pencil sharpener, rechargeable	Pc.

Desk Fixture Manual Pencil Sharpeners

Afilalápices manual de sobremesa

手動鉛筆削り 桌面夹具 手动削笔机



A rigid, plastic made pencil sharpener which can be securely fitted to any desk or table by an adjustable clamp. Electric pencil sharpeners are also available upon request.

47 05 44	Pencil sharpener, desk fixture	Pc.

Plastic Pencil Trays

Bandejas de Plástico para Lápices

ペン皿 塑料铅笔盒



Plastic made tray with separate compartments for pencils and pens.

47 05 46	Pencil tray plastic, ordinary 235 × 80 mm	Pc.
47	Pencil tray plastic, ordinary 240 × 100 mm	"

Ink

Tinta インキ 墨水



Various ink for ordinary, chart correction, stamp pad and drawing use.

Unit Per Btl

CODE	Description	Colour	cc
47 05 54	General Office Use	Blue Black	30
55	"	Red	"
56	"	Black	"
47 05 57	Chart Correction	Blue Black	60
47 05 58	Stamp Pad	Blue	60
59	"	Red	"
60	"	Black	"
47 05 61	Drawing	Black	30

Stamp Pads

Tampón スタンプ台 印台



Unit Per Pc.

Size 40 × 63 mm			Size 68 × 109 mm		
CODE	No.	Colour	CODE	No.	Colour
47 05 70	1	Blue	47 05 76	3	Blue
71		Red	77		Red
72		Black	78		Black
Size 56 × 90 mm			**Size 88 × 139 mm**		
47 05 73	2	Blue	47 05 79	4	Blue
74		Red	80		Red
75		Black	81		Black

Blotters

Secafirmas 吸取台 吸墨纸



A handy, light, plastic made ink blotter. 142 mm length.

47 05 90	Blotter, plastic, 67 × 142 mm	Pc.

Blotting Paper

Papel Secante 吸取紙 吸墨水纸



Small papers for hand blotters and large paper for desk matting. 16 sheets in one packet for blotter.

CODE	For	Size mm	Unit
47 05 93	Hand Blotter	60 × 277	Pkt
94	Desk Mats	636 × 469	Sht

Ball Point Pens

Bolígrafos ボールペン 圆珠笔



Regular Type



Retractable Type (Knock Type)

Ball Point Pen

Unit Per Pc.

Regular Type		Retractable Type (Knock Type)	
CODE	Colour	CODE	Colour
47 06 01	Blue	47 06 06	Blue
02	Red	07	Red
03	Black	08	Black
04	Green	09	Green

Refill for Ball Point Pen



Unit Per Pc.

Refill for Regular Type		Refill for Retractable Type (Knock Type)	
CODE	Colour	CODE	Colour
47 06 26	Blue	47 06 36	Blue
27	Red	37	Red
28	Black	38	Black
29	Green	39	Green

Water-soluble Ball Point Pens

Bolígrafos Solubles en Agua　水性ボールペン　水性圆珠笔

Water-soluble ball point pen with fine tip.



Unit Per Pc.

Colour	CODE		
	Tip Size		
	0.2 mm	0.3 mm	0.5 mm
Black	47 06 11	47 06 14	47 06 17
Red	12	15	18
Blue	13	16	19

Erasable Ball Point Pens

Bolígrafo borrable　消せるボールペン　可擦圆珠笔

Using erasable gel ink to erase mistakes effortlessly by friction generated heat.



Regular Type



Multi-Colour Type

Unit Per Pc.

Regular Type		Multi-Colour Type	
CODE	Colour	CODE	Colour
47 06 05	Blue	47 06 45	Black / Red
10	Red	46	Black / Red / Blue
20	Black	47	Black / Red / Blue / Green
40	Green		

Refill for Erasable Ball Point Pen



Unit Per Pc.

CODE	Colour	CODE	Colour
47 06 55	Blue	47 06 57	Black
56	Red	58	Green

Felt Marker Pens

Rotuladores (Gruesos)　大型マジックインク　毡毛标记纪录笔



Broad Line

Broad markers with permanent, waterproof ink. The tip is wedge shaped to produce broad or fine lines on almost all surfaces. Available in 8 colours.

Broad Line Line Width 3.0 - 5.0 mm			Extra Broad Line Line Width 3.0 - 12.5 mm		
CODE	Colour	Unit	CODE	Colour	Unit
47 06 21	Blue	Pc.	47 06 31	Blue	Pc.
22	Red	"	32	Red	"
23	Black	"	33	Black	"
24	Green	"	34	Green	"
30	Yellow	"	35	Yellow	"
47 06 25	8-Colours	Pkt			

Medium Thick

Medium thick felt tipped pen. Line width 1.0 mm.



Single			Assorted		
CODE	Colour	Unit	CODE	Colours	Unit
47 06 41	Blue	Pc.	47 06 48	8	Pkt
42	Red	"	49	12	"
43	Black	"			
44	Green	"			
50	Yellow	"			

Sign Pens

Rotuladores　細字サインペン　签字笔

Sign pens which can write on a variety of clear surfaces including glass. The ink is easy to wipe off with rags or water. Available in individual pieces or in a set of assorted colours.



Pencil Type



Pocketable

Pencil Type			Pocketable		
CODE	Colour	Unit	CODE	Colours	Unit
47 06 51	Blue	Pc.	47 06 61	Blue	Pc.
52	Red	"	62	Red	"
53	Black	"	63	Black	"
54	10-Colours	Pkt	64	8-Colours	Pkt

Water-soluble Sign Pens

Rotuladores Solubles en Agua　水性サインペン　水溶性标志笔

Water-soluble sign pen with extra fine tip.



Unit Per Pc.

Colour	CODE	
	Tip Size	
	0.1 mm	0.2 mm
Black	47 06 81	47 06 84
Red	82	85
Blue	83	86

Fluorescent Marking Pens

Rotulabores Fluorescentes
蛍光マーキングペン　荧光标记纪录笔



Fluorescent, high lighter marker. Wedged tip allows for writing in broad or fine lines. Available in individual pieces or in a set of assorted colours.

Single Colour			Assorted Colour Pack		
CODE	Colour	Unit	CODE	Colour	Unit
47 06 71	Blue	Pc.	**47 06 78**	5	Pkt
72	Pink	"	**79**	8	"
73	Yellow	"	**80**	10	"
74	Green	"			
75	Orange	"			

Paint Markers

Rotulador de pintura ペイントマーカー 油漆标记



Useful for marking on metal, glass, porcelain, plastic, rubber, leather, wood, cardboard and other industrial materials. 6 colours available.

Unit Per Pc.

CODE	Colour	CODE	Colour
47 06 90	Yellow	**47 06 94**	White
91	Red	**95**	Black
92	Blue	**96**	Orange
93	Green		

School Chalks

Tizas チョーク 学校粉笔



For writing on black board or marking machine parts, etc. Supplied 100 pieces per box.

Unit Per Box

CODE	Colour	CODE	Colour
47 07 01	White	**47 07 03**	Blue
02	Red	**04**	Yellow

Carpenters' Chalks

Tizas de Carpintero カーペンターチョーク 木匠用粉笔



Pastel crayons for marking wood. 12 crayons of assorted colours packed in each box.

47 07 06	Carpenters' chalk 12's assorted colours	Pkt

Rotring Pen Ink

Tinta para Rotring ロットリングペン用インキ Rotring 墨水



Specially made ink for the Rotring Pen that is waterproof and will not become discoloured.

Unit Per Btl

CODE	Colour	Contents	CODE	Colour
47 07 41	Black	23 ml	**47 07 44**	Red
42	Blue	"	**45**	Green
43	Yellow	"	**46**	Brown

Rotring Pen Cleaners

Limpiadores para Rotring ロットリングペン用クリーナー Rotring 清洁笔



Specially made fluid for cleaning the Rotring Pen.

47 07 50	Rotring Pen cleaner, 100 ml	Btl

Rotring ISO graph Pens

Rotring ロットリングイソグラフペン Rotring 海图改正笔



A special designed technical pen following ISO standard. For chart correction, drawing, lettering, etc.

Spare Nib

Unit Per Pc

Complete		Spare Nib	
CODE	Drawing Thickness	CODE	Drawing Thickness
47 07 51	0.10 mm	**47 07 65**	0.10 mm
52	0.13 mm	**66**	0.13 mm
53	0.18 mm	**67**	0.18 mm
54	0.20 mm	**68**	0.20 mm
55	0.25 mm	**69**	0.25 mm
47 07 56	0.30 mm	**47 07 70**	0.30 mm
57	0.35 mm	**71**	0.35 mm
58	0.40 mm	**72**	0.40 mm
59	0.50 mm	**73**	0.50 mm
60	0.60 mm	**74**	0.60 mm
47 07 61	0.70 mm	**40 07 75**	0.70 mm
62	0.80 mm	**76**	0.80 mm
63	1.00 mm	**77**	1.00 mm

Rubber Daters

Fechadores de Goma ゴム日付印 橡胶日期戳



2.5 mm or 4 mm size characters held by an alignment bar.

47 07 81	Rubber dater, 2.5 mm characters	Pc.
82	Rubber dater, 4.0 mm characters	"

Rubber Stamps for Ship Use

Sellos de Goma para Uso Barco 舶用特注ゴム印 船用橡皮印章



A variety of stamps that are required for ships use can be provided. Select the type of stamp that you require and type out the phrase with indications of the full dimensions of the stamp. Some standard types of stamps are listed below. Other types of stamps are made to order and may require extra time for delivery.

Unit Per Pc.

CODE	Description
47 07 91	"AIR MAIL"
92	"ORIGINAL"
93	"COPY"
94	Ship's name .....

Stamp Boxes

Cajas para Sello 印箱 印章盒



For storage stamps. Inner partitions can be removed.

Unit Per Pc.

Wood		Steel	
CODE	Outer Size W×D×H	CODE	Outer Size W×D×H
47 08 01	155 × 118 × 85 mm	**47 08 06**	153 × 127 × 93 mm
02	195 × 140 × 85 mm	**07**	196 × 156 × 93 mm
03	217 × 175 × 85 mm	**08**	221 × 188 × 93 mm
04	240 × 195 × 85 mm	**09**	262 × 188 × 93 mm

Erasers

Gomas　消しゴム　橡皮擦

Available in various types, made of plastic or rubber.





#510



#512

Unit Per Pc.

CODE	Description
47 08 61	Plastic pencil eraser large for Chartroom/Office
62	Plastic pencil eraser medium for Office
63	Plastic pencil eraser small for Office
47 08 64	Rubber pencil eraser medium for Office
65	Rubber ink pencil eraser #510
66	Rubber typewriter eraser #512

Correction Fluid

Corrector Líquido

修正液　修正液

An ideal correcting fluid for typewriters and ball point pens.



Emulsion Type



Pencil Type

CODE	Type	Cont. cc	Description	Unit
47 08 71	Emulsion Type	20	Emulsion type and quick dry for mistypewriting, felt pen, marking pen	Btl
47 08 73	Pencil Type	13	For general purpose (oil and emulsion type pen)	Pc.

Correction Tape in Dispenser

Cinta Correctora　修正テープ　修正带

Ideal for correcting miss-typed or miss-handwritten characters. It does not need waiting time to dry as liquid type, and can write over instantly.



Unit Per Pc.

CODE	Tape Width mm	CODE	Tape Width mm
47 08 81	4	**47 08 83**	5
82	4.2	**84**	6

Refill Tape for Correction Tape Dispenser



Unit Per Pkt

CODE	Tape Width mm	Pc's/Pkt	CODE	Tape Width mm	Pc's/Pkt
47 08 86	4	10	**47 08 88**	5	10
87	4.2	"	**89**	6	"

Paper Scissors

Tijeras para Cortar Papel　事務用鋏

紙剪刀

Stainless steel made scissors for stationery use.



Unit Per Pr.

CODE	O.A. Length	CODE	O.A. Length
47 10 01	120 mm	**47 10 03**	185 mm
02	155 mm		

Paper Knives

Cortapapeles　ペーパーナイフ　纸刀

Stainless steel made paper knife with an extra small knife in the handle.



47 10 06	Knife, paper	Pc.

Paper Shredders

Trituradoras de papel　シュレッダー　碎纸机

Available several levels of maximum sheet feeding capacity and cutting patterns. Micro cut is the smallest cutting pattern.



Unit Per Pc.

Strip Cut		Cross Cut		Micro Cut	
CODE	Max. Sheet Capacity	CODE	Max. Sheet Capacity	CODE	Max. Sheet Capacity
AC 110V					
47 10 07	6	**47 10 17**	6	**47 10 25**	6
08	8	**18**	8	**27**	8
09	10	**19**	10	**28**	10
10	16	**20**	16	**29**	16
16	20	**24**	20	**30**	20
AC 220V					
47 10 34	6	**47 10 39**	6	**47 10 44**	6
35	8	**40**	8	**45**	8
36	10	**41**	10	**46**	10
37	16	**42**	16	**47**	16
38	20	**43**	20	**48**	20

Handy Cutters

Cortadores　カッター　手提裁剪机

Razor blade sharp trimming knives for multi purpose jobs such as curving, paper forming, cutting, etc. Each cutter has a snap off tool on the handle. Spare blades are sold separately.



Handy cutter for light duty jobs



Pocketable with clip for light duty jobs



For light and medium duty job. Can cut leather, plywood, etc.



Blade only

CODE	For	Blade mm	Unit
47 10 11	Light duty job	9	Pc.
12	Light duty job w/clip	9	"
13	Medium duty job	18	"
47 10 14	Blade only, 10's/pkt	9	Pkt
15	Blade only, 6's/pkt	18	"

Paper Punches

Perforadoras de Papel パンチ
鸡眼纸张打孔机圈

8 cm gauge. 2 holes and 4 holes types are available.



Unit Per Pc.

CODE	No. of Hole	CODE	No. of Hole
47 10 21	2	**47 10 23**	4

Reinforcing Washers

Arandelas Reforzadpras
ビニール補強パッチ　鸡眼圈



Self adhesive, vinyl round washer to prevent paper from tearing and coming loose from notebook binder rings.

47 10 26	Reinforcing washer, vinyl 240's/pkt	Pkt

Mounted Cutters

Cortadpres　裁断器　切纸机



A sharp edged, carbon steel blade mounted on a multiply polished wood cutting board. Accurate square cutting is ensured by a graduated ruler with right angles indicated on the board and a fitted guide plate to hold the paper firmly in place. This device will easily cut paper, cardboard, leather, cloth, rubber, and many other materials.

Unit Per Pc.

CODE	Cutting Capacity mm	Board Size mm	Weight kg
47 10 31	319	275 × 484 × 61	1.9
32	388	327 × 570 × 72	3.6
33	451	368 × 630 × 71	4.2

Glue

Cola　糊　胶水

Below listed are various types of glue for different purposes.



Paper Liquid Glue　Stick Glue　Spray Glue

CODE	Name	Unit	Description of Uses
47 10 51	Cemedine contact transparent	20 ml/tub	Synthetic rubber which bonds instantly to rubber, leather, cloth, canvas, felt, etc.
52		50 ml	
47 10 56	Cemedine Super	15 grms/set	Multipurpose liquid glue for metal, glass, chinaware, and stone.
57		40 grms	
58		110 grms	
47 10 61	Cemedine C Concre-ment	25 grms/tub	For filling cracks in concrete, gluing tiles or tex boards to places where nailing can not be applied.
62		60 grms	
47 10 66	Cemedine white	50 ml/btl	Clear glue for use with wood only.
67		180 ml	

(to be continued)

47 10 71	Cemedine C	7 ml/tub	For wood working. Instant curing for gluing wood to wood or wood to paper.
72		20 ml	
73		50 ml	
47 10 76	Cemedine C vinyl	20 ml/tub	For use with plastic and vinyl only. Not affected by water or chemicals after curing completely.
77		50 ml	
47 10 81	Paper liquid glue	60 cc/btl	Liquid for gluing paper to paper only. Easy to apply by a specially designed no mess spout.
82		140 cc	
47 10 86	Paper paste glue	100 grms/tub	Jelly like paste for gluing paper only.
87		220 grms	
88		380 grms/btl	
89		800 grms	
47 10 91	Stick glue	6.2 grms/pc	Multipurpose clear adhesive formed into glue stick for easy application.
92		21 grms	
47 10 94	Spray glue	80 ml/tin	Suitable for permanent or temporary bonding on wide surface of paper, film, etc.
95		430 ml/tin	

Staplers

Grapadoras　ホッチキス　钉书器

Hand type of small (No. 10) and Desk type of large (No. 3) sizes are most common.



No. 10　No. 3

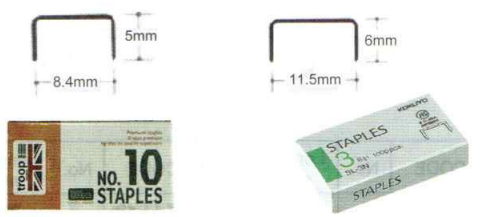
Unit Per Pc.

CODE	No.	Description	Staple Width mm
47 11 01	10	Hand Type	9
02	3	Desk Type	13

Staples

Grapas　ホッチキス用スペア針　钉书钉

Usually packed with 1,000 pieces per box. However, the amount per box may vary based upon the manufacturer. Please specify the type of the stapler currently in use or the length of the staple required.



Unit Per Box

CODE	No.	For	Width mm
47 11 05	10	No. 10 Hand Type	9
06	3	No. 3 Desk Type	13

Staple Removers

Quita-grapas　除針器　拔钉机

Easy to remove staples without damaging the stapled paper sheets. One size works with all staples.



Spring Hook



Stick

Unit Per Pc.

CODE	Type	CODE	Type
47 11 08	Spring hook	**47 11 09**	Stick

Paper Pins

Alfileres para Papel　虫ピン　紙钉

Made of chromed iron.



Unit Per Box

CODE	Length mm	Contents grm	App. Pcs. Per Box
47 11 11	27	50	500
12	27	100	1,000

Pins

Alfileres　ピン　別針

For temporary holding papers on the wall or marking point on the map.



Push Pins



Map Pins

Unit Per Pkt

CODE	Name	Pcs/ Pkt	CODE	Name	Pcs/ Pkt
47 11 13	Push pins	20	**47 11 14**	Map pins	20

Paper Clips

Clips para Papel　ゼムクリップ　曲别针

Chromed wire made. Photographs below are of the actual sizes.



No. 3



No. 1



No. 10

Unit Per Box

CODE	No.	Length mm	Per Box	CODE	No.	Length mm	Per Box
47 11 16	3	22	100	**47 11 19**	1	28	500
17	3	"	500	**20**	10	50	100
18	1	28	100				

Clips

Clips para Papel　クリップ　夹

Bulldog Clips

Clips "Bulldog"　蛇の目クリップ　山型紙夹

Chromed iron made. For clipping bundles of loose paper sheets together.



With Eye



Without Eye

Unit Per Pc.

CODE	Jaw Width mm	CODE	Jaw Width mm
With Eye		**Without Eye**	
47 11 25	20	**47 11 31**	40
26	30	**32**	70
27	40	**33**	109
28	50	**34**	147
29	65		

Fold Back Clips

Clips de Doblez　ダブルクリップ　折式紙夹

Strong spring iron made.



Unit Per Pc.

CODE	Jaw Width mm	CODE	Jaw Width mm
47 11 41	19	**47 11 44**	41
42	25	**45**	50
43	32		

Magnetic Clips

Clips Magnéticos　マグネチッククリップ　磁性紙夹

A paper clip with a magnet built in the back to hang documents easily on metal surfaces.



Unit Per Pc.

CODE	Jaw Width mm	CODE	Jaw Width mm
47 11 51	31	**47 11 54**	51
52	36	**55**	56
53	44		

Paper Fasteners

Sujetadores Papel　ファイル用ファスナー　公文用紙夹

Steel made filing clip 80 mm gauge.



Stick Type



Lock Type

Unit Per Pkt

CODE	Q'ty/Pkt	Prong Length	CODE	Q'ty/Pkt	Prong Length
Stick Type			**Lock Type**		
47 11 59	50's	60 mm	**47 11 60**	50's	39.5 mm

Binding String

Cuerda para Atar　つづりひも　捆绑线



Suitable for binding loose sheets.

Available three types of end preparation, varnished, celluloid capped, or brass capped.

Unit Per Pkt

CODE	Type of end	Length mm	Q'ty/Pkt
47 11 62	Varnished	450	100's
63	Celluloid capped		
64	Brass capped		

Rubber Bands

Gomas 輪ゴム 橡皮圈

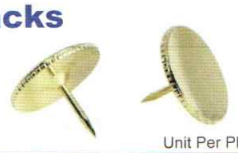


47 11 65	Rubber band, I. D. 38 mm 30 grm	Pkt
68	Rubber band, I. D. 38 mm 100 grm	"
66	Rubber band, I. D. 38 mm 150 grm	"
67	Rubber band, I. D. 38 mm 500 grm	"

Drawing Thumb Tacks

Chinchetas 画鋲 图钉

Large-headed brass pins.



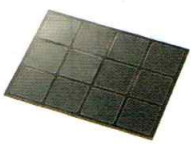
Unit Per Pkt

CODE	47 11 71	47 11 72
Contents	30s	60s

Synthetic Rubber Fasteners

Cierres de Goma 合成ゴム粘着剤 蓝丁胶

So-called "Blu-tack". Pliable substance with many applications. Ideal for fastening charts or calendars to walls without damaging the surfaces. Also useful for cleaning typewriter keys.



Unit Per Pkt

CODE	47 11 76	47 11 77
Contents	18s	42s

Tape Writers

Máquinas de Cinta テープライター Tepra 录音机

Electrical operated tape writer with 150 characters including alphabets, numerals, symbols, etc. The letters or figures can be adjusted into 4 sizes and 4 styles. Operated by dry batteries or AC power source with AC adapter.

AC adapter for 100 volt and cartridge tapes are sold separately.



47 11 81	Tape writer electric, "Tepra" SR-170	Pc.
82	AC adapter for AC 100 volt	"

Specifications

Input	Dial rotary system
Characters	150 characters (Alphabets, Numerals,Signs, Symbols)
Display	6 digits on L. C. D.
Font	24 or 48 dot, Gothic style
Writing Direction	Horizontal or Vertical
Tape Width	9 mm or 12 mm
Power Source	R14P (UM-2) × 5, or AC 100 Volt
Size W × D × H	170 × 128 × 56 mm
Weight	460 grm

CODE	Model	Unit
47 34 01	King Jim "Tepra-Pro"	Set
02	CASIO "Name-Land"	"
03	Dymo "Letra Tag"	"

Tape Cartridges for "Tepra-Pro" Tape Writer

Cartuchos para grabadora de cinta "Tepra-Pro

テプラプロ用テープカートリッジ

用于 "Tepra-Pro " 磁带机的磁带盒

Black letters will be printed on Red, Yellow, Green and Blue tapes, and Gold letters will be printed on Black tape.

Tape length: 8 mtr per pc.



Unit Per Pc.

CODE					Colour of Tape	Colour of Letters
Tape Width						
6 mm	9 mm	12 mm	18 mm	24 mm		
47 34 05	47 34 12	47 34 19	47 34 26	47 34 33	White	Black
06	13	20	27	34		Blue
07	14	21	28	35		Red
47 34 08	47 34 15	47 34 22	47 34 29	47 34 36	Red	Black
09	16	23	30	37	Yellow	
10	17	24	31	38	Green	
11	18	25	32	39	Blue	

Tape Cartridges for CASIO "Name-Land" Tape Writer

Cartuchos de cinta para grabadora CASIO "Name-Land

カシオネームランド用テープカートリッジ

用于卡西欧 "Name-Land" 磁带机的磁带盒

Tape length: 8 mtr per pc.

Unit Per Pc.

CODE					Colour of Tape	Colour of Letters
Tape Width						
6 mm	9 mm	12 mm	18 mm	24 mm		
47 34 51	47 34 56	47 34 63	47 34 70	47 34 77	White	Black
-	57	64	71	-		Blue
-	58	65	72	-		Red
47 34 52	47 34 59	47 34 66	47 34 73	47 34 78	Red	Black
53	60	67	74	79	Yellow	
54	61	68	75	80	Green	
55	62	69	76	81	Blue	

Tape Cartridges for Dymo "Letra Tag"

Cartuchos de cinta para Dymo "Letra Tag"

ダイモレトラタグ用テープカートリッジ

用于 Dymo "Letra Tag" 的胶带盒

Tape size: 12 mm width.

Unit Per Pc.

CODE	Colour	No.	CODE	Colour	No.
47 34 82	Black	12267	47 34 86	Green	91204
83	White	91201	87	Blue	91205
84	Yellow	91202	88	Metallic Silver	91208
85	Red	91203	89	Metallic Green	91209

"Dymo" Tape Writers

Máquinas de Cinta "Dymo"

"ダイモ" テープライター "Dymo" 打字器

Handheld label maker which types directly onto plastic adhesive tapes.



Unit Per Set

CODE	Type	Tape Width mm
47 12 08	DM-1595	6, 9 or, 12

"Dymo" Tapes

Cintas para "Dymo" "ダイモ"テープ "Dymo"字带



Plastic vinyl tapes of various colours for "Dymo" tape writers. Resistant to moisture, weather, abrasion, corrosion and most chemicals, and will stick to almost any smooth, clean, dry, surface.

How to order: CODE

Tape for "Dymo" tape writer, TAPE WIDTH, COLOUR

Unit Per Rls.

Colour	CODE Tape Width 6 mm	9 mm	12 mm
Blue	**47 12 11**	**47 12 21**	**47 12 31**
Red	**47 12 12**	**47 12 22**	**47 12 32**
Black	**47 12 15**	**47 12 25**	**47 12 35**

Cellophane Tapes

Cintas Adhesivas de Celofán transparente

セロテープ 玻璃带



A transparent cellophane that will stick to everything except greasy surfaces. Each package is furnished with a tape cutter.

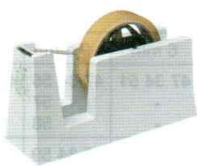
Unit Per Rls.

CODE	Width mm	×	Length mtr	CODE	Width mm	×	Length mtr
47 12 51	12	×	35	**47 12 53**	24	×	35
52	18	×	35				

Tape Dispensers

Soporte Cinta Celofán

テープカッター 胶粘带切断机



Non-slip base with a long life cutting blade for desk use. Holds 35 mtrs, rolls up to 24 mm wide.

47 12 56	Tape dispenser, desk use	Pc.

Plastic Printable Tapes

Cintas Impresoras スコッチテープ 隐形胶带



Clear plastic tapes that have a surface which can be written on with ball point or felt ink and will not smear with water.

Unit Per Rls.

CODE	Width mm	×	Length mtr	CODE	Width mm	×	Length mtr
47 12 61	12.7	×	32.9	**47 12 62**	19.0	×	32.9

Paper Tapes, Double Side Gummed

Cintas de papel Adhesiva, Doble Cara

両面紙テープ 双面胶



Paper double side gummed tape.

Unit Per Rls.

CODE	Width × Length	CODE	Width × Length
47 12 66	5 mm × 6.5 mtr	**47 12 69**	50 mm × 5 mtr
67	10 mm × 10 mtr	**70**	50 mm × 10 mtr
68	15 mm × 20 mtr		

Sealing Tapes

Cintas Adhesiva シールテープ 贴纸胶带

Kraft Paper Sealing Tape

Cinta de Sellado de Papel Kraft

紙テープ 牛皮纸密封带



These ready glued and self sealing tapes have a length of 50 mtr each.

Unit Per Rls.

CODE	Width mm	CODE	Width mm
47 12 71	25	**47 12 74**	60
72	38	**75**	75
73	50		

Cloth Sealing Tapes

Cintas de Sellado de Tela 布テープ 布密封胶带



Ready gummed, cloth reinforced, self sealing tapes for packing works. Each roll is 25 mtrs in length. Specify the required width when ordering.

Unit Per Rls.

CODE	Width mm	CODE	Width mm
47 12 81	25	**47 12 85**	75
82	38	**86**	100
83	50	**87**	150
84	60		

Coloured Cloth Sealing Tapes

Cintas de Sellado de Tela de Colores

色付布テープ 彩色布密封带



Available in 50 mm width and 25 mtr length only.

Unit Per Rls.

CODE	Colour	CODE	Colour
47 12 91	Blue	**47 12 93**	Yellow
92	Red	**94**	Green

Duct Tapes (Silver Tapes)

Cintas Adhesivas ダクトテープ 胶带



A wide silvery reinforced adhesive tape intended to seal joints in sheet metal duct work, but there are variety of uses. Each roll is 25 mtrs in length. Specify the required width when ordering.

Unit Per Rls.

CODE	Width mm	CODE	Width mm
47 12 88	50	**47 12 90**	100
89	75	**95**	150

Sticker Remover

Eliminador de Pegatinas

シール剥がしスプレー 贴纸去除剂



Fast dissolving adhesive, using safe formula, no damage to the surface of the object. Ideal for replacing posters, stickers, and safety notices etc.

47 12 97	Sticker Remover, 220 ml	Tin

Self-adhesive Magnet Tapes

Cintas magnéticas autoadhesivas
接着マグネットテープ　磁力胶带



The tape which attaches nearly any material to a metal surface. You can cut tape in any length you like, and paste it to poster paper to hold on the metal wall. Also suitable for hanging lightweight metal objects, if the tape, backed by a strong acrylic adhesive, pasted over wall or cabinet.

Unit Per Rls.

CODE	Width × Length	CODE	Width × Length
47 12 47	10 mm × 30 mtr	**47 12 59**	1/2″ × 4′
48	12 mm × 2 mtr	**60**	1/2″ × 16′
49	12 mm × 5 mtr	**63**	1″ × 4′
50	12.5 mm × 30 mtr	**64**	2″ × 10′
47 12 54	19 mm × 8 mtr		
55	Ditto with dispenser		
47 12 57	25 mm × 30 mtr		
58	40 mm × 50 mtr		

Paper Masking Tapes

Cinta Adhesiva de Papel
紙製マスキングテープ　紙製遮蔽膠帶



Used to cover or mask areas you do not want to get paint on, or to hold sheets or boards for periods of time, while painting or working. Normally supplied in paper tape with rubber-base glue.

Unit Per Rls.

CODE	Width × Length mm mtr	CODE	Width × Length mm mtr
47 13 71	12 × 55	**47 13 76**	24 × 18
72	15 × 18	**77**	24 × 55
73	18 × 18	**47 13 78**	48 × 55
74	18 × 55	**79**	72 × 55
75	21 × 18		

Cloth Masking Tapes with Poly Film

Cintas de protección para telas con película de poliéster
コロナマスキングテープ　经电晕放电处理的胶带



Designed to cover or mask wide areas you do not want to get painted. The folded Poly film is attached to cloth tape and by stretching poly film it can cover the wide area. Fine, uneven surface on the poly film will make it difficult for the paint to drip, scatters and dirty the surrounding of paint area.

Unit Per Rls.

CODE	Tape Width (mm)	Poly Film Width×Length (mm) (mtr)	CODE	Tape Width (mm)	Poly Film Width×Length (mm) (mtr)
47 13 80		300 × 12.5	**47 13 85**		300 × 25
81		550 × 12.5	**86**		550 × 25
82	17	1,000 × 12.5	**87**	17	1,000 × 25
83		1,100 × 12.5	**88**		1,100 × 25
84		2,000 × 12.5	**89**		2,100 × 25

Security Sealing Tapes

Cinta de Segridad　セキュリティテープ　安全警示胶带

Polypropylene tape with adhesive for sealing corrugated board boxes. The tape will leave behind a red layer of tape or message such as "Opened" if it is peeled away, and if anyone tried to peel off the residue of red layer or message from the surface of the paper box it will damage the surface. And the tape is inhibited to be reapplied on the paper box as it was for proving the box was opened.



47 14 03	Security sealing tape, W 50 mm x L 500 mtr	Rls.

Transparent Adhesive Sheets

Hojyas Adhesivas Transparentes "Láminas"
透明接着シート　透明胶片



Transparent adhesive sheets with frost process over the surface. Suitable for protection of drawings, documents, etc. The sheets accept to write down by pencils, water-soluble pens, marker pens, etc.

47 12 96	Transparent adhesive sheet W: 62 cm × L: 2 mtr	Rls.

Tags

Etiquetas　荷札　标签



Specially designed for labeling parts, samples, parcels, luggage, etc. Tags are furnished with wire tie string. Each bundle contains 50 tags.

Unit Per Bdl

Paper		Cloth	
CODE	Size mm	CODE	Size mm
47 13 01	60 × 30	**47 13 03**	120 × 60
02	120 × 60		

Plastic Tags with Ring

Etiquetas de Plástico con Anilla　名札
带环的塑料标签



Suitable for use as a key ring. Comes with a plastic tag in which a label for a room number, chamber name, etc. can be inserted. Provided in various colours with a key ring and tag.

Unit Per Pc.

CODE	Size	Size mm	CODE	Size	Size mm
47 13 06	Large	58 × 27	**47 13 07**	Small	45 × 30

Index Tabs

Etiquetas para Índice
見出し　索引标记



A self adhesive label for indexing.

Unit Per Pkt

CODE	Actual Size mm	Contents Per Pkt
47 13 11	7 × 15	176
12	9 × 19	120
13	10 × 22	90
14	11 × 40	60

Self-Adhesive Labels

Etiquetas Auto-adhesivas タックタイトル
不干胶标签

Self adhesive plain white label.
Available in various sizes.



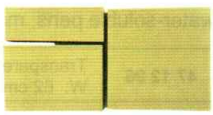
Unit Per Pkt

CODE	Size mm	Per Pkt	CODE	Size mm	Per Pkt
47 13 16	12 × 27	513s	**47 13 19**	38 × 87	57s
17	27 × 43	152s	**20**	43 × 120	38s
18	22 × 87	95s			

Post It Memo

Post It para Memo ポスト・イット 备注标签

Memo paper which adheres to various kinds of surfaces such as paper, plastic, steel, etc. Very useful when marking pages in a book or leaving memos on maps, drawings, machinery parts, etc. Memos can be easily removed without damaging the surface.



CODE	Size mm	Sht/Pad	Unit
47 13 21	14 × 75	100's × 4pad/pkt	Pkt
22	50 × 75	100's/pad	Pad
23	75 × 75	100's/pad	"

Kraft Wrapping Paper

Papel Kraft para Envolver クラフト紙
牛皮包装纸

For wrapping stores, goods and parcels. Brown coloured paper 910 mm in width, furnished in rolls.



Unit Per Rls.

CODE	Width mm × Length mtr	CODE	Width mm × Length mtr
47 13 31	910 × 30	**47 13 32**	910 × 60

Tarpaulin Paper

Papel Encerrado para Envolver ターポリン紙 防潮纸

Heavy waterproof paper for lining, wrapping, etc.



Unit Per Rls.

CODE	47 13 41	47 13 42	47 13 43
Size	900mm × 30mtrs	1,010mm × 30mtrs	1,210mm × 30mtrs

Strings

Cuerda ひも 细

Jute String

Cuerda de Yute ジュートひも 麻绳

Six-ply jute yarn for wrapping packages, etc.



Unit Per C/L

CODE	Weight Per Coil	Approx. Length
47 13 51	400 grm	200 mtr
52	1 kg	500 mtr

Polypropylene String

Cuerda de Polipropileno
ポリプロひも 合成纤维绳

Split-film polypropylene yarn for packing, etc.



Unit Per C/L

CODE	Length Per Coil	Approx. Length
47 13 56	200 mtr	350 grm
57	1,000 mtr	1.5 kg

Air Bubble Pack Sheets

Roll de Plástico de Burbuja
エアークッションシート 气泡包装纸

For packing and protection of products made from glass, plastic, etc., or delicate instruments, which are easy to break by shocks and vibrations in transit.



Unit Per Rls.

CODE	Width × Length	CODE	Width × Length
47 13 61	300 mm × 42 mtr	**47 13 63**	1,000 mm × 50 mtr
62	500 mm × 50 mtr		

Pasteboard Boxes

Cajas de Embalar ダンボール箱
胶纸板盒

Made of pasteboard, and suitable for storing and packing documents, consumables, dry provisions, etc. Available various sizes upon request.



47 13 65	Pasteboard box, 370 × 310 × 270 mm	Pc.

Chairs

Sillas 椅子 椅

Folding Chairs

Sillas Plegables 折りたたみ椅子 折叠椅

Made of chromed polish pipe frame with the seat and back support upholstered in vinyl. Available in green, brown, blue, etc. Seated height 480 mm, with size 360 x 360 mm.



47 15 01	Chair folding, pipe frame	Pc.

Swivel Chairs

Sillas Giratorias 廻転椅子 旋转椅

Made of chromed polish, pipe frame with the seat and back support upholstered in vinyl. Seated height is adjustable between 360~ 460 mm. Grey colour will be furnished if not specified. Wheel stopper is furnished. Please specify if the chair should be with or without arms when ordering.



47 15 03	Chair, swivel pipe frame	Pc.
04	Armchair, swivel pipe frame	"

Desk Mats

Bandeja de sobremesa デスクマット
桌垫



Vinyl or rubber made soft desk mats designed to provide a better writing surface and to keep items from sliding around on the desk.

Unit Per Pc.

Rubber Green		P .V. C. Transparent	
CODE	Size mm W × D × T	CODE	Size mm W × D × T
47 15 11	450 × 300 × 2.5	**47 15 16**	600 × 450 × 2
12	550 × 390 × 2.5	**17**	900 × 620 × 2
13	600 × 450 × 2.5	**18**	1,045 × 620 × 2
14	900 × 600 × 2.5	**19**	1,045 × 715 × 2

Desk Calendars

Calendarios de Sobremesa　卓上カレンダー　台历



A convenient desk diary for personal daily memorandum.

47 15 22	Desk calendar	Set

Name Card Holders

Tarjetreos para Tarjeras de Presentación　名刺ホルダー　名片夹

Available various types of name card holders, such as case type, binder type, rotary type, etc. Please specify type of name card holder and numbers of name card to be held.



Case Type



Book-binded



Loose-leaf



Rotary Type

Case Type

Unit Per Pc.

CODE	Numbers of Name Card	Size mm W × D × H
47 15 26	400	106 × 136 × 72
27	800	106 × 275 × 72

Binder Type

Unit Per Pc.

CODE	Items	Numbers of Name Card	Size mm W × D × H
47 15 31	Book-binded	60	206 × 110 × 8
32		200	206 × 110 × 32
33		300	206 × 110 × 42
47 15 35	Loose-leaf	300	262 × 315 × 25
36	Refill pocket	20	230 × 302

Rotary Type

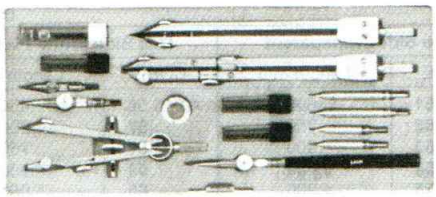
Unit Per Pc.

CODE	Numbers of Name Card	Size mm W × D × H
47 15 38	400	180 × 170 × 190
39	600	165 × 200 × 220

Drawing Instrument Sets

Juegos de Instrumento para Dibujar　製図器　绘图仪器装置

The Drawing Instruments are made from nickel plated brass with matt brushed finish. The details of the contents are as follows.



Contents

CODE 47-15-			41	42	43	44	45
Point replaceable large compass with needlepoint 157 mm	Pencil Point		O	O	O	O	O
	Markout Point		O	O	O	O	O
	Sharp Pen Point	0.3 mm	O			O	O
	"	0.5 mm	O	O	O	O	O
Point replaceable medium compass with needlepoint 122 mm	Pencil Point			O	O	O	O
	Markout Point			O	O	O	O
	Sharp Pen Point	0.3 mm				O	O
	"	0.5 mm		O	O	O	O
Divider	Large L:155 mm		O	O	O	O	O
	Small L:115 mm					O	O
Master Blow Compass Length 100 mm	Pencil Point		O	O	O	O	O
	Markout Point		O	O	O	O	O
	Sharp Pen Point	0.3 mm	O				
	"	0.5 mm	O				
Rotating Compass Length: 130 mm	Pencil Point				O	O	O
	Markout Point				O	O	O
Sharp Pen Point	0.3 mm					O	O
	0.5 mm			O	O	O	O
Medium Markout Point			O		O	O	O
Single Curve Markout Point							O
Double Curve Markout Pen							O
Beam Compass 4's/set							O
Proportional compass w/Regulator						O	O
Spare Markout Point Rod				O			
Spare Replacements			O		O		O
Total Number of Pieces			10	11	13	18	24

Unit Per Set

CODE	Contents	CODE	Contents
47 15 41	10's	**47 15 44**	18's
42	11's	**45**	24's
43	13's		

T-Squares

Eacuadras-T　T 型定規　T 型曲尺



Transparent plastic cover on a wood frame



White plastic cover on a wood frame

Unit Per Pc.

One Side Transparent		One Side White Plastic	
CODE	Length mm	CODE	Length mm
47 15 51	600	**47 15 56**	450
52	750	**57**	600
53	900	**58**	750
54	1,050	**59**	900
55	1,200	**60**	1,050
-	-	**47 15 61**	1,200

Straight Plastic Rules

Reglas Plástico 直定規 塑料直尺

Plastic made transparent rule with metric graduation.



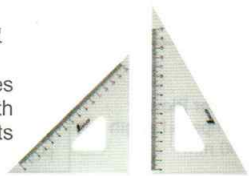
Unit Per Pc.

CODE	Length mm	CODE	Length mm
47 15 66	150	**47 15 69**	400
67	300	**70**	600
68	360	**71**	1,000

Set Squares

Juego de Escuadras 三角定規 三角尺

Plastic, transparent set squares provided in pairs of two. The length of the base of the triangle represents the size of the set square.



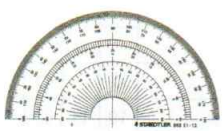
Unit Per Pr.

CODE	Length mm	CODE	Length mm
47 15 75	150	**47 15 78**	300
76	180	**79**	360
77	240	**80**	450

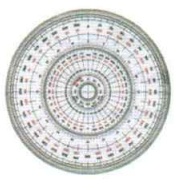
Protractors

Transportadores 分度器 量角器

Available full round (360°) or half round (180°). Made of transparent plastic.



180°



360°

Unit Per Pc.

Half Rond (180°)		Rond (360°)	
CODE	Dia mm	CODE	Dia mm
47 15 85	150	**47 15 87**	135
86	180	**88**	180

Drawing Boards

Tablas para Dibujar 製図板 绘图板

Made of plywood. Available in plain and vinyl coated.



Unit Per Sht.

Plain Board		Vinyl Coated Board	
CODE	Size mm	CODE	Size mm
47 16 11	450 × 600 × 20	**47 16 16**	450 × 600 × 30
12	600 × 900 × 30	**17**	600 × 900 × 30
13	750 × 1,050 × 30	**18**	750 × 1,050 × 30
14	900 × 1,200 × 30	**19**	900 × 1,200 × 30

Whiteboards

Pizarras 白板 白板

Porcelain coated whiteboard for use with erasable markers. Standard sizes are listed below.



Unit Per Pc.

CODE	Size cm	CODE	Size cm
47 16 30	45 × 60	**47 16 32**	90 × 120
31	60 × 90	**33**	90 × 180

Notice Boards

Tablones de Anuncios 掲示板 布告板

Green felt notice board with fibreboard backing. Standard sizes are listed below.



Unit Per Pc.

CODE	Size cm	CODE	Size cm
47 16 36	60 × 90	**47 16 37**	90 × 120

Erasers for Whiteboard

Handy eraser for whiteboard.



47 16 41	Eraser for whiteboard	Pc.

Whiteboard Markers

Rotulabores para Pizarras

ホワイトボード用マーカー 白板标记笔

For use on all whiteboard surfaces, easily erased with dry cloth.



Unit Per Pc.

CODE	Size cm	CODE	Size cm
47 16 45	Blue	**47 16 47**	Green
46	Red	**48**	Black

Paper Holding Magnets

Imanes Sujeta Papeles

カラーマグネット 紙张吸持磁铁

Magnets with plastic coloured caps for hanging papers on a steel surface.



How to order: CODE

Magnet, paper holding, DIAM, COLOUR

Unit Per Pc.

Diam. mm		15	20	30
		CODE	CODE	CODE
Colour	Blue	47 16 51	47 16 58	47 16 65
	Red	52	59	66
	Green	53	60	67
	Yellow	54	61	68
	Black	55	62	69
	White	56	63	70

Magnet Rubber Sheets

Láminas de Goma con Imán
マグネットゴムシート　磁性橡胶板



Synthetic soft rubber sheet with magnetic functions. Can be cut by knife or scissors into desired shape.

Unit Per Sht

CODE	Colour	Size mm
47 16 71	Red	W 100 × L 300 mm
72	Yellow	
73	Blue	
74	Green	
75	White	

Safes

Seguro　金庫　保险箱

Handy Safes

Cajas Fuertes Portátiles　手提金庫　手提钱箱



Also called cash boxes. The most common sizes are listed below.

Unit Per Pc.

CODE	Outer Size mm	Weight kg	Alarm
47 16 81	300 × 255 × 123	3.0	Without
82	364 × 272 × 153	4.5	With

Fireproof Safes

Cajas Fuertes Resistentes al Fuego　耐火金庫
防火保险箱



A heavy, steel framed safe. Completely fireproof to assure the safety of cash and important documents. Equipped with an alarm that sounds when the safe is moved, or when the door is opened by force.

Unit Per Set

CODE	Outer Size mm	Weight kg	Alarm
47 16 86	480 x 404.5 x 368	50	Without
87	480 x 404.5 x 368	50	With
88	455 x 479 x 677	93	Without
89	455 x 479 x 677	93	With

Security Seals

Etiqueta de seguridad　セキュリティシール　保全封帶



Security seals are designed to protect your property and merchandise, providing wide range of application from sealing document trays and safe deposit boxes to securing medical cabinets and roll cages to help counter tampering, smuggling and espionage.

Once a security seal is opened, it would depict obvious evidence of tampering. Moulded in high grade polypropylene. The strap end is simply inserted toward the head and then pulled to desired tightness, and to remove merely use hand pressure or a simple tool.

Pulltight Series

Serie Pulltight　プルタイトシリーズ　拉紧系列

These seals are available in a variety of lengths and are offered on a mat of 10 for easy distribution.



Unit Per Pkt

Colour	Size W × L mm		
	2.2 × 210	3.6 × 235	7.0 × 380
Red	47 17 71	47 17 76	47 17 81
Blue	72	77	82
Yellow	73	78	83
Green	74	79	84
White	75	80	85

Fix Series

Serie Fix　フィックスシリーズ　固定系列



Ideally suited for cargo shipment industry. Easy to apply, the end security snaps into the enclosed locking head.

Unit Per Pc.

CODE	Colour	Size mm
47 17 87	Red	W: 6.0 × L: 195
88	Yellow	
89	Green	

Padlock Series

Serie Candado　南京錠シリーズ　挂锁系列

Easy to apply by simply pushing the hasp into the body.



Unit Per Pc.

CODE	Colour	Size mm
47 17 91	Red	W: 40 × L: 60
92	Blue	
93	Yellow	
94	Green	
95	White	

Ancillary Equipment for Projector

Equipo auxiliar para proyector
プロジェクター用備品　架空投影器用辅助品

Spring Roller Screens for Projector

Pantallas de rodillos de muelle para Proyector
プロジェクター用
スプリングローラースクリーン
投影仪用弹簧滚轮屏幕



Unit Per Set

CODE	Type	Size W×H	Weight
47 17 35	Wall	1,200 × 1,200	2.0 kg
36		1,500 × 1,500	2.5 kg
47 17 37	Stand	1,500 × 1,500	5.5 kg
38		1,800 × 1,800	7.0 kg

Marker Pens for Over Head Projector Film

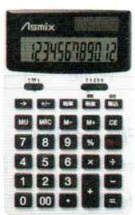
Rotuladores para Retroproyector Película
オーバーヘッド・プロジェクター用マーカーペン
用于头顶放映机胶片的记号笔

Unit Per Pc.

CODE	Thickness	Colour	CODE	Thickness	Colour
47 17 41	0.5 mm	Black	47 17 44	1.0 mm	Black
42		Red	45		Red
43		Blue	46		Blue

Calculators

Calculadoras 計算機 计算器



Various types of calculators are available. Since the models of calculators change so frequently, a list of the common types of calculators is listed below as a general guide for the purchaser.

Unit Per Pc.

CODE	Type	Digit	Power Source	Remark
47 18 01	Card	8	Solar	-
47 18 06	Pocketable		Battery	
07		10		
47 18 08		8	Solar	
09		10		
47 18 16	Portable	8	Dual	AC 110V
17				AC 220V
47 18 18		10		AC 110V
19				AC 220V
47 18 20		12		AC 110V
21				AC 220V
47 18 31	Desk-top	10		AC 110V
32				AC 220V
47 18 33		12		AC 110V
34				AC 220V
47 18 41	Desk-top with Printer	10		AC 110V
42				AC 220V
47 18 43			AC	AC 110V
44				AC 220V
47 18 45		12	Dual	AC 110V
46				AC 220V

Note: Dual means Battery or AC power source applicable.

Scientific Calculators

Calculadoras Científicas 関数計算機 科学计算器



For engineers or machinists use. Built-in various mathematical functions such as logarithms, statistics, trigonometric, etc.

Available various types and functions depend on the manufacturers and models.

Please specify required functions when ordering.

How to order: 47 - 18 - 51

Scientific calculator, with required functions,MFR'S NAME, MODEL, ETC.

Calculator Roll Paper

Rollo de Papel para Calculadora
計算機用記録紙
计算器卷轴式纪录纸



Recording paper rolls for calculators.

Unit Per Rls.

CODE	47 18 61	47 18 62
Width × O.D mm	57 × 50	57 × 60

Palm Tally Counters

Contador de Mano 数取器 掌上型計數器



Metal body mechanism four digits counter for counting inventories, etc. with actuating push button and reset button. Handy and suitable to fit in your palm.

47 18 55	Tally counter, handy, 4-digits	Pc.

Digital Cameras

Cámeras Digitales デジタルカメラ 数码相机



A compact digital camera for capturing photos and videos. It offers automatic settings, various shooting modes for casual photography. Various models are available in the market, so please specify the models and manufactures, max image pixel, max zoom capacity etc. when ordering.

How to order: 47 - 18 - 74

Digital camera, MAX IMAGE PIXEL, MAX. ZOOM CAPACITY, MEMORY DEVICE, ***MFR'S NAME, MODEL NAME***

Flash Memory Cards (Picture Cards) for Digital Camera



A solid-state electronic flash memory data storage device used with digital cameras and other electronics. There are many different types of memory cards, such as SD/SDHC/SDXC/Memory Stick type. Please ask for the correct specifications to your local supplier, specify manufacturer's name and model of the digital camera when ordering.

Unit Per Pc.

CODE	Capacity	CODE	Capacity
47 18 56	8 GB	47 18 60	128 GB
57	16 GB	65	256 GB
58	32 GB	68	512 GB
59	64 GB	79	1 TB
		80	2 TB

Selfie Stick for Digital Camera

Palo Selfie para Cámara Digital
デジタルカメラ用自撮り棒 数码相机自拍杆

A stick-shaped device that is attached to a camera or a smartphone to take selfies or photos for any angles or

distances which is difficult with human arm by itself. The sticks are typically extensible, total approx. 1 mtr length, with handle on one end and an adjustable clamp on the other end to hold the device. Monopod or tripod accessories are also available to stabilizing the device on the ground.



47 18 69	Selfie stick for digital camera	Pc.

Memory Card Reader

Lector de tarjeta de memoria
メモリーカードリーダー　读卡器



Memory Card Reader is a device with USB interface, to access the data on memory cards and transfer to your computer. Compatible with SD/SDHC/SDXC/miniSD/microSD/microSDHC/Compact Flash Cards and Memory Stick series etc.

Please specify the type of memory cards when ordering.

Unit Per Pc.

CODE	Description	Connection
47 18 63	Memory Card Reader	USB 2.0 (Type A)
64	"	USB 3.0 (Type A)
70	"	USB 3.1 (Type C)

Photograph Print Paper

Papel de fotografía　写真用紙　相纸



A high-quality photographic print paper coated with a light-sensitive chemical formula, which can be printed by ink-jet printer.

Unit Per Pkt

CODE	Size	Q'ty/Pkt	CODE	Size	Q'ty/Pkt
47 22 51	L	100's	**47 22 56**	A-4	20's
52	(89 ×	200's	**57**	(210 ×	50's
53	127 mm)	400's	**58**	297 mm)	100's
47 22 54	2L	50's	**47 22 59**	Quarto	20's
55	(127 × 178 mm)	100's		(254 × 305 mm)	

Films with Lens

Cámeras Desechables　使い捨てカメラ
一次性照相机



Films with lens and recyclable frame. Available with flash type, also.

Unit Per Pc.

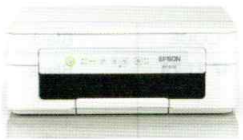
CODE	Films	CODE	Films
Without Flash		**With Flash**	
47 18 75	27 shots	**47 18 76**	27 shots
77	39 shots	**78**	39 shots

Copy Machines

Fotocopiadora　コピーマシン　普通纸复印机

Desktop Copy Machines

Copiadoras de Sobremesa　デスクトップコピー機　桌上型复印机



There are a large variety of copy machine models available. Each has its own capabilities and features. For the purpose of making ordering easier, we have provided the following ordering table composed of the most practical copy machines for marine use.

For any further detailed information about what copy machines are available in various ports, please contact your local supplier.

Note: In case you require a copy machine which enlarges or reduces the copy size, please specify what size range it should cover.

Specifications

Type	Desk top				
Copy Size mm	Up to A4 (210 × 297 mm)		Up to B4 (257 × 364 mm)		Up to A3 (297 × 420 mm)
Colour	Mono	Colour	Mono	Colour	Colour

Unit Per Set

CODE	Voltage	Colour	Copy Size mm
47 21 32	100 V	Mono	Up to A-4
36	220 V		
47 21 37	100 V	Colour	
38	220 V		
47 21 42	100 V	Mono	Up to B-4
46	220 V		
47 21 47	100 V	Colour	
48	220 V		
47 21 52	100 V	Colour	Up to A-3
56	220 V		

Multi Functional Copy Machines

Copiadoras Multifunción　複合型コピーマシン　多功能复印机



A copy machine which incorporates the functionality of multiple devices in one. A typical machine may act as a combination of some or all of the following devices: Photocopier/Printer/Scanner. There are various manufacturers and models recommendable to your document works. Please consult to your local supplier for more information before ordering.

Unit Per Set

CODE	**47 21 65**	**47 21 66**
Operating Systems	Windows	
Voltage	AC 100V	AC 220V
Printable Size	Up to A-3	
Functions	Photocopier/printer/Scanner	

Ink Cartridges for Copy Machines

Cartuchos de Tinta para Fotocopiadoras
コピーマシン用インクカートリッジ　用于复印机的墨盒



Ther are various manufacturers and models of copy machines. Please specify exact manufacturer's name and model name of the copy machine you use, and type and colour of ink cartridges when ordering.

Unit Per Pc.

CODE	Black	CODE	Colour
47 21 79	Black	47 21 80	Colour
		81	Cyan (C)
		82	Magenta (M)
		83	Yellow (Y)

Paper for P.P.C.

Papel para Fotocopiadora
コピーマシン用紙　复印机用纸

Used for plain paper copiers.



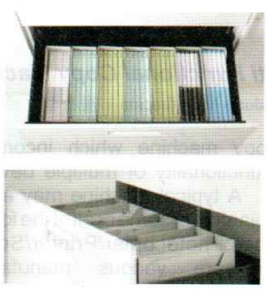
CODE	Size	Actual Size mm	Unit Contents	Unit
47 21 84	A5	148 × 210	500 sht	Pkt
85	B5	182 × 257	"	"
86	A4	210 × 297	"	"
87	B4	257 × 364	"	"
88	A3	297 × 420	"	"

Steel Filing Drawer Cabinets

Archivadores de Acero　ファイルキャビネット　钢制文件抽屉柜

Steel file cabinets with drawers suspended on extension runners which are easy to open and close smoothly and are resistant to heavy use. The drawers have wire frame rails for holding letter files in place and allowing easy access to the materials inside. The handle has a clear plastic compartment in which index labels can be inserted. There are two or three subject dividers furnished with each drawer. These cabinets are available in grey or beige. The grey cabinet will be supplied unless specified otherwise when ordering.





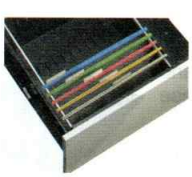
Unit Per Pc.

CODE	Type	Numbers of Drawer	Outer Size W × D × H mm
47 25 01	A4-2	2	387 × 620 × 740
02	A4-3	3	387 × 620 × 1,015
03	A4-4	4	387 × 620 × 1,335
47 25 06	B4-2	2	456 × 620 × 740
07	B4-3	3	456 × 620 × 1,066
08	B4-4	4	456 × 620 × 1,400

Filing Cabinet Drawer Accessories

Accesorios para Cajones de Archivadores
ファイリングキャビネット用備品　文件柜抽屉配件

Drawer accessories for the aforementioned drawer cabinet.



Hanging Frame



Separator



Hanging File



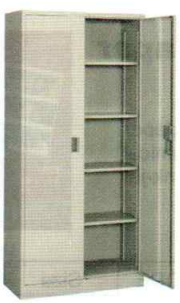
Individual Holder

CODE	Name	Type	Drawer Size W × D × H mm	Unit
47 25 11	Hanging Frame	A4	319 × 561 × 274	Set
12		B4	280 × 562 × 212	
47 25 13	Separator	A4	319 × 561 × 274	Pc.
14		B4	280 × 562 × 212	
47 25 15	Hanging File	A4	319 × 561 × 274	Pc.
16		B4	280 × 562 × 212	
47 25 17	Individual Holder	A4	319 × 561 × 274	Pc.
18		B4	280 × 562 × 212	

Steel Filing Door Cabinets

Armario Archivador de Acero　スチール書庫　铁门文件柜

Designed and engineered to withstand continuous, rugged use. Available in a sliding glass door type or a steel reinforced, folding door type, with deep or shallow shelves. The parts fit together effortlessly making assembly quick and easy. Available in beige and grey. The grey cabinet will be supplied unless specified otherwise when ordering.



Steel Folding Door



Glass Framed Sliding Door

Unit Per Pc.

CODE	Type of Doors	Number of Shelves	Over size mm W × D × H
	Shallow Shelf		
47 25 31	Steel Folding	4	880 × 380 × 1,790
32	Glass Sliding	4	880 × 400 × 1,790
	Deep Shelf		
47 25 33	Steel Folding	4	880 × 515 × 1,790
34	Glass Sliding	4	"

Blank Recordable CDs

(Blank Compact Discs)

CD-ROM　ブランク CD　光盘



A type of optical disc capable of storing large amounts of data up to 650MB or 700 MB. Once stamped, CD-ROMs are particularly well-suited to information that requires large storage capacity such as colour graphics, sound, etc.

CODE	Capacity	Unit	CODE	Capacity	Unit
47 26 71	650 MB	Pc.	47 26 20	700 MB	Pc.
72		10's/pkt	24		10's/pkt
73		100's/pkt	25		100's/pkt

CD-Rewritable Discs

CD-RW　CD-RW　CD 盒

You can treat the CD-RW disc as the optical disc just like a hard disc, writing data onto it multiple times though CD-R.

CODE	Capacity	Unit	CODE	Capacity	Unit
47 26 74		Pc.	**47 26 29**		Pc.
75	650 MB	5's/pkt	**30**	700 MB	5's/pkt
76		10's/pkt	**34**		10's/pkt

USB Memory Sticks

Stick de Memoria USB　USB メモリースティック　USB 記憶棒

A flash memory data storage device integrated with a USB (universal serial bus) connector allowing them to be connected directly to a port on a personal computer. Typically the data is removable and rewritable. Also available with security lock system on request.



Unit Per Pc.

CODE	Data Capacity	CODE	Data Capacity
47 26 83	2 GB	**47 28 72**	128 GB
84	4 GB	**73**	256 GB
89	8 GB	**98**	512 GB
90	16 GB	**99**	1 TB
47 28 70	32 GB	**47 29 00**	2 TB
71	64 GB		

Blank DVD-R and DVD-RW

DVD-R y DVD-RW Vigenes

ブランク DVD-R、DVD-RW　DVD-R 及 DVD-RW 空白片

An extremely large capacity digital versatile disc for storage video movies. Typically storage capacity is 4.7 GB per disc. DVD-R is for recording only, and DVD-RW is for rewritable.



Unit Per Pkt

CODE	Q'ty/Pkt	CODE	Q'ty/Pkt
DVD-R (Recordable)		**DVD-RW (Rewritable)**	
47 26 91	5's	**47 26 96**	5's
92	10's	**97**	10's
93	20's	**99**	20's
94	50's	**47 27 00**	50's
98	100's		

CD/DVD Cases

Cajas para CD/DVD　CD/DVD 用ケース　CD/DVD 盒

Available transparent styrene made case for single sheet, or box type cases for a round sum of sheets.



case　Shelf　Drawer

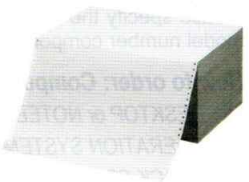
Unit Per Pc.

CODE	Type	Capacity	Outer Size
47 27 65	Case	1 sht	W 142 × D 125 × H 10 mm
66	Shelf	27 shts	W 464 × D 139 × H 154 mm
67	Drawer	22 shts	W 165 × D 314 × H 173 mm

Data Forms

Papel Conitinuo　データ用紙　数据表单

Continuous business paper forms used for computer printing. Available in various types, the most common of which are listed below.



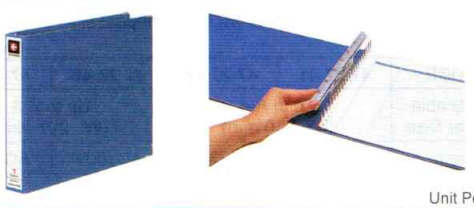
Unit Per C/S

CODE	Type	Size	Ply	Sheets Per Case
47 26 51	Plain	9" × 11"	1	2,000
47 26 52		15" × 11"	1	
53			2	1,000
54			3	500
55			4	
47 26 56	1/3 Lined Per Inch	9" × 11"	1	2,000
57			2	1,000
58			3	500
59			4	
47 26 60		15" × 11"	1	2,000
61			2	1,000
62			3	500
63			4	
47 26 64	1/6 Colour Belt Per Inch	15" × 11"	1	2,000
65			2	1,000
66			3	500
67			4	

Data Form Files

Archivadores　データ用紙用ファイル　数据表单文件

Blue coloured hardboard covers with a standing, pin type binder which will hold a stack of paper up to 28 mm thick. Please specify the size required and the data form size to be used with the file.



Unit Per Pc.

CODE	Size mm	Applicable Form	No. of Pins
47 26 81	304 × 237 × 39	9" × 11"	18
82	405 × 285 × 39	15" × 11"	22

Personal Computers and Ancillary Equipment

Ordenadores Personales y Equipamiento Auxilar

パーソナルコンピュータ及び周辺機器

个人电脑及外围设备



There are various types of models available from manufacturers around the world. It is important to have a precise idea of what type of operation system, like a Windows, Macintosh, you require based upon what capabilities are needed for the work done.

Please consult with a sales engineer or refer to product brochures for necessary details about system components and their functions. Ask about the compatibility of the software you are currently using or plan to use with the system which you have in mind.

Please specify the Operation System, manufacturer's name, model number components, etc. when ordering.

How to order: Computer, personal,

1) *DESKTOP or NOTEBOOK*
2) *OPERATION SYSTEM (Windows or Mac),*
3) *CLOCK SPEED of CPU (GHz)*
4) *HARD DISC VOLUME (GB),*
5) *CAPACITY OF RAM (GB RAM)*
6) *SIZE of LCD DISPLAY*

CODE	Description	Unit
47 27 01	Personal computer, desktop type	Pc.
02	Display for desktop computer (Specify the size)	"
03	Keyboard for desktop computer with wire	"
05	Keyboard for desktop computer with wireless	"
04	Printer for desktop computer with wire	"
06	Printer for desktop computer with wireless	"
47 27 11	Personal computer, lap-top (Note) type	Pc.
12	Printer for lap-top personal computer	"

Ink-jet Printers

Impresoras Ink-Jet　インクジェットプリンター　喷墨打印机



Printer for computer use, spraying ink at printing paper. Available various types of printers depends on capacity of the resolution, printing speed, etc. Please ask to your local dealer about further details.

How to order: CODE

Printer, ink-jet, MFR, MODEL, APPLICABLE OS, MAX PAPER SIZE, VOLTAGE, COLOUR or MONO if necessary

Unit Per Set

CODE	47 27 41	47 27 42	47 27 43	47 27 44
Applicable Paper Size	Up to A-4 (W: 210 mm)		Up to A-3 (W: 297 mm)	
Voltage	AC100V	AC220V	AC100V	AC220V

Ink Cartridges for Ink-jet Printer

Cartuchos de Tinta para Impresoras de Chorro de Tinta

インクジェットプリンター用カートリッジ　喷墨打印机墨盒



Special cartridge for ink-jet printers, flushing inks by heating mechanism in the cartridge. There are various manufacturers and models of ink cartridge in the world. Please check the mfr's name and type of cartridge referring to the manual of the printer, or the cartridge in use when ordering to avoid miss arrangement.

How to order: CODE

Ink cartridge, for ink-jet printer, TYPE of INK, MONO or COLOUR, MFR'S NAME & MODEL of PRINTER

Unit Per Pc.

CODE	Colour	CODE	Colour
CANON			
47 27 25	Black only	**47 27 15**	Cyan (C)
26	Colour	**16**	Magenta (M)
		17	Yellow (Y)
Hewlet Packard			
47 27 27	Black onlly	**47 27 18**	Cyan (C)
28	Colour	**19**	Magenta (M)
		20	Yellow (Y)
Epson			
47 27 29	Black only	**47 27 49**	Cyan (C)
30	Colour	**50**	Magenta (M)
		51	Yellow (Y)

Scanners

Escaneadora　スキャナー　扫描仪



A device which can read text or images printed on paper and translate the information into a file the computer can use such as jpg, tif, or bmp. The images stored in a file, can be displayed on a screen, and manipulated by program. There are two types of scanning method : Automatic document fed for loose sheets of paper or flatbed suitable for bound documents.

For further information, please contact to your local distributers.

How to order: CODE

Scanner, VOLTAGE, TYPE of SCANNING METHOD, PAPER CAPACITY, ETC.

Unit Per Set

CODE	Scan Size	Voltage	Scanning Method
47 22 05	A-4	AC 110V	Flatbed
47 22 07		AC 220V	
47 22 01	A-3	AC 110V	Automatic document fed and flatbed
47 22 03		AC 220V	

LCD Projectors

Proyector de pantalla Liquida LCD　液晶プロジェクター　LCD 投影機



An LCD projector is a type of video projector for displaying video, images or computer data on a screen or other flat surface. There are various manufacturers and models, and please ask to your local dealers about the brochure and further details.

How to order: CODE

LCD projector, MANUFACTURER'S NAME, MODEL, RESOLUTION (Pixels), BRIGHTNESS (Lumens), PICTURE SIZE (Inch), POWER SOURCE (Voltage), etc.

Unit Per Pc.

CODE	Voltage	CODE	Voltage
47 22 11	AC 100V	**47 22 12**	AC 220V

Laser Pointers

Punteros láser　レーザーポインター　激光笔



A pen style laser spotlight emitter suitable for pointing and highlighting text or images on the presentation screen.

47 22 13	Laser pointer	Pc.

Jiffy Bags for CD

Bolsas para Paquete de CD
CD 用郵便用封筒　CD 用大信封



Craft paper envelope lined with air bubble pack sheet for mailing compact disc, etc.

Unit Per Pc.

CODE	Size W × H	Application
47 27 72	165 × 220 mm	Compact disc

Canned Air Dusters

Aire Enlatado para Remover el Polvo
缶入りエアーダスター　罐装吹塵器



Ideal for use on keyboards, laptops, printers, PCBs and photographic equipment to remove dust, dirt and microscopic debris. It's ozone safe.

47 27 75	Air duster, canned, 10 oz	Can

Air Dusters

Non-flammable

Quitapolvo de aire comprimido ininflamable
難燃性エアダスター　难燃性压缩空气除尘罐



Non-flammable duster for electronics. A high pressure, inert, liquefied gas that safely removes dust and loose debris with a powerful 'air' jet. Helps prevent electronic component errors or downtime.

Unit Per Tin

CODE	Name	Contents	Description
47 27 79	Air Duster/2	400 ml	Powerful, non-flammable, F-Gas compliant, low GWP, duster for electronics & optics.
80	Invertible Air Duster/2	200 ml	Same as above, but invertible.

Name of Mfr. : CRC Industries (Ambersil)

Ancillary Equipment
Mouse and Mouse Pads

Equipamiento Auxiliar/Ratón y Alfonbilla
マウス / マウスパッド　外部设备（鼠标及鼠标垫）

A pointing device for computer. Movement will be detected by Optical or LED tracking, and available in Wired or Wireless type.



Unit Per Pc.

CODE	Type		Interface
47 27 81 76	DOS/V	Wired Wireless	PS/2 & serial mouth
47 27 82 77	Macintosh	Wired Wireless	Apple desktop bus protocol

Mouse Pad



Plain



With Wrist Rest

Unit Per Pc.

CODE	Type	CODE	Type
47 27 85	Plain	47 27 86	With wrist rest

LAN Cables

Cable LAN　LAN ケーブル　LAN 電線



Used for connecting the local area network of computer in small area.

Unit Per Lgh

CODE	Length mtr	CODE	Length mtr
47 28 48	1	47 28 52	10
49	2	53	20
50	3	55	30
51	5	54	50

USB Hubs

Hub USB　USB ハブ　USB 集線器



A device that allows many USB devices to be connected to a single USB port on the host computer or another hub.

Unit Per Pc.

CODE	Number of Port	CODE	Number of Port
USB 2.0 (Type A)		**USB 3.0 (Type C)**	
47 28 58	3	47 28 94	3
57	4	95	4
91	5		
USB 3.0 (Type A)			
47 28 92	3		
93	4		

USB Cables 2.0/3.0 (A,B,C) Type

Cables de USB 2.0/3.0 (A-B)
USB 2.0 & 3.0 ケーブル　USB2.0 & 3.0 电缆 (A-B)

This USB 2.0 cable allows you to connect USB devices such as Printer, HDD with your Computer for data transfer, and provides Hi-Speed, 480 megabit per second data transfer rates.

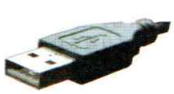
USB 3.0 cable is 10 times faster data transfer rates than USB 2.0(max 5 Gbps), and requires applicable PC and connecting equipment in use.

USB Connection









A type Connection



B type Connection



C type Connection

When ordering, please specify the devices (Printer etc.) you will connect with PC, type of both ends connection and USB 2.0 or 3.0 or latest generation.

Unit Per Lgh

CODE	Type	Connection	Length mtr
47 28 60	USB 2.0	Type A	1
61	USB 2.0		2
62	USB 2.0		3
47 28 14	USB 2.0	Type B (micro B or mini B)	1
15	USB 2.0		2
16	USB 2.0		3
47 28 63	USB 3.0	Type A	1
64	USB 3.0		2
65	USB 3.0		3
47 28 17	USB 3.0	Type B	1
18	USB 3.0		2
19	USB 3.0		3
47 28 20	USB 3.0	Type C	1
24	USB 3.0		2
30	USB 3.0		3

HDMI Cables

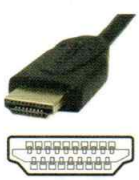
(High Definition Multimedia Interface)

Interfaz Multimedia de Alta Definición Cables HDMI
高精細度マルチメディアインターフェースケーブル
高清多媒体接口 HDMI 电缆

Designed to carry both video and audio signals. There are now four different types of HDMI connectors, depending upon the application to be connected.

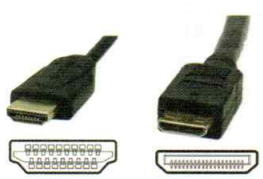


HDMI Cable Standard



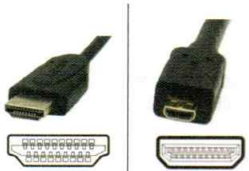
HDMI Cable
(HDMI ↔ HDMI)

HDMI Standard/Mini Cable



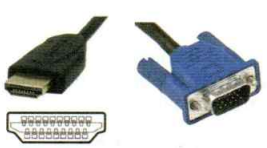
HDMI Mini Cable
(HDMI ↔ Mini HDMI)

HDMI Standard/Micro Cable



HDMI Micro Cable
(HDMI ↔ Micro HDMI)

HDMI/DVI Conversion Cable



HDMI/DVI Conversion Cable
(HDMI ↔ DVI)

Type	For Connecting	End Terminals	Length mtr
HDMI Cable	TV and Recorder/ Player	HDMI ↔ HDMI	1.0 / 1.5 / 2.0 / 3.0 & 5.0
HDMI Mini Cable	TV and Video camera	HDMI ↔ Mini HDMI	0.75 / 1.0 / 1.5 / 2.0 & 3.0
HDMI Micro Cable	TV and Smart mobile phone	HDMI ↔ Micro HDMI	1.0 / 1.5 / 2.0 / 3.0 & 5.0
HDMI/DVI Conversion Cable	TV and Personal computer	HDMI ↔ DVI	1.0 / 1.5 / 2.0 / 3.0 & 5.0
HDMI USB	TV and Personal computer	HDMI ↔ USB	1.0 / 1.5 / 2.0 / 3.0 & 5.0

(to be continued)

Unit Per Lgh

CODE	Length mtr	CODE	Length mtr
HDMI Cable		**HDMI Micro Cable**	
47 28 38	1.0	**47 28 59**	1.0
39	1.5	**66**	1.5
40	2.0	**67**	2.0
41	3.0	**68**	3.0
42	5.0	**69**	5.0
HDMI Mini Cable		**HDMI/DVI Conversion Cable**	
47 28 43	0.75	**47 28 74**	1.0
44	1.0	**75**	1.5
45	1.5	**76**	2.0
46	2.0	**77**	3.0
47	3.0	**78**	5.0
HDMI/USB Cble			
47 28 34	1.0	**47 28 96**	3.0
79	1.5	**97**	5.0
80	2.0		

Hard Disc Drive

Unidad de disco duro
ハードディスクドライブ　硬盘驱动器

Hard Disc Drive (HDD) is a device for data storage, used for storing and retrieving the digital information. Available in desktop and portable HDD and both connecting with Computer via USB Cable for data transfer.



Desktop Type　Portable Type

When ordering, please specify the following point
- Version of Computer OS (Windows or MAC OS).
- OS Language.
- Type of USB Cable (2.0 or 3.0).
- Power Source (110 or 220V).

Unit Per Pc.

CODE	Capacity	CODE	Capacity
External, Desktop		External, Portable	
47 28 81	500 GB	**47 28 87**	500 GB
82	750 GB	**88**	750 GB
83	1 TB	**89**	1 TB
84	2 TB	**90**	2 TB
85	3 TB		
86	4 TB		

Router

Wired/Wireless

Encaminador alámbrico / inalámbrico
有線 / ワイヤレスルーター
RS-232C（建议标准 -232C）电缆

Router is a device to provide access to the Computer Network or Internet.
It can function in connecting your computer with LAN Cable (Wired Router) or via radio wave (Wireless).



Wireless Router needs to be matched with the PC/Equipment wireless standards you want to connect. Check your PC/ equipment before you order.

International Standards for Wireless Local Area Network:

- IEEE802.11b
- IEEE802.11g
- IEEE802.11a
- IEEE802.11n

When ordering, please specify following points;

- Data Transfer Speed (Mbps).
- International standard for Wireless LAN to be connected to.
- OS language (ex: English OS, Japanese OS, etc).
- Power Source(110V or 220V).

Unit Per Pc.

CODE	Description	CODE	Description
47 29 01	Wired	**47 29 02**	Wireless

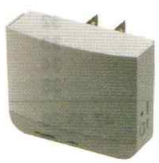
Wi-Fi Extender (Repeater)

Extensor Wi-Fi (repetidor) Wi-Fi 中継機 Wi-Fi 扩展器（中继器）

Wi-Fi extender or repeater is to extend coverage area of existing Wi-Fi network. It helps to improve the Wi-Fi signal strength and expand existing wireless network to farther areas or weak signal reception. Available various models and brands with different features, and please specify the connection type "with LAN cable" or "direct plug" and further information from local suppliers and specify suitable model when ordering.



LAN cable type



Direct plug to power source

47 29 03	Wi-Fi Extender, connect with LAN cable	Pc.
04	Wi-Fi Extender, direct plug type	Pc.

Lan Switching Hub

Confentrador conmutador LAN
LAN スイッチングハブ
LAN 交换式集线器



LAN Switching Hub is a computer network device, which enable you to connect several computers to your Local Area Network and Internet.

Available in 5/8/12/16/24 port for connecting LAN cables.

Please specify the Power Source (100 or 220V) and number of port when ordering.

Unit Per Pc.

CODE	No. of Ports	CODE	No. of Ports
47 29 06	5	**47 29 09**	16
07	8	**10**	24
08	12		

Web Camera

Cámara web ウェブカメラ 网络摄像头



Driver-free web camera featuring clear graphics, built-in microphone, connect with the USB cable.

It works perfectly with Local Area Network and ship/shore communication tools under Internet access environment.

Please specify the OS Language in your computer when ordering.

47 29 21	Web camera for PC	Pc.

DVD Super Multi Drive

Unidad de DVD multiusos
ＤＶＤスーパーマルチドライブ DVD 双层刻录机

DVD Super Multi Drive is a device for reading and writing the data on DVD±R, DVD-RAM, DVD±RW discs as well as reading DVD-ROM and DVD videos. It is also enable to read and write CD-R, CD-RW.

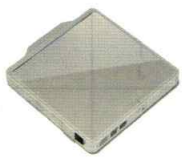
Available in Internal Type, External Type, and Portable type.



Internal Type



External Type



Portable Type

Typical Specifications for DVD Drive

Type	Internal Type	External Type	Portable Type
Applicable OS	Windows OS / MAC OS		
Interface	Serial ATA	USB Cable (2.0 or 3.0)	
Writing Performance	DVD±R 8-24X DVD±RAM 12X DVD±RW 6-8X CD-R 48X CD-RW 32-40X	DVD±R 8-24X DVD±RAM 12X DVD±RW 6-8X CD-R 48X CD-RW 40X	DVD±R 6-8X DVD±RAM 5X DVD±RW 6-8X CD-R 24X CD-RW 24X
Reading Performance	DVD±R 12-16X DVD±ROM 12-16X DVD±RAM 12X DVD±RW 12X CD-ROM 48X CD-R 48X CD-RW 40X	DVD±R 12-16X DVD±ROM 12-16X DVD±RAM 12X DVD±RW 12X CD-ROM 48X CD-R 48X CD-RW 40X	DVD±R 6-8X DVD±ROM 6-8X DVD±RAM 5X DVD±RW 8X CD-ROM 24X CD-R 24X CD-RW 24X
Size (W×H×D)	145 × 41 × 165	160 × 50 × 220	145 × 19 × 153
Weight	640 g	1.2 kg	340 g

When ordering, please specify the following point.

Internal Type --- • Version of Computer Operating System (OS) (Windows or MAC OS)
• OS Language

External/Portable Type --- • Version of Computer OS (Windows or MAC OS)
• OS Language
• Type of USB Cable (2.0 or 3.0)
• Power Source (110 or 220V)

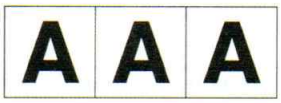
Unit Per Set

CODE	Type	CODE	Type
For Microsoft		For Mac	
47 29 31	Internal	**47 29 34**	Internal
32	External	**35**	External
33	Portable	**36**	Portable

Self Adhesive Characters

Etiquetas Auto-Adhesivas　ステッカー　粘性字母

Individual self-adhesive characters. Made of vinyl and sold in 10 pieces per package.



Alphabet in White Colour

Unit Per Pkt

Alphabet	CODE		
	Height 30 mm	Height 40 mm	Height 50 mm
A	47 31 01	47 31 31	47 31 61
B	02	32	62
C	03	33	63
D	04	34	64
E	05	35	65
F	47 31 06	47 31 36	47 31 66
G	07	37	67
H	08	38	68
I	09	39	69
J	10	40	70
K	47 31 11	47 31 41	47 31 71
L	12	42	72
M	13	43	73
N	14	44	74
O	15	45	75
P	47 31 16	47 31 46	47 31 76
Q	17	47	77
R	18	48	78
S	19	49	79
T	20	50	80
U	47 31 21	47 31 51	47 31 81
V	22	52	82
W	23	53	83
X	24	54	84
Y	25	55	85
Z	47 31 26	47 31 56	47 31 86

Alphabet in Black Colour

Unit Per Pkt

Alphabet	CODE		
	Height 30 mm	Height 40 mm	Height 50 mm
A	47 32 01	47 32 31	47 32 61
B	02	32	62
C	03	33	63
D	04	34	64
E	05	35	65
F	47 32 06	47 32 36	47 32 66
G	07	37	67
H	08	38	68
I	09	39	69
J	10	40	70
K	47 32 11	47 32 41	47 32 71
L	12	42	72
M	13	43	73
N	14	44	74
O	15	45	75
P	47 32 16	47 32 46	47 32 76
Q	17	47	77
R	18	48	78
S	19	49	79
T	20	50	80
U	47 32 21	47 32 51	47 32 81
V	22	52	82
W	23	53	83
X	24	54	84
Y	25	55	85
Z	47 32 26	47 32 56	47 32 86

Numeral in White Colour



Unit Per Pkt

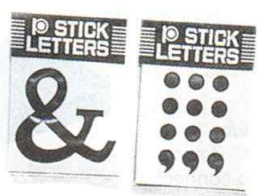
Numeral	CODE		
	Height 30 mm	Height 40 mm	Height 50 mm
1	47 33 01	47 33 11	47 33 21
2	02	12	22
3	03	13	23
4	04	14	24
5	05	15	25
6	47 33 06	47 33 16	47 33 26
7	07	17	27
8	08	18	28
9	09	19	29
0	10	20	30

Numeral in Black Colour

Unit Per Pkt

Numeral	CODE		
	Height 30 mm	Height 40 mm	Height 50 mm
1	47 33 31	47 33 41	47 33 51
2	32	42	52
3	33	43	53
4	34	44	54
5	35	45	55
6	47 33 36	47 33 46	47 33 56
7	37	47	57
8	38	48	58
9	39	49	59
0	40	50	60

&, Dot and Comma



&

Unit Per Pkt

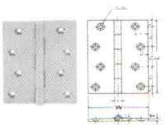
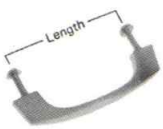
&	CODE		
	Height 30 mm	Height 40 mm	Height 50 mm
White Colour	47 33 71	47 33 72	47 33 73
Black Colour	47 33 76	47 33 77	47 33 78

Dot and Comma

Unit Per Pkt

Dot, Comma	CODE		
	Height 30 mm	Height 40 mm	Height 50 mm
White Colour	47 33 81	47 33 82	47 33 83
Black Colour	47 33 86	47 33 87	47 33 88

49
Hardware

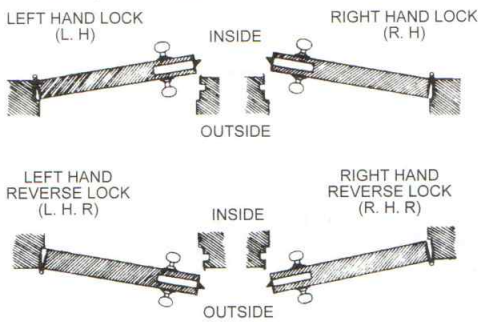
Lock Sets  P49-1 ~ 6	Push Latches and Locks  P49-6 ~ 7	Butt Hinges  P49-7 ~ 8	Padlocks and Door Fastening Items  P49-8 ~ 9	Door Fastening Items  P49-9 ~ 12
Cabinet Door Accessories  P49-12 ~ 13	Hooks and Fasteners  P49-13 ~ 14	Grab Rails  P49-14	Holders and Racks  P49-14 ~ 15	Curtain Rails and Accessories  P49-15
Card Holders  P49-15	Storm Rails  P49-15 ~ 16	Schwepper Products - Dead Locks/ Cylinders  P49-16 ~ 20	Schwepper Products - Handles/ F  P49-20 ~ 22	Schwepper Products - Cabinet Locks  P49-22 ~ 23
Schwepper Products - Cabinet Hardware  P49-23 ~ 25	Schwepper Products - Hinges/Joint Hinges  P49-25	Bed Ladders  P49-26	Schwepper Products - Waste Buckets  P49-26	Schwepper Products - Dog Assemblies  P49-26

Hardware

These standard hardware products are selected from numerous kinds of interior hardware and fittings installed in ships. Chosen for their superior quality, design and easy installation, these hardware products are standardized and their value is well recognized overseas. These products are manufactured under the most careful observation of materials and process.

In order to assure the prompt, correct delivery of your requirements, please indicate the code, model number as well as the dimensions required.

"How To Determine the Hand of a Door"
Determining the correct kind of lock in relation to the directional swing of the door.



The hand of a door (left hand/right hand) is always determined as observed from the outside of the door. The outside is the weather side of an entrance door or the passage side of a room door. The outside of a communicating door is the side from which the hinges are not visible when the door is closed.

When ordering, please specify whether a left or right hand lock is required.

Door Lever Handles & Knobs

The models hereinafter described have been designed with two types of lever handles as well as 3 types of knobs. Please note that Fin Style Levers and Tulip Style Knobs are usually furnished respectively unless specified otherwise.



Fin Style | Horn Style | Tulip Style | Oval Style | Round Style

Lock Sets - Code / Type Table

CODE	Model No. (OHS)	Type
49 01 03	2115 (Ex. 2105)	Mortise Latch
05	2325 (Ex. 2205 & 2305)	Cylinder Mortise Lock
07	2110 (Ex. 2210)	Mortise Latch
08	2220 (Ex. 2210)	Indicator Mortise Latch
09	2170 (Ex. 2260)	Indicator Mortise Lock
13	2320 (Ex. 2310)	Cylinder Mortise Lock
33	2410	Lever Tumbler Mortise Lock
51	2510 (Ex. 2500)	Cylinder Mortise Dead Lock
54	2580(Ex. 2570)	Cylinder Mortise Dead Lock
63	2910	Lever Tumbler Mortise Lock
75	3200	Indicator Rim Latch
83	3400	Lever Tumbler Rim Lock
87	3550	Steel Door Cylinder Rim Lock
95	3600	Steel Door Lever Tumbler Rim Lock
49 02 15-17	5075 (Ex. 5070)	Push Latch
41-49	5175 (Ex. 5170)	Push Lock
81-86	5351 (Ex. 5350)	Cylinder Cabinet Lock
49 03 18	5811 (Ex. 5810)	Push Insert Lock
19	5802	Push Insert Bolt

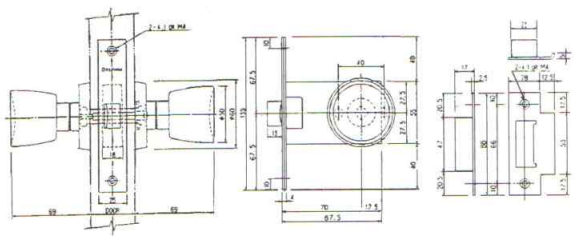
Mortise Latches with Knob

Model OHS-2115

Picaportes Embutidos con Pomo
モーチスラッチノブ付　帯捏手插锁



For Passage Doors. Made of brass and stainless steel plate finished. Please specify whether a left or right hand lock is required.



49 01 03	Mortise latch with knob Model OHS-2115 (left or right hand of lock)	Set

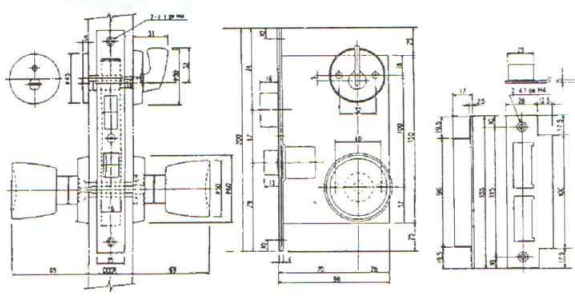
Cylinder Mortise Locks with Knob

Model OHS-2325

Cerraduras Embutidas con Pomo
シリンダーモーチスロックノブ付き
帯捏手插锁



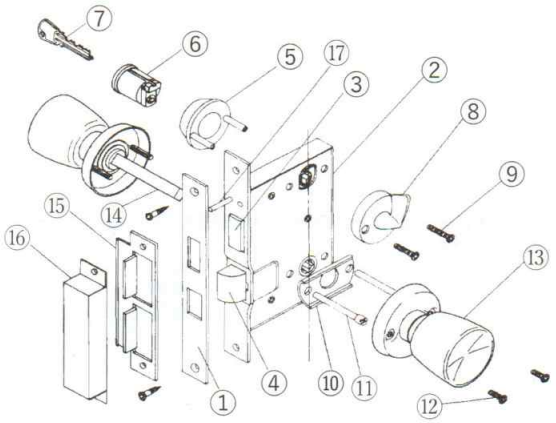
For Private Room, Passage, Store Room and Toilet Doors. Made of brass and stainless steel plate finished. Please specify whether a left or right hand lock is required.



49 01 05	Cylinder mortise lock with knob Model OHS-2325 (left or right hand of lock)	Set

Parts and Material List for OHS-2325 Mortise Lock

Lista de piezas y materiales
OHS-2235 パーツリスト　部件和材料清单



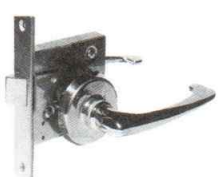
No.	Part Name	Material
1	Front	Stainless Steel Plate
2	Case	Stainless Steel Plate
3*	Dead Bolt	Stainless Steel
4*	Latch Bolt	Brass Bar(Extruded)
5	Cylinder Collar	Stainless Steel Plate
6	Cylinder Lock	Brass Bar
7	Key	Nickel Silver Plate
8	Thumbturn	Brass Bar Forging
9	Thumbturn Fitting Screw	Brass Wire
10*	Adjusting Plate	Stainless Steel Plate
11*	Adjusting Screw	Brass Bar
12*	Handle Fitting Screw	Brass Wire
13	Knob	Stainless Steel
14	Handle Shaft	Brass Bar
15	Strike	Stainless Steel Plate
16	Wrought Box	Stainless Steel Plate
17	Cylinder Set Pin	Stainless Steel Wire

Remark: No.3 & 4 : sold in set, No.10, 11 & 12 : sold in set

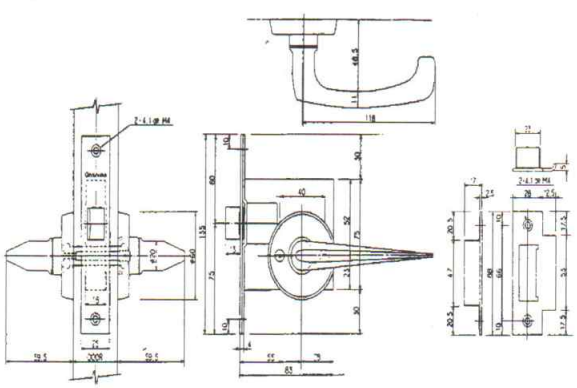
Mortise Latches

with Lever Handle Model OHS-2110

Picaportes con Tirador
モーチスラッチレバーハンドル付
带把柄插锁



For Passage Doors. Made of brass and stainless steel plate finished. Please specify whether a left or right hand lock is required.

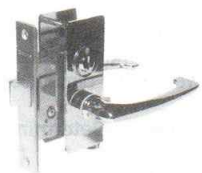


49 01 07	Mortise latch with lever handle Model OHS-2110 (left or right hand of lock)	Set

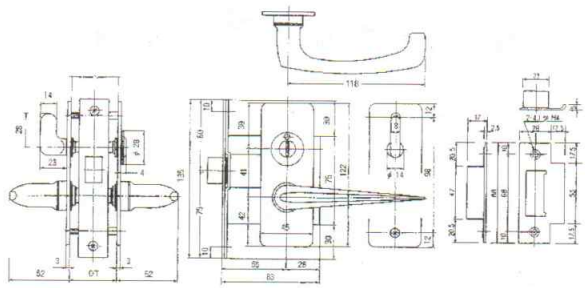
Indicator Mortise Latches

with Lever Handle Model OHS-2220

Cerraduras Embutidas con Tirador
インジケーターモーチスラッチレバーハンドル付
带把柄指示器插锁



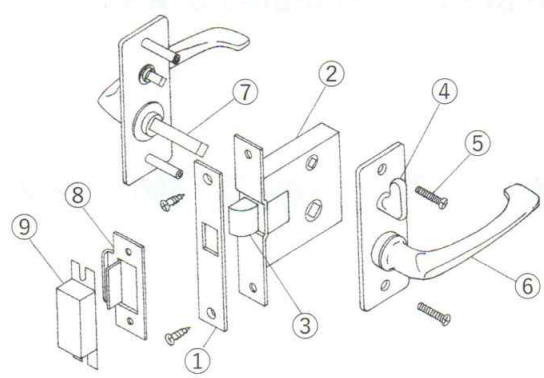
For Toilet and Mosquito Doors. Made of brass and stainless steel plate finished. Please specify whether a left or right hand lock is required.



49 01 08	Indicator mortise latch with lever handle Model OHS-2220 (left or right hand of lock)	Set

Parts and Material List for OHS-2220 Mortise Latch

Lista de piezas y materiales　OHS-2220 パーツリスト　部件和材料清单

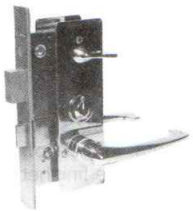


No.	Part Name	Material
1	Front	Stainless Steel Plate
2	Case	Stainless Steel Plate
3	Latch Bolt	Brass Bar (Extruded)
4	Thumbturn	Aluminium Alloy
5	Handle Fitting Screw	Brass Wire
6	Lever Handle	Brass Bar Forging
7	Handle Shaft	Brass Bar
8	Strike	Stainless Steel Plate
9	Wrought Box	Stainless Steel Plate

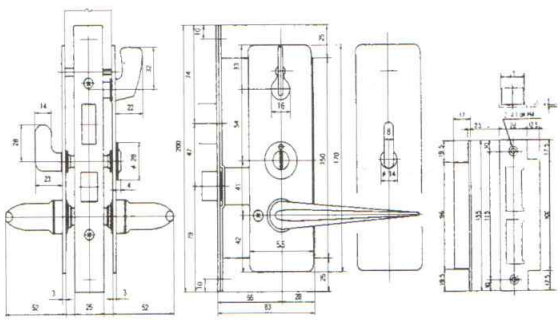
Indicator Mortise Locks

with Lever Handle
Model OHS-2270

Cerraduras de Embutir con Indicador
インジケーターモーチスロックレバーハンドル付
指示器插芯锁



For Common Toilet Doors. Made of brass and stainless steel plate finished. Please specify whether a left or right hand lock is required.



49 01 09	Indicator mortise lock with lever handle Model OHS-2270 (left or right hand of lock)	Set

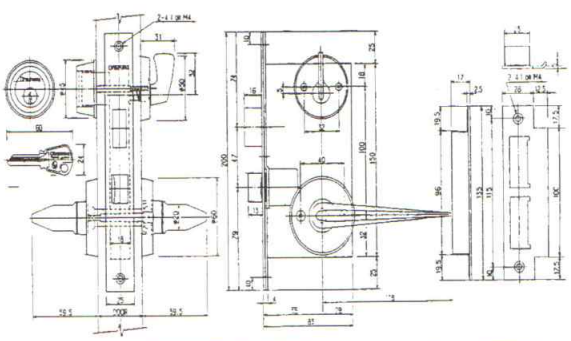
Cylinder Mortise Locks

with Lever Handle Model OHS-2320

Cerraduras Embutidas con Tirador
シリンダーモーチスロックレバー ハンドル付
带把柄的指示器插锁



For Private Room, Passage, Store Room and Toilet Doors. Made of brass and stainless steel plate finished. Please specify whether a left or right hand lock is required.

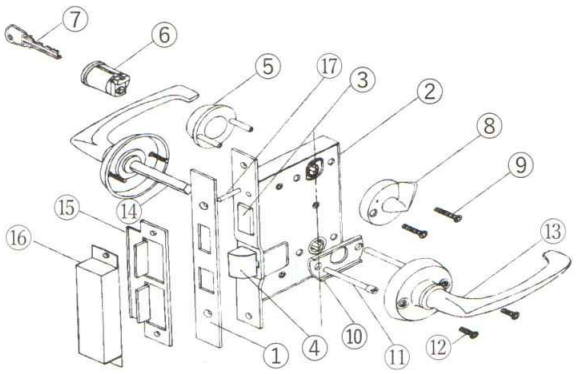


49 01 13	Cylinder mortise lock with lever handle Model OHS-2320 (left or right hand of lock)	Set

Parts and Material List for OHS-2320 Mortise Lock

Lista de piezas y materiales　OHS-2320 パーツリスト　部件和材料清单

When ordering, please ensure and indicate the set name, the model number, the part number and the name of correct furnishment as each parts differ in respective manufacturers and models.



Unit Per Pc.

CODE	No.	Part Name	Material
49 01 14	5	Cylinder Collar	Stainless Steel Plate
19	6	Cylinder Lock	Brass Bar
20	7	Key	Nickel Silver Plate
28	15	Strike	Stainless Steel Plate
29	16	Wrought Box	Stainless Steel Plate
49 01 30	17	Cylinder Set Pin	Stainless Steel Wire

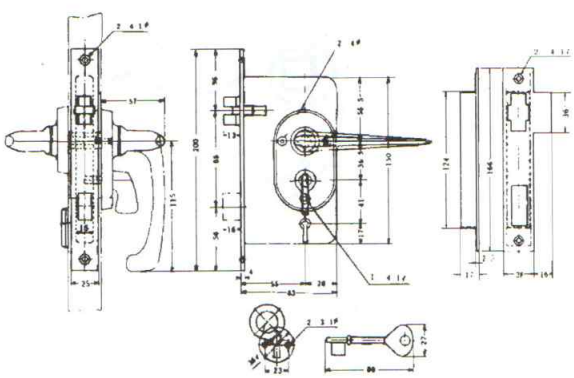
Lever Tumbler Mortise Locks

with Lever Handle Model OHS-2410

Cerraduras Embutidas con Tirador
棒鍵モーチスロックレバー ハンドル付
带杆把柄的杆翻转器



For Passage and Store Room Doors. Made of brass and stainless steel plate finished. Please specify whether a left or right hand lock and internal or external opening are required.

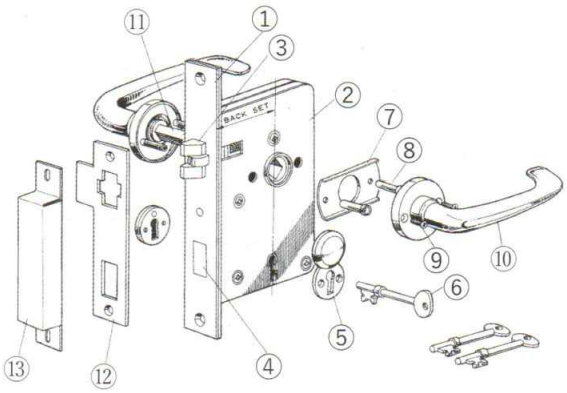


49 01 33	Lever tumbler mortise lock with lever handle Model OHS-2410 (left or right hand of lock)	Set

Parts and Material List (1) for OHS-2410 Tumbler Mortise Lock

Lista de piezas y materiales　OHS-2410 パーツリスト (1)　部件和材料清单

When ordering, please ensure and indicate the set name, the part number, and the name of correct furnishment.

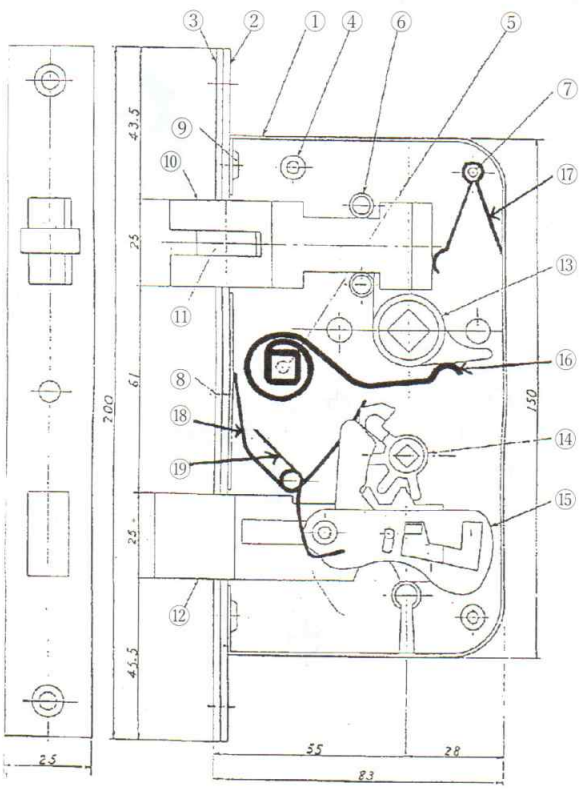


Unit Per Pc.

CODE	No.	Part Name	Material
49 01 39	5	Escutcheon	Stainless Steel Plate
40	6	Key	Brass Cast
46	12	Strike	Stainless Steel Plate
47	13	Wrought Box	Stainless Steel Plate

Parts and Material List (2) for OHS-2410

Lista de piezas y materiales　OHS-2410 パーツリスト(2)　部件和材料清单



Unit Per Pc.

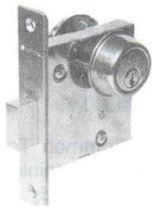
CODE	No.	Part Name	Material	Standard Quantity
49 03 61	(2)-16	Lever Hub Spring	PBP	1
62	(2)-17	Latch Bolt Spring	PBP	1
63	(2)-18	Thumbturn Hub Spring	PBP	1

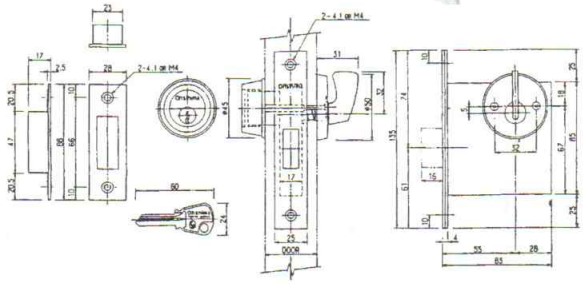
Cylinder Mortise Dead Locks

Model OHS-2510

Cerraduras Embutidas con Cilindro
シリンダーモーチスデッドロック
气缸榫眼死锁

For Saloon, Sanitary Space and Toilet Doors. Made of brass and stainless steel plate finished.





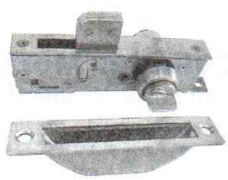
49 01 51	Cylinder mortise dead lock Model OHS-2510	Set

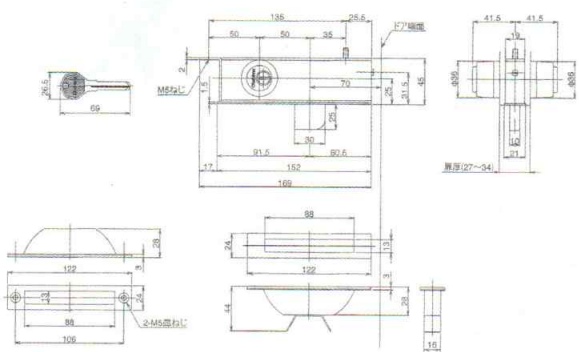
Cylinder Mortise Dead Locks

Model OHS-2580

Cerraduras Embutidas con Cilindro
シリンダーモーチスデッドロック
气缸榫眼死锁

For Salon Doors.





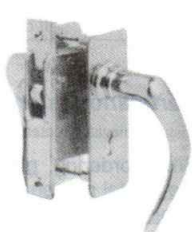
49 01 54	Cylinder mortise dead lock Model OHS-2580	Set

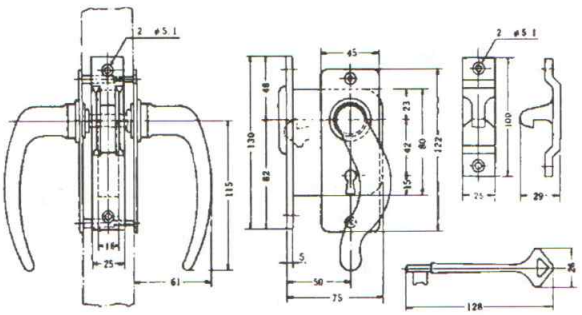
Lever Tumbler Mortise Locks

Model OHS-2910

Cerraduras Embutidas
引戸用棒鍵モーチスロック
杆翻转器插锁

For Wheel House Sliding Doors. Made of brass and stainless steel plate finished. Handle is lever type specified. Please specify whether a left or right hand lock is required.



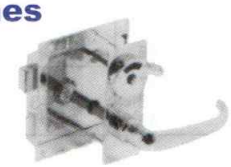


49 01 63	Level tumbler mortise lock for sliding door Model OHS-2910 (left or right hand of lock)	Set

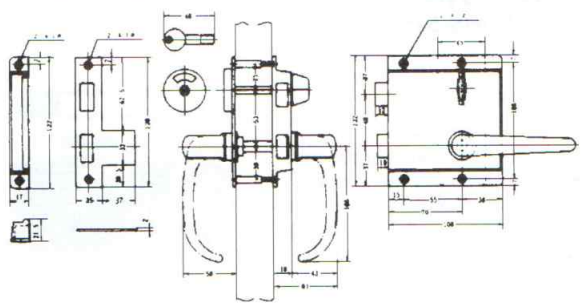
Indicator Rim Latches

with Lever Handle
Model OHS-3200

Picaportes con Indicador y Tirador
インジケーターリムラッチレバーハンドル付
带门把柄的指示器弹簧锁



For Toilet Doors. Made of brass and stainless steel plate finished. Please specify whether a left or right hand lock and internal or external opening are required.

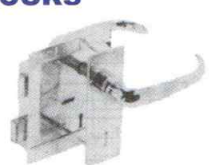


49 01 75	Indicator rim latch with lever handle Model OHS-3200 (left or right hand of lock)	Set

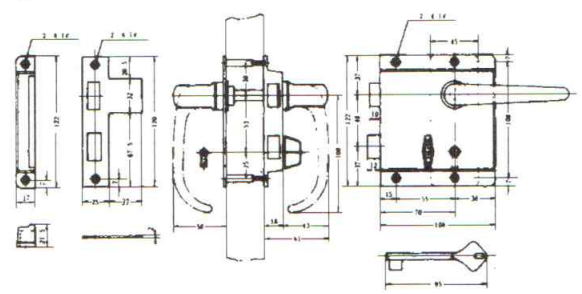
Lever Tumbler Rim Locks

with Lever Handle
Model OHS-3400

Cerraduras Sobrepuestas con Tirador
棒鍵リムロック レバーハンドル付
带门把柄的杆翻转器弹簧锁



For Private Room and Store Room Doors. Made of brass and stainless steel plate finished. Please specify whether a left or right hand lock and internal or external opening are required.



49 01 83	Lever tumbler rim lock with lever handle Model OHS-3400 (left or right hand of lock)	Set

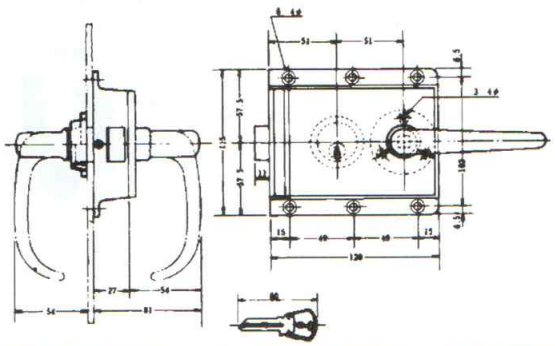
Steel Door Cylinder Rim Locks

with Lever Handle
Model OHS-3550

Cerraduras Sobrepuestas con Cilindoro y Tirador para Puerta de Acero
鋼製扉用シリンダーリムロックレバーハンドル付
带门把柄的钢门圆筒形弹簧锁

For Store Room, Engine Room, Emergency Exit and Water Tight Doors. Made of brass and stainless steel plate finished. Please specify whether a left or right hand lock and internal or external opening are required.





49 01 87	Steel door, cylinder rim lock with lever handle Model OHS-3550 (left or right hand of lock)	Set

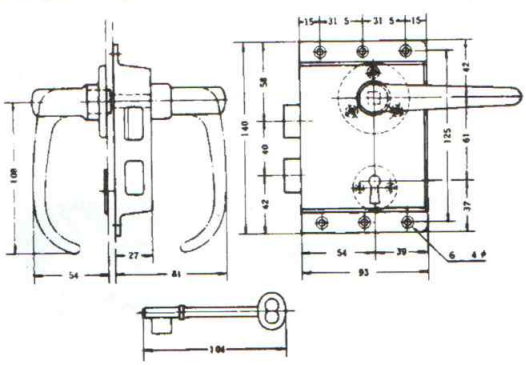
Steel Door Lever Tumbler Rim Locks

with Lever Handle
Model OHS-3600

Cerraduras Sobrepuestas con Tirador para Puerta de Acero
鋼製扉用棒鍵リムロックレバー ハンドル付
带门把柄的钢门杆翻转器弹簧锁

For Store Room, Engine Room and Water Tight Doors. Made of brass and stainless steel plate finished. Please specify whether a left or right hand lock and internal or external opening are required.





49 01 95	Steel door lever tumbler rim lock with lever handle Model OHS-3600 (left or right hand of lock)	Set

Push Latches and Locks

Pestillos y cerraduras de empuje

プッシュ・ラッチ&ロック　推闩和锁

These models are designed with complicated sizes, and when ordering, please specify the size of "t" or "l" respectively as shown in the drawing.

Push Latches, Rim Type

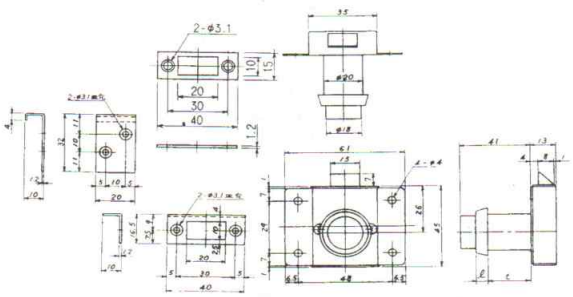
Model OHS-5075

Picaportes de Presión,Tipo Sobrepuesto

プッシュラッチ（面付型）　轮缘式门闩推锁

For Cabinet Drawers and Doors. The case is made of stainless steel.





Unit Per Set

CODE	Model OHS No.	Dimension mm	
		t	L
49 02 15	5075	20	10
16		22	8
17		25	6

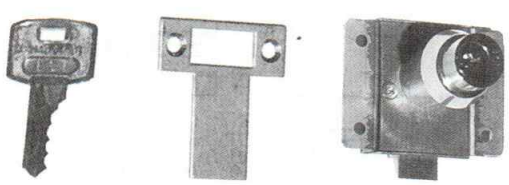
Push Locks, Rim Type

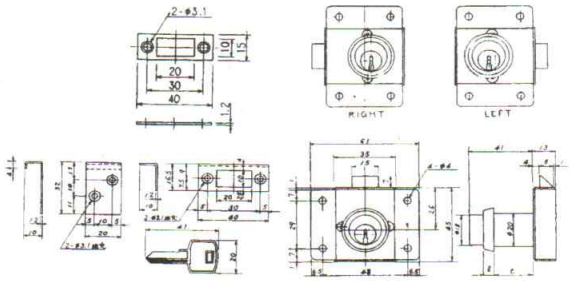
Model OHS-5175

Cerraduras de Presión,Tipo Sobrepuesto

プッシュロック（面付型）　轮缘式推锁

For Cabinet Drawers and Doors. The case is made of stainless steel and the cylinder is brass. Please specify if it is required for drawers or doors and whether a left or right hand lock is required.





Unit Per Set

CODE	Model OHS No.	Description	Dimension mm	
			t	L
49 02 41	5175-1	Drawer Lock	20	10
42			22	8
43			25	6
49 02 44	5175-2	Right Hand Lock	20	10
45			22	8
46			25	6
49 02 47	5175-3	Left Hand Lock	20	10
48			22	8
49			25	6

Cylinder Cabinet Locks, Rim Type

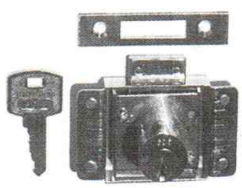
Model OHS-5351

Cerraduras de Cillindro para Armario, Tipo Sobrepuesto

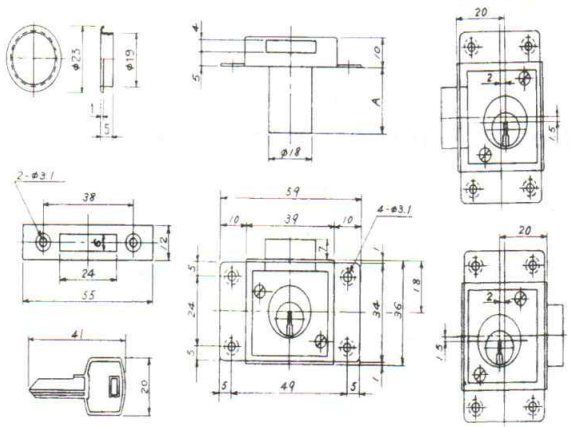
シリンダーキャビネットロック（面付型）

轮缘式圆筒箱锁

For Cabinet Drawers and Doors. Made of brass. Please specify if it is required for drawers or doors, and whether a left or right hand lock is required.



Right Hand Lock



Left Hand Lock

Unit Per Set

CODE	Model OHS No.	Description	Dimensions mm
			A
49 02 87	5351-1	Drawer Lock	20
81			22
82			25
49 02 88	5351-2	Right Hand Lock	20
83			22
84			25

(to be continued)

Unit Per Set

CODE	Model OHS No.	Description	Dimensions mm
			A
49 02 89	5351-3	Left Hand Lock	20
85			22
86			25

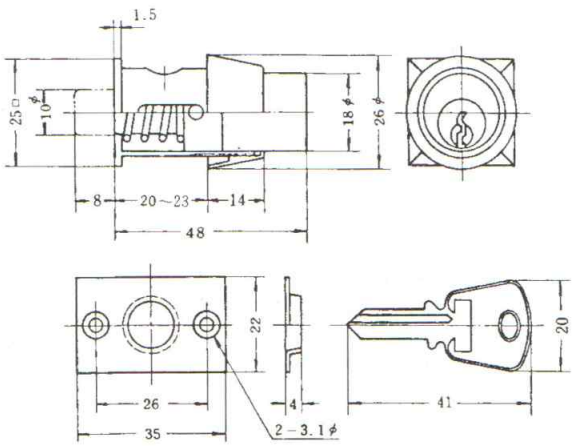
Push Insert Locks

Model OHS-5811

Cerraduras Insertadas a Presión
プッシュインサートロック　推插锁



For Sliding Cabinet Doors. Made of brass.



49 03 18	Push insert lock, Model OHS-5811, for sliding cabinet doors	Set

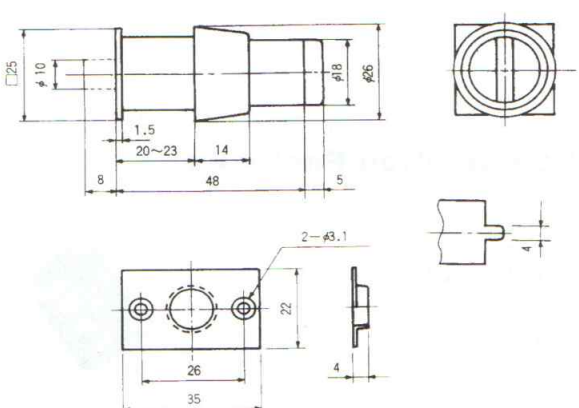
Push Insert Bolts

Model OHS-5802

Pernos Insertadas a Presión
プッシュインサートボルト
推插锁



For Sliding Cabinet Doors. Made of brass.



49 03 19	Push insert bolt, Model OHS-5802, for sliding cabinet doors	Set

Digital Door Locks Keyless

Cerraduras digitales sin llave
押しボタン式ドアロック　按钮式门锁

A keyless digital door lock system for single bore doors. Locking with push button coding which can be changed easily, easy to install and no battery is required.



49 03 20	Digital door lock keyless, push-button type	Set

Butt Hinges

Bisagras de tope　バットヒンジ　对接铰链

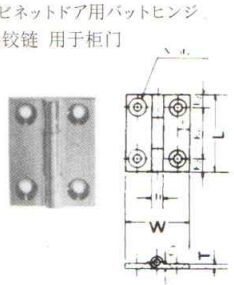
A wide variety of designs and sizes of butt hinges for cabinet or door use are available. Usually they are made of brass material and chrome plated. Furnished without screws.

In general, when ordering, please specify the opening width (not of its closed size), length, thickness, number of holes (screws) and screw size.

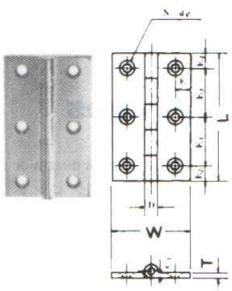
Butt Hinges

for Cabinet Door

Bisagras a tope para puerta de armario
キャビネットドア用バットヒンジ
对接铰链 用于柜门



49 04 01/02



49 04 04–13

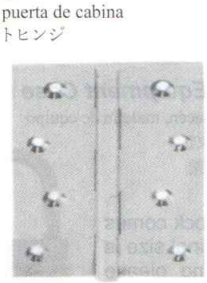
Unit Per Pr.

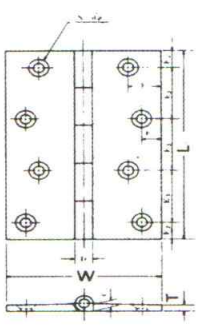
CODE	Material	Dimensions mm		Screw	
		L	W	ømm	Nos
49 04 01	Brass	32	25	3.1	4
02	"	38	25	3.1	4
04	"	51	30	3.1	6
05	"	64	38	3.5	6
06	"	76	50	3.5	6
49 04 11	Stainless Steel	50	29	3.1	6
12	"	75	54	3.8	6
13	"	65	38	3.5	6

Butt Hinges

for Cabin Door

Bisagras a tope para puerta de cabina
キャビンドア用バットヒンジ
机舱门对接铰链





Unit Per Pr.

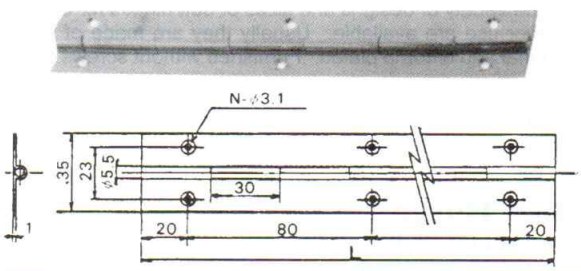
CODE	Material	Dimensions mm		Screw	
		L	W	ømm	Nos
49 04 08	Brass	90	54	4.1	8
09	"	100	70	4.1	8
14	"	127	90	4.5	10
15	Stainless Steel	102	71	4.1	8

Piano Hinges

for Small Cabinet

Bisagras de piano para armario pequeño
小型キャビネット用ピアノヒンジ　钢琴铰链 用于小型橱柜

Made of brass. Length is made to order. Screw: Φ3.1 mm.



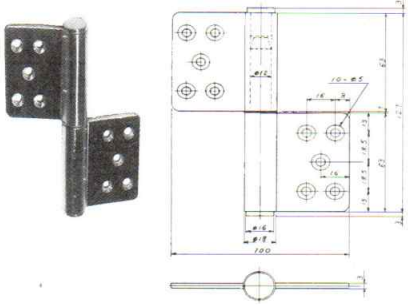
49 04 19	Piano hinge, for small cabinet, brass width 36 mm × length to order	Pr.

Flag Hinges

for Cabin Door

Bisagras de bandera para puerta de cabina
キャビンドア用フラッグヒンジ　旗帜铰链 机舱门用

Made of stainless steel. Please specify whether for right or left hand of use. L127 × W100 mm, Screws: Φ5 mm × 10.



49 04 36	Flag hinge for cabin door, SUS 127 × 100 mm, right hand	Pr.
37	Flag hinge for cabin door, SUS 127 × 100 mm, left hand	"

Padlocks

for Storage Door, Equipment Case

Candados para puerta de almacén, maletín de equipo
収納扉、備品ケース用南京錠
挂锁 用于储藏室门、设备箱

Made of brass. Each lock comes with 2 or 3 keys. Nominal size is its width. When ordering, please specify the size.



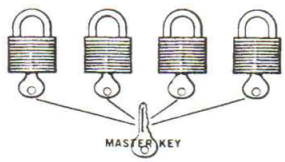
Unit Per Pc.

CODE	Size	CODE	Size
49 05 01	30 mm	**49 05 04**	45 mm
02	35 "	**05**	50 "
03	40 "	**06**	60 "

Master Key System Padlocks & Keys

Candados con Sistema de Llave Maestra
マスターキー錠
万能钥匙挂锁、钥匙

All these locks have different keys, but a single master key can open any series.



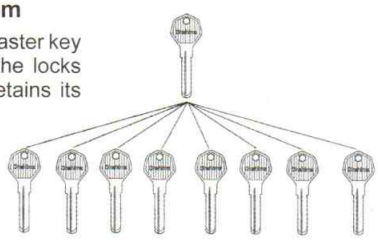
Unit Per Pc.

CODE	Padlock	CODE	Master Key only
49 05 11	40 mm	**49 05 08**	for 40 mm
12	50 mm	**09**	for 50 mm
13	60 mm	**10**	for 60 mm

Ref. OHS-4405, 4406

Master Key System

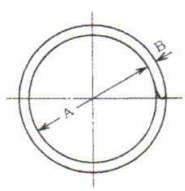
In this system, one master key is used to open all the locks and each lock still retains its own proper key.



Key Rings

Teclado　キーリング　键盘

A ring to hold keys. Made of spring steel. Body diam: 2.5 mm.



Unit Per Pc.

CODE	I.D.mm (A)	OHS No.	CODE	I.D.mm (A)	OHS No.
49 05 61	26	7952	**49 05 62**	33	7953

Combination Padlocks

Candados de combinación　ダイヤルロック
密码挂锁

3 digit Lock/4-digit Lock

Available 3 resettable dial combination or 4 resettable dial combination. 4-digit lock is more difficult to crack than the 3 digit lock.



Unit Per Pc.

CODE	Digit	CODE	Digit
49 05 63	3	**49 05 64**	4

Standard Dial Combination Lock

Fixed 3 digit combination lock for keyless convenience. Metal body with stainless steel cover, hardened steel shackle.



49 05 65	Padlock, combination, standard dial	Pc.

Flush Bolts for Door

Cerrojos para Puerta　ドアー用フラッシュボルト
门平头插销



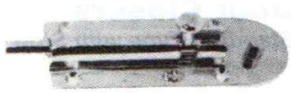
For Cabin Doors (Double Leaf Doors). Made of stainless steel. Designed for cabin doors or double leaf doors to keep them opened or closed still, fixed at the upper and lower end of the door.

49 05 21	Flush bolt for door, stainless steel width 22 mm × length 148.5 mm × depth 35.5 mm, screws: ø3mm × 6	Pc.

Ref. No.: OHS-4432

Barrel Bolts for Door

Cerrojos de Barril para Puerta
ドアー用バレルボルト
门圆形插销



For Cabin Doors (Double Leaf Doors). Made of brass. Designed for cabin doors or double leaf doors to keep them opened or closed. Fixed at the upper and lower end of the door.

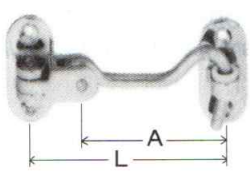
Unit Per Set

CODE	Dimensions mm			OHS No.
	Plate Length	Width	Screws	
49 05 23	105	36	ø3.1 mm × 6	4441
24	150	35	ø3.1 mm × 2 & ø3.5 mm × 4	-

Silent Door Hooks

Aldabilla para Puerta, Latón　サイレントドアフック　闭门器

For Cabin Doors. The base is made of brass and the hook is stainless steel. No matter how the ship shakes, there will be no metal noise, because plastic washers are inserted into the adjoining parts. Screws: ø4.1 mm × 4.

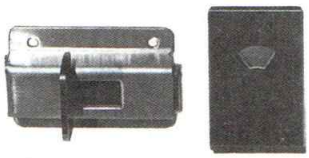


Unit Per Set

CODE	L mm	A mm	OHS No.
49 05 31	100	66	4505
32	200	166	4506
33	300	266	4507
34	400	366	4508

Indicator Bolts

Pernos de indicador
インジケーターボルト
千分表螺丝



For Toilet Doors. The base is made of stainless steel and sign plate is plastic. Base plate size is 70 x 46mm. Screws: Φ3.5 mm x 4.

49 05 36	Bolt, indicator, for toilet door Stainless steel, 70 × 46 mm	Set

Ref. no.: OHS 4422

Door Holders with Cushion

Soporte para Puerta con Almohadilla
クッション付ドアホルダー　带垫的门扣

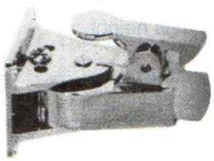
Spring Hook Type

Made of brass. For use on lightweight cabin doors. Opening between the door and the wall when fully opened must be more than 65 mm. Screws : ø4.1 mm x 5.



Angle Adjusting Type

Made of brass. For use on Cabin Doors. Adjustable in a 90 degree angle between the door and the wall by screwing three different holes. Needs a 75 mm gap between the door and the wall for installation.
Screws: ø4.1 mm x 6.



Unit Per Set

CODE	Type	Opening Door & Wall mm	OHS No.
49 05 41	Spring Hook Type	65	4511
43	Angle Adjusting Type	75	4513

Door Catches

Retendor para Puerta　ドアキャッチ　门后夹

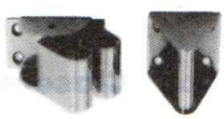
Fixed Type

Made of a phosphor bronze spring with a brass holder. A receptacle piece is mounted on the wall beside the door. When the door is fully opened, a clamp on the door catches on the receptacle and is held open. Screws (ø4.1 mm × 8) used to install pieces.



Swing Type

Made of a phosphor bronze spring with a brass holder. Screws: ø4.1 mm × 8.



Unit Per Set

CODE	Type	OHS No.
49 05 46	Door catch, fixed type	4531
47	Door catch, swing type	4532

Door Adjusters

Cierrapuertas,Brazo
ドアアジャスター
门开口调节器



Made of stainless steel. Designed to keep the door open in such a way, that each person may set the opening space by adjusting a screw. Overall length is 350 mm. Screws: ø4.1 mm × 5.

49 05 49	Door adjuster, stainless steel overall length 350 mm	Set

Ref. No.: OHS 4541

Door Cushions

Almohadilla para Puerta
ドアクッション　关门缓冲器

Made of a stainless steel base with a rubber bumper. Prevents mechanical damage which may occur between the wall and the door. Base diameter is 48 mm, rubber diameter is 20 mm, and height altogether 22 mm. Screws: ø3.5 mm × 3.



49 05 51

Same as above but for light weight door use. Made of rubber with an inserted screw for fitting. 35 mm in diam, and 20 mm in height.



49 05 52

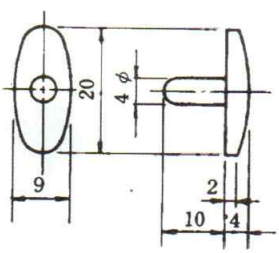
Unit Per Pc.

CODE	Description	OHS No.
49 05 51	Door cushion, rubber w/s. steel base, 48 × 22 mm	4601
52	Door cushion, rubber 35 × 20 mm	4602

Door Silencers

Frenos para Puerta (Retenedor)　ドアサイレンサー　门消音器

Designed for closing doors without a "bang". Made of rubber, and used for wooden doors (white coloured).



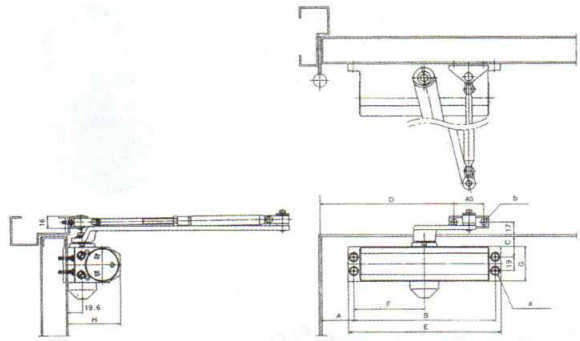
49 05 57	Door silencer rubber, for wooden door	Pc.

Ref. No. OHS-4612

Door Closers Standard Type

Cierrapuertas Tipo Estándar
ドアクローザースタンダードタイプ　标准型关门器

Made of aluminium alloy diecasting and electrostatic coating of metallic silver finished. For dimensions, please refer to the drawings and the dimension column.



How to order: CODE

Door closer, standard type, MAXIMUM DOOR WEIGHT (kg)

Unit Per Set

CODE	Dimensions mm							Max. Door Weight (kg)
	A	B	C	D	F	G	H	
49 06 01	49	162	26.5	170	81	41	64.5	15- 30
02	45	190	28	180	95	48	70.5	25- 45
03	61	208	28	205	94	48	70.5	40- 65
04	65	230	29.5	220	94	48	70.5	60- 85
05	70	260	31	240	130	45	85	80-120

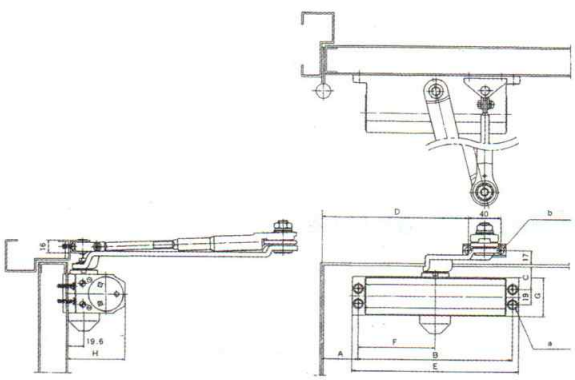
Ref.No.: OHS 4741-4745

Door Closers

Standard Type with Stop

Cierrapuertas Tipo Estándar
ドアクローザースタンダードホールドタイプ　标准开放型关门器

The door can be stopped at an opening angle between 90° and 180°. Made of aluminium alloy diecasting and electrostatic coating of metallic silver finished. For dimensions, please refer to the drawings and the dimension column.



How to order: CODE

Door closer, standard type with stop, MAXIMUM DOOR WEIGHT (kg)

Unit Per Set

CODE	Dimensions mm							Max. Door Weight (kg)
	A	B	C	D	F	G	H	
49 06 11	49	162	26.5	170	81	41	64.5	15- 30
12	45	190	28	180	95	48	70.5	25- 45
13	61	208	28	205	94	48	70.5	40- 65
14	65	230	29.5	220	94	48	70.5	60- 85
15	70	260	31	240	130	45	85	80-120

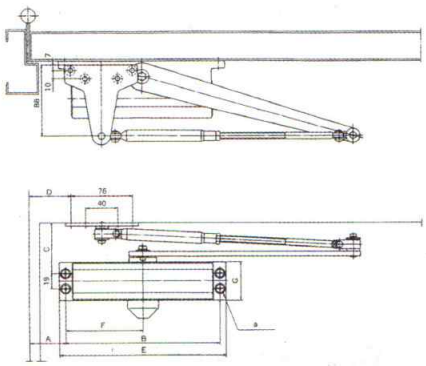
Ref.No.: OHS 4751-4755

Door Closers Parallel Type

Cierrapuertas Tipo Paralelo

ドアクローザー パラレルタイプ　平行式关门器

Made of aluminium alloy diecasting and electrostatic coating of metallic silver finished. For dimensions, please refer to the drawing and the dimension column, and specify whether the door closer is for left or right hand use.



How to order: CODE

Door closer, parallel type, LEFT OR RIGHT HAND USE, MAXIMUM DOOR WEIGHT (kg)

Unit Per Set

CODE	Dimensions mm							Max. Door Weight (kg)
	A	B	C	D	F	G	H	
49 06 21	49	162	60	42	81	41	64.5	15- 30
22	45	190	63	52	95	48	70.5	25- 45
23	61	208	63	77	114	48	70.5	40- 65
24	65	230	64.5	92	136	48	70.5	60- 85
25	110	260	66.5	152	130	45	85	80-120

Ref.No.: OHS 4761-4765

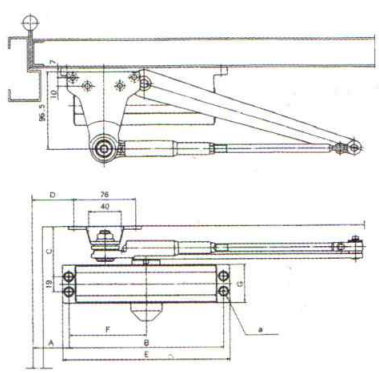
Door Closers

Parallel Type with Stop

Cierrapuertas Tipo Paralelo

ドアクローザーパラレルホールドオープンタイプ　平行开放式关门器

The door can be stopped at an opening angle between 70° and 180°. Made of aluminium alloy diecasting and electrostatic coating of metallic silver finished. For dimensions, please refer to the drawing and the dimension column. Also, specify if the door closer is for left or right hand use.



How to order: CODE

Door closer, parallel type with stop, LEFT OR RIGHT HAND USE, MAXIMUM DOOR WEIGHT (kg)

Unit Per Set

CODE	Dimensions mm							Max. Door Weight (kg)
	A	B	C	D	F	G	H	
49 06 31	49	162	60	42	81	41	64.5	15- 30
33	45	190	63	52	95	48	70.5	25- 40
35	61	208	63	77	114	48	70.5	40- 65
37	65	230	64.5	92	136	48	70.5	60- 85
39	110	260	75	152	130	45	88.2	80-120

Ref.No.: OHS 4771-4775

Door Fasteners, Hook Type

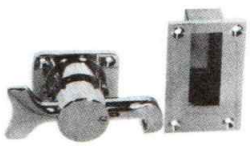
for Sliding Door

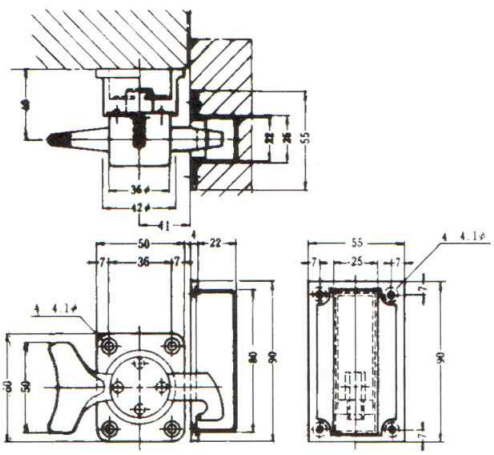
Sujetadores para Puerta, Tipo Gancho para Puenta Corredera

ドアファスナーフック型　拉门用钩型门闩

Made of brass. It is rotary type and easily installed/operated. When it is not in use, the hook is vertically fixed by a spring.

Screws: ø4.1 mm × 8.





49 06 46	Door fastener, hook type, for sliding door	Set

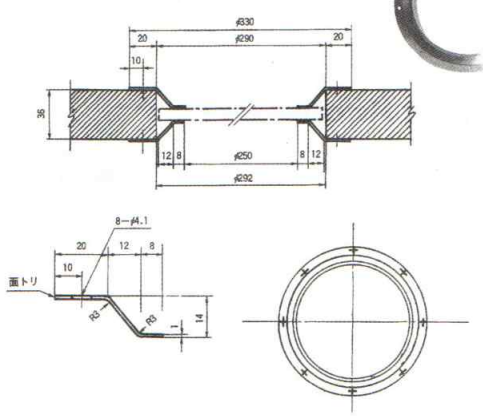
Ref. No.: OHS 4891

Round Frames for Peep Glass

Marco redondo　覗き窓用ラウンドフレーム　圆形窗框

For fitting a peep glass. Made of stainless steel.





49 06 51	Frame, round, stainless steel, 250 mm dia, for peep glass	Pc.

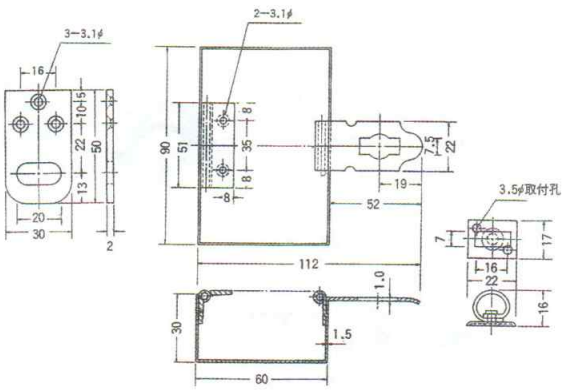
Ref. No. OHS-4903

Seal Plate and Cover

Placa de sellado y cubierta
封印金物及びカバー　封印五金具及外罩

For sealing a bonded store room by fixing on the door and door frame. Can be locked with padlock cylinder. Made of stainless steel.





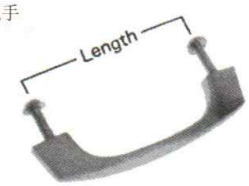
49 06 53	Seal plate & cover, stainless steel, W60×T30×L90 mm for sealing bonded store room	Pc.

Ref. No. OHS-4911

Cabinet Pulls

Pomo de la Puerta　キャビネットプル　門把手

To be installed as pulls for drawers or cabinet doors. When ordering, please indicate the length between the two screws as indicated in the drawing.



"A" Type

Made of brass.

Unit Per Pc.

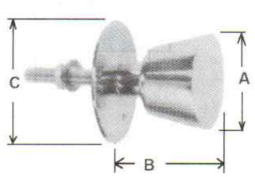
CODE	Length Between Screws	Overall Length	OHS No.
49 08 01	75 mm	100 mm	6001
02	100 "	123 "	6002
03	125 "	150 "	6003

Cabinet Knobs

for Cabinet Door

Pomo de la Puerta
キャビネットノブ　門把手

Made of brass.



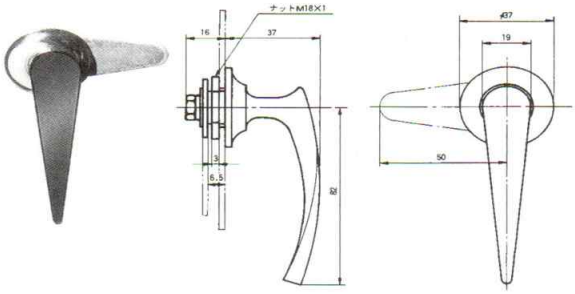
Unit Per Pc.

CODE	Dimensions mm		
	A	B	C
49 08 21	16 mm	18 mm	16 mm
22	22 "	25 "	32 "
23	30 "	35 "	40 "

Steel Locker Handles

Tiradores para Armarios de Acero
スチールロッカーハンドル　钢柜把手

A spare handle of the steel locker. Made of zinc alloy die casting and steel.



49 08 26	Steel locker handle	Pc.

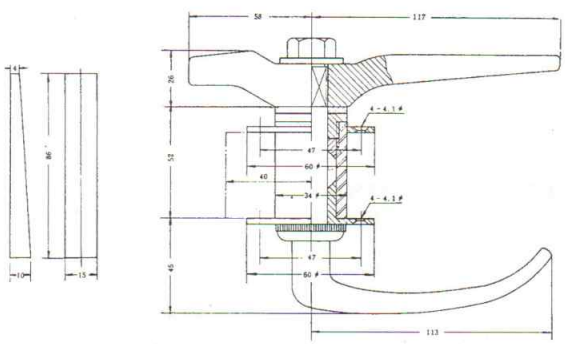
Tight Door Clip Handles

for Weather Tight Door

Picaporte de cierre de puerta hermética
タイトドアー締め付けハンドル
密封门拉手



To be used for the entrance doors which requires tightly sealing on the deck or in engine room. Made of brass.



49 08 28	Handle, clip, tight door, brass for weather tight door	Pc.

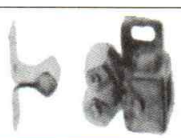
Ref. No. OHS-4451

Cabinet Catches

Retendores para Armarios　キャビネットキャッチ　柜后夹

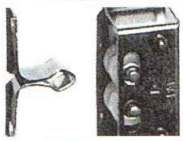
Designed as a stopper for cabinet doors (filing cabinets, etc.) in closed position. Can be used also for drawers when fitted to the backside of the drawer.

Unit Per Set

Illustration	CODE	Type	Material	Screw Ø	Screw No
	**49 08 31**	B	Steel	3.5 4.0	2 2

(to be continued)

Unit Per Set

Illustration	CODE	Type	Material	Screw Ø	Screw No
	**49 08 33**	D	Phosphor Bronze	3.1	4
	**34**	Box Catch	Steel & Plastic	3.2	4

Ref No: 6212, 6214, 6215

Drawer Keepers

Tope para Cajones　ドロワーキーパー　抽屉闩

A stopper to prevent a door from opening by vibration or rolling and pitching of the ship. Length of cross plate is equal. Plate size W 12 mm x L 45 mm. Screws: ø3.1 mm x 2. Made of stainless steel.



49 08 36	Drawer keeper, stainless steel 12 × 45 mm	Pc.

Ref. No. OHS 6222

Barrel Bolts

for Cabinet

Cerrojos de barril　バレルボルト　门插销

For double leaf doors. Made of steel and zinc alloy die casting. Plate size is 27 × 43 mm.

Screws: ø2.7 mm x 8.



49 09 13	Barrel bolt for cabinet, steel and zinc alloy die casting, plate size 27 × 43 mm	Set

Cupboard Adjusters

Ajustadores para Armario　カップボードアジャスター　橱柜调节器



This overhead door holder prevents open cabinet doors from "slamming" when the vessel is rolling or pitching. Made of brass. Maximum extended length is 166 mm.

Screws: ø3.1 mm × 4.

49 09 16	Cupboard adjuster, maximum length 166 mm	Pc.

Ref. No.: OHS 6551

Coat Hooks

Ganchos para Abrigo　コートフック　衣钩

To be used in Wardrobe Closets, or Cabin Walls, etc. for hanging clothes, towels, etc.



A Type



C Type

Unit Per Pc.

CODE	Type	Base Size mm	Screw ømm×Nos.	Material
49 10 02	A	24 × 39	3.1 × 2	Zinc alloy die casting
03	C	18 × 62	3.5 × 2	Aluminium alloy

Ref No.: (A) OHS 6611

Hat Hooks

Ganchos para Sombrero

ハットフック　帽环

These hooks can be used in lockers, passage ways, on cabin walls, etc.



49 10 10/11　49 10 12

Unit Per Pc.

CODE	Material	Base Size mm	Screw ømm × Nos.	OHS No.
49 10 10	Zinc Alloy Die Casting	30 × 37	4.1 × 4	7282
49 10 11	Brass	30 × 37	4.1 × 4	7283
12	Brass	35 × 52	4.1 × 3	7283

Towel Hooks

Ganchos para Toalla　タオルフック　毛巾钩

Designed with two hooks for hanging towels to walls. Made of brass.

Screws: ø3.5 mm × 2.



49 10 16	Towel hook, brass, plate size 86 × 22 mm	Pc.

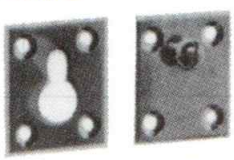
Ref. No.: OHS 7001

Sash Hangers for Frame

Marcos para Soporte de Perchas

とっこ金物　框悬挂

Designed for fitting picture frames to cabin walls. Made of brass.



Unit Per Pr.

CODE	Plate Size mm	Screw Ømm × Nos	OHS No.
49 11 01	Width 20 × Length 35	2.7 × 4	6701
02	Width 22 × Length 25	2.7 × 8	6702

Setting Plates

Placas para Ajuste　壁付金物　垫板

For fitting cabinets, frames and those without a back plate onto walls. Both are made of stainless steel.

Screws: ø3.1 mm x 3.



49 11 06/07
Flat



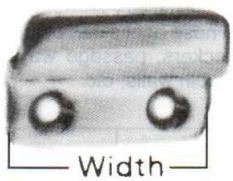
49 11 08
L-type

Unit Per Pc.

CODE	Type	Width mm	OHS No.
49 11 06	Flat	30	6711
07		40	6712
49 11 08	L-Type	40	6715

Mirror Fasteners

Fijaciones para espejos
ミラー留め具　镜面紧固件



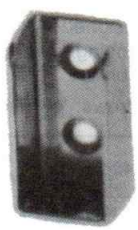
Designed to fix mirrors or similar fragile items to the wall. A soft corner packing is located on the back side to avoid cracking mirrors, etc. Made of stainless steel. Screws: ø3.1 mm x 2.

Unit Per Pc.

CODE	Size mm	Screws	OHS No.
49 11 11	30 × 20	3.1 mm × 2	6721
12	50 × 20		-

Book Case Bar Sockets

Soporte para Barras Sujeta-Libros
ブックケースバーソケット　书柜条插座



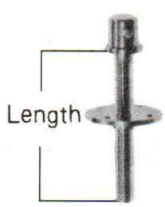
Designed for bookshelves, etc. to support wood or metal bars which divide the shelf or cabinet into different compartments. Screws: ø2.7 mm x 2.

Unit Per Pc.

CODE	Size W x L	Inner Size W x L	Material	OHS No
49 11 16	14 x 25 mm	12 x 25 mm	Stainless Steel	6731
49 11 17			Stainless Steel & Felted Fabric	6731F

Leg Fasteners

Agarrador de Patas de Mesa
レッグファスナー　腿固定器



For securing the legs of tables, chairs, cabinets, etc. to the floor. Made of a brass screw bolt of ø12 mm and a 53 mm flange containing 4 screw holes of ø4.1 mm. 100 mm in length.

49 12 01	Leg fastener, brass, length 100mm	Pc.

Ref. No.: OHS 6751

Chair Fasteners

Agarrador de Sillas　チェアーファスナー　椅固定器



Made of brass and stainless steel. Designed to secure chairs to accommodation floors. When ordering, please measure the height between the seat bottom and the floor referring to the list below.

Screws: ø4.1 mm × 8.

Unit Per Set

CODE	Height Between Seat & Floor mm	OHS No.	CODE	Height Between Seat & Floor mm	OHS No.
49 12 11	165 - 210	6761	**49 12 16**	310 - 360	6766
12	205 - 240	6762	**17**	350 - 400	6767
13	230 - 270	6763	**18**	390 - 440	6768
14	260 - 290	6764			
15	285 - 315	6765			

Grab Rails

Rieles de Agarre　グラブレール
扶手栏杆



Designed to give a firm hold during ship movements. The corner parts are made of brass and the center bar is made of heavy duty plastic. The length from center to center is 250 mm and the diameter of the bar is 25 mm.

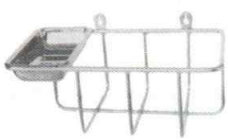
Screws: ø4.1 mm x 6.

49 13 11	Grab rail, brass bracket & plastic grab, 250 × 25 mm	Pc.

Ref. No.: OHS 7031

Sponge and Soap Holders

Portaesponjas y Jaboneras
スポンジ&石鹸ホルダー　海绵和肥皂架



Designed for holding cleaning equipment such as soap, sponges, etc. Can be easily installed on sinks or wash basins. Made of brass.

49 14 01	Sponge & soap holder brass, 243 × 125 × 77.5 mm	Pc.

Ref. No.: OHS 7101

Thermos Holders

Soportes para Termos　魔法びん受け　保温瓶支架



Designed to hold and fit thermos bottles. Made of stainless steel.

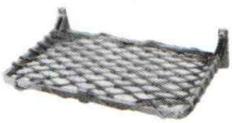
Size: ID160 mm x Depth 120 mm.
Screws: ø4.1 mm x 4.

49 14 13	Thermos holder, stianless steel ID 160 mm × depth 120 mm	Pc.

Ref. No.: OHS 7127

Net Racks for Bed

Repisas de Enreiado　網棚　网架



For storing small personal effects close to the bed or other places as required.

Unit Per Pc.

CODE	For	Size mm	Screw ømm × Nos	Material	
				Bracket	Net
49 14 51	Bed	224 × 137	4.1 × 4	Brass	Cotton

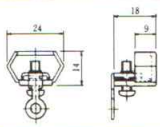
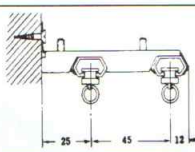
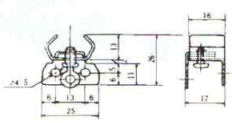
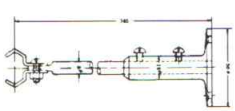
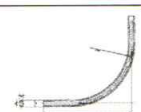
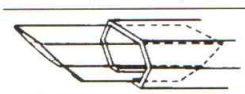
Ref. No.: OHS 7241

Rails and Fittings for Curtain

Rieles y Conexiones para Cortina
カーテンレール及びリング　窗帘用滑轨及附件

For fitting into shower rooms, over portholes, square windows, cabin doors, etc.

Unit Per Pc.

Illustration	CODE	Type	Material
	**49 15 01**	Rail 2 mtr	Stainless Steel
	**49 15 02**	Runner	Plastic
	**49 15 03**	Cap	Steel & Plastic
	**49 15 04**	Single Bracket	Stainless Steel
	**49 15 05**	Double Bracket	Stainless Steel
	**49 15 06**	Socket	Stanless Steel & Steel
	**49 15 07**	Suspender	Stainless Steel & Hydranalium
	**49 15 08**	Curved Rail Length at Random	Stainless Steel
	**49 15 09**	Joint	Stainless Steel
	**49 15 10**	Curtain Ring 30Ø	Stainless Steel
	49 15 11	Curtain Ring 36Ø	Stainless Steel

Tassel Hooks for Curtain

Ganchos de Borla para Cortina　タッセルフック　窗帘用承梁木钩

Made of brass.
Screws: ø3.1 mm × 2.



49 15 16/17



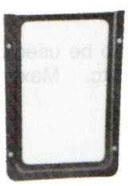
49 15 18

Unit Per Pc.

CODE	Shape	Size mm
49 15 16	Oval	19 × 46
17		25 × 60
18	Square	16.5 × 28

Card Holders

Tarjetreos　カードホルダー　名片支架



Vertical



Horizontal

Unit Per Pc.

CODE	Type	Size mm		Material	Screw ø mm Nos
		Inside	Holder		
49 16 01	Vertical	50 × 85	70 × 100	Aluminium	2.3 × 4
02	Horizontal	95 × 49	118 × 66	Brass	1.8 × 4

Ref. No.: OHS 7918/7929

Storm Rail Brackets

Corchetes para Rieles　ブラケット　保险索支架

For use with storm rail. Made of brass. When ordering, please make sure that the inside diameter of the bracket will suit the rod. For End Bracket, please specify whether it is for left or right hand use.



49 17 51/52 End Bracket



49 17 55 Center Bracket

Unit Per Pc.

CODE	Remark	I.D. mm	Screw	OHS No.
49 17 51	End Bracket (R)	33	5ø × 4	8021-2
52	" (L)			8021-3
49 17 55	Center Bracket	33	5ø × 4	8026

R: Right Hand　L: Left Hand

Hand Rail Brackets

for Chart Table

Corchetes para Rieles Manuales para Mesa de Carta Náutica
ハンドレールブラケット　图表用扶栏支架

Made of brass. They are used as chart table hand rails. When ordering, please indicate the inside diameter of the bracket. For the End Bracket, please specify whether it is for right or left hand use.



49 18 01/02 End Bracket



49 18 03 Center Bracket

Unit Per Pc.

CODE	Remark	I.D. mm	Screw	OHS No.
49 18 01	End Bracket (R)	25.5	4.1ø × 4	8000-2
02	" (L)			8000-3
49 18 03	Center Bracket	25.5	4.1ø × 4	8001

R: Right Hand L: Left Hand

Rail Pipes

Tubos para Rieles レール用パイプ 导轨管

49 19 04

A brightened steel and plastic pipe to be used as a curtain hanger, luggage rack, storm rail, etc. Maximum length: 3,600 mm. Colour: Ivory or Gray.

49 19 09

A stainless steel pipe for curtain hanger, luggage rack and storm rail, etc. Maximum length: 4,000 mm.



49 19 04



49 19 09

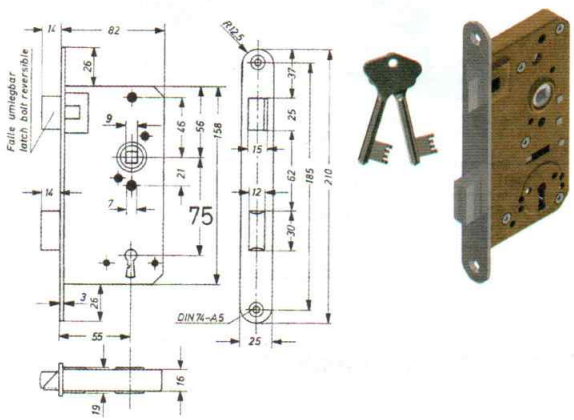
Unit Per Pc.

Plastic Coated Steel 3,600 mm Length			Stainless Steel 4,000 mm Length		
CODE	O.D. mm	OHS No.	CODE	O.D. mm	OHS No.
49 19 04	32	8104	**49 19 09**	32	8114

Schwepper Products

Mortise Locks

Cerraduras Embutidas モーチスロック MORTISE 门锁



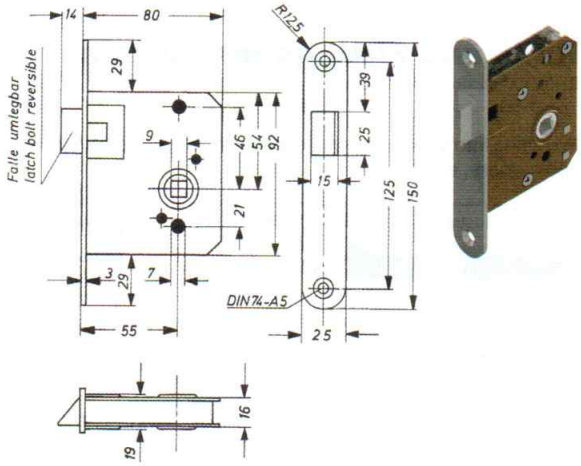
Screws: DIN74-A5 (5 mm diam) × 2

CODE	Type of Hand	Material	Unit
49 21 01	Left hand	Brass satin chrome	Set
02	Right hand	(3201)	"
49 21 03	Left hand	Brass satin chrome with	Set
04	Right hand	Master key (3201H)	"

Name of Mfr.: Schwepper No. 3201/3201H

Mortise Latchs

Picaportes de Carradura Embutida モーチスラッチ ORTISE 碰锁



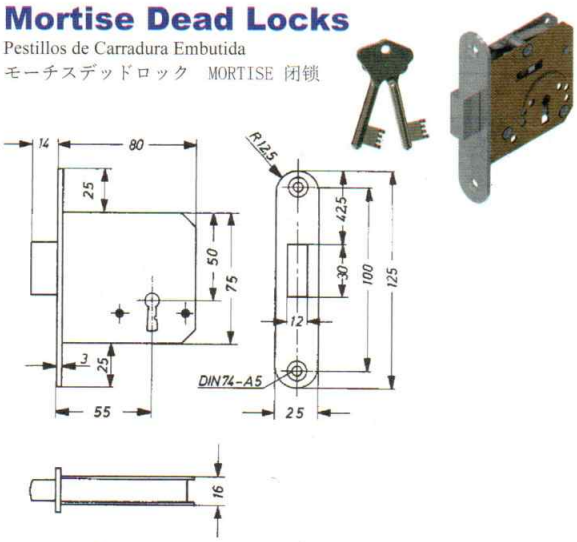
Screws: DIN74-A5 (5 mm diam) × 2

CODE	Type of Hand	Material	Unit
49 21 05	Left hand	Brass satin chrome	Set
06	Right hand		"
49 21 07	Left hand	Stainless steel	Set
08	Right hand		"

Name of Mfr.: Schwepper No. 3234

Mortise Dead Locks

Pestillos de Carradura Embutida
モーチスデッドロック MORTISE 闭锁



Screws: DIN74-A5 (5 mm diam) × 2

49 21 11	Mortise dead lock, brass satin chrome (1172)	Set
49 21 12	Mortise dead lock, brass satin chrome with Master key (1172H)	Set

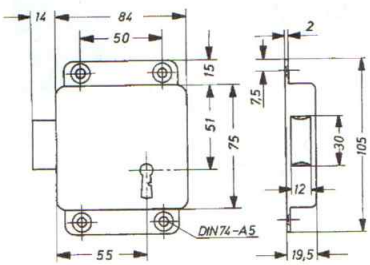
Name of Mfr.: Schwepper No. 1172/1172H

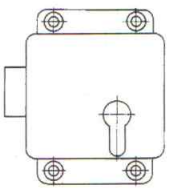
Rim Dead Locks

Pestillos de Carradura Recercada
リムデッドロック　弾簧闭锁











Screws: DIN 74-A5 (5 mm diam) × 4

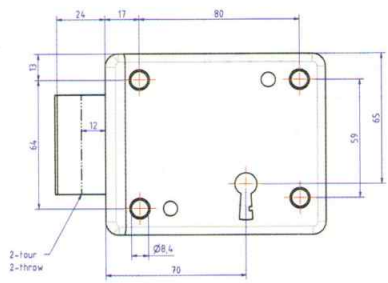
CODE	Type of Hand	Material	Unit
49 21 21	Left hand	Brass satin chromed	Set
49 21 23	Right hand		Set

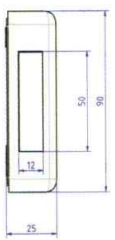
Name of Mfr.: Schwepper No. 3239

Rim Dead Locks

Carraduras sobrepuestas de bloqueo
リムデッドロック　弾簧锁







Screws: DIN75-A8.4 (8.4 mm diam) × 4

Unit Per Set

CODE	Direction	Material
49 21 25	Left hand	Brass satin chromed
27	Right hand	

Name of Mfr.: Schwepper No. 3240

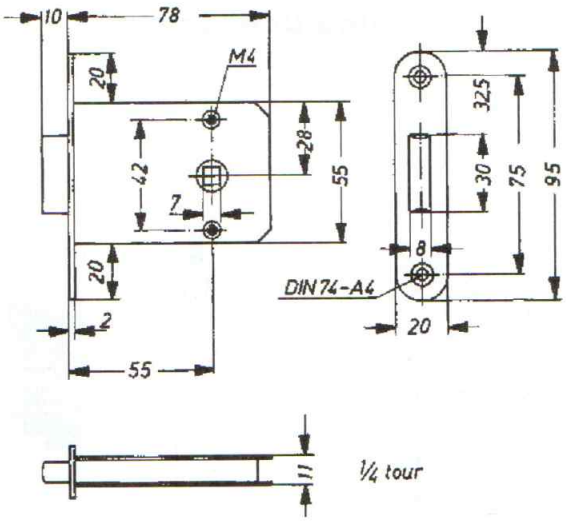
Mortise Indicator Bolts

with Red-Green Indicator

Pasadores con Indicador Rojo-Verde
カラーインディゲーター付きモーチスラッチ
MORTISE 插销（带红绿标记）







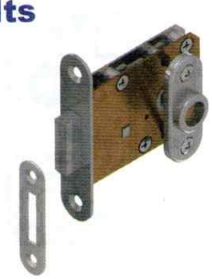
Material: Brass stain chrome
Screws: DIN 74-A5 (5 mm diam) × 2

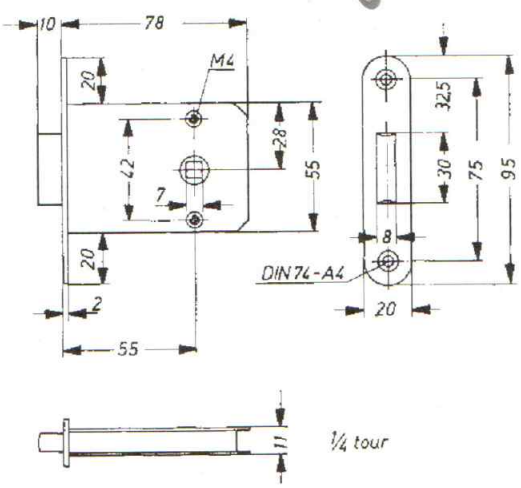
CODE	Indicator	Locking Device	Suitable Door Thickness	Unit
49 21 31	Red - Green	Non	36 - 40 mm	Set
32	Red - Green	With	36 - 40 mm	"

Name of Mfr.: Schwepper No. 2546/2546A

Mortise Indicator Bolts

Pasadores con Indicador
モーチスインディケーターボルト
MORTISE 插销（带标记）





Screws: DIN74-A5 (5 mm diam) × 2

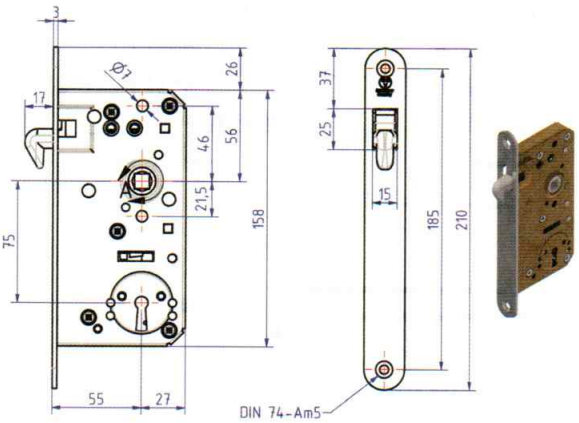
49 21 35	Mortise indicator bolt, brass satin chrome, for door thickness 35 to 40 mm	Set

Name of Mfr.: Schwepper No. 2543

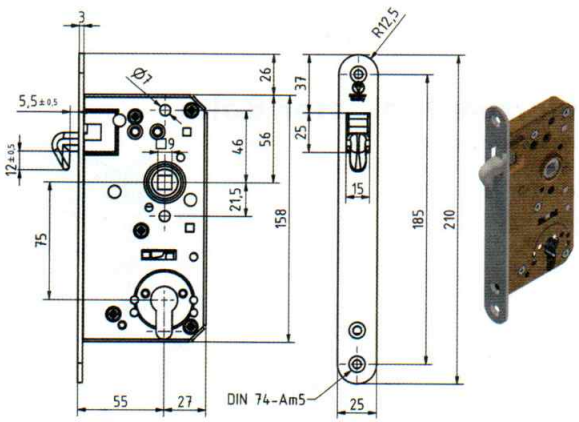
Mortise Sliding Door Locks

Carraduras embutidas de Puertas corredizas
モーチス引き戸式ドアロック　插芯拉门锁

Key Length: 85 mm



Screws: DIN74-A5 (5 mm diam) × 5
49 21 41/42

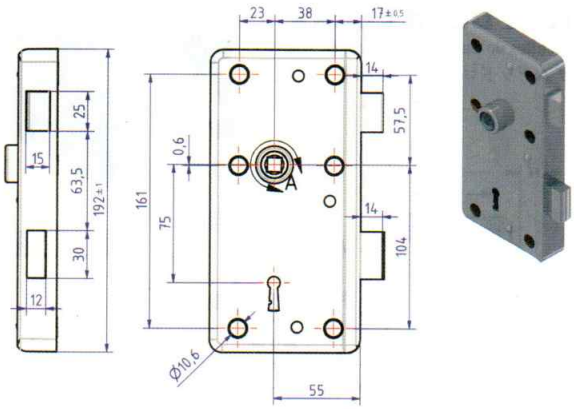


Screws: DIN74-A5 (5 mm diam) × 3
49 21 43

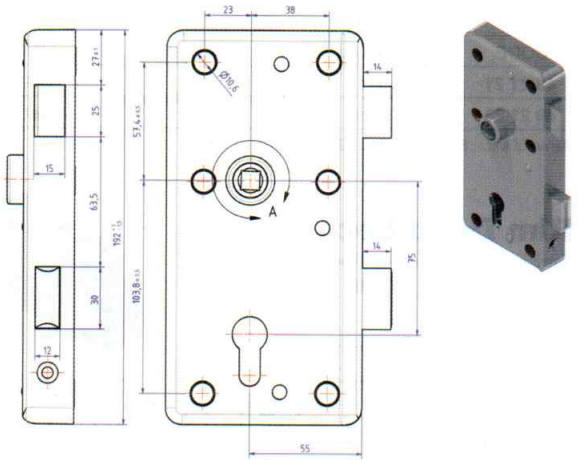
Unit Per Set

CODE	Material	Remark
49 21 41	Brass Satin Chromed	(3210S)
49 21 42		Masterkeyed (3201SH)
49 21 43		(3201SZ)

Name of Mfr.: Schwepper No. 3201S, 3201SH, 3201SZ



3827/3827H



3827Z

Screws: DIN74-A10.5 (10.5 mm diam) × 6

Unit Per Set

CODE	Direction	Material
49 21 51	Left hand inward	Stainless Steel (3827)
52	Left hand outward	
53	Right hand inward	
54	Right hand outward	
49 21 55	Left hand inward with Master key	Brass Satin (3827H)
56	Left hand outward with Master key	
57	Left hand inward with Master key	
58	Left hand outward with Master key	
49 21 61	Left hand inward	Brass Satin (3827Z)
62	Left hand outward	
63	Right hand inward	
64	Right hand outward	

Name of Mfr.: Schwepper No. 3827

Rim Locks

for Heavy Steel Doors with Rubber Sealing

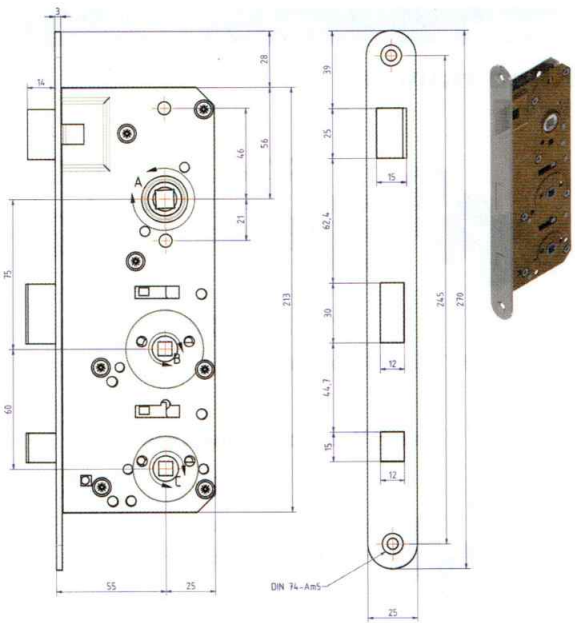
Cerraduras sobrepuestas para puertas pesadas de acero con cierre de caucho
リムロック（重量鋼板ドア用、ゴムシール材付き）
弹簧锁（重钢板门用、带橡胶密封）

Mortise Toilet Locks

without Strike Plate

Cerraduras embutidas de WC sin placa de contacto
モーチストイレット用ロック　洗手间用插芯锁

With locking device in the upper dead bolt to prevent unauthorized locking.



Screws: DIN74-A5 (5 mm diam) × 2

Unit Per Set

CODE	Direction	Material
49 21 71 **72**	Left hand Right hand	Brass Satin Chromed
49 21 69 **70**	Left hand with anti-vibration latch Right hand with anti-vibration latch	Brass Satin Chromed

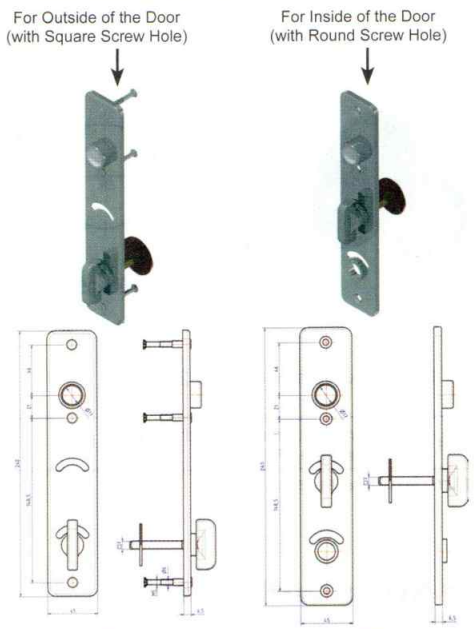
Name of Mfr.: Schwepper No. 3596

Long Door Plates

for Toilet Side or Cabin Side

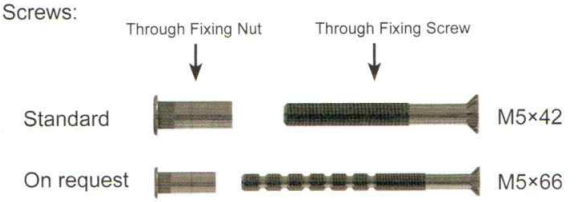
Placas largas para puertas para WC o camarotes
トイレットサイド／キャビンサイド用ロングドアプレート
洗手间及驾驶室用门锁长面板

For door thickness 35 - 42 mm.



3594/1 3595/2

Screws:



2 screws according to door thickness which needs to be indicated.

Unit Per Set

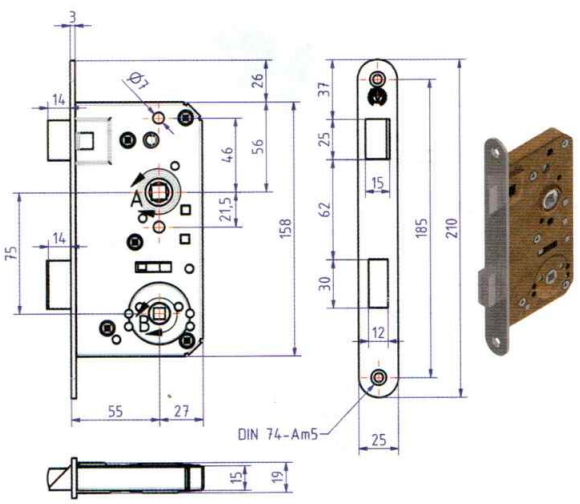
CODE	Use	Material
49 21 73 **74**	For toilet side (3594/1) For cabin side (3595/2)	Brass Satin Chromed

Remark: Long plates are to be supplied with through fixing screw and nut for tightening the plates "for outside of the door" and "for inside of the door". Standard screw size is M5 × 42 mm, but size M5 × 66 mm is available on request.

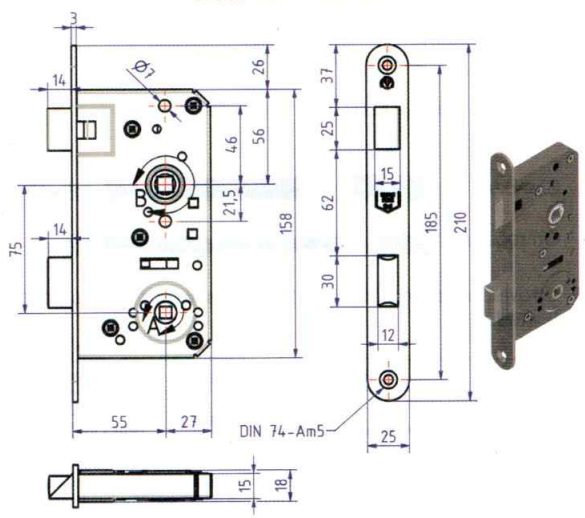
Name of Mfr.: Schwepper No. 3594/1, 3595/2

Mortise Toilet Locks

Cerraduras embutidas de WC　モーチストイレットロック　洗手间用插芯锁



Brass Stain Chromed



Stainless Steel

Screws: DIN74-A5 (5 mm diam) × 2

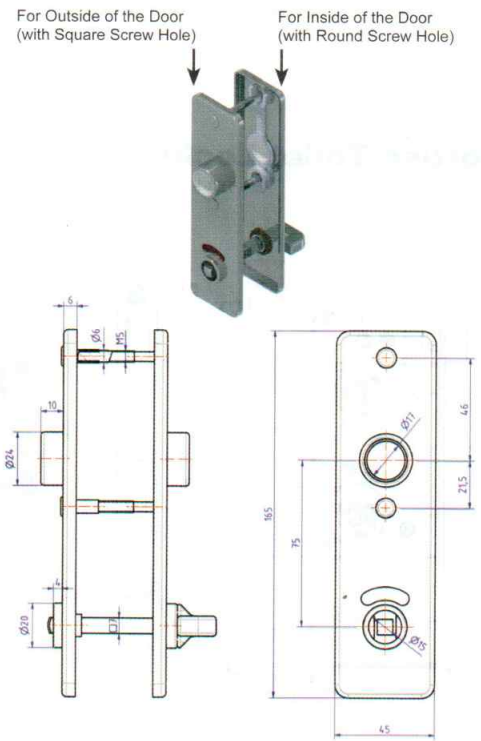
Unit Per Set

CODE	Direction	Material
49 21 81 **82**	Lefthand Righthand	Brass Satin Chromed (3201WC)
49 21 83 **84**	Lefthand with anti-vibration latch Righthand with anti-vibration latch	Brass Satin Chromed (3211WC)
49 21 75 **76**	Lefthand Righthand	Stainless Steel (3801WC)
49 21 80 **85**	Lefthand with anti-vibration latch Righthand with anti-vibration latch	Stainless Steel (3811WC)

Name of Mfr.: Schwepper No. 3201WC/3211WC/3801WC/3811WC

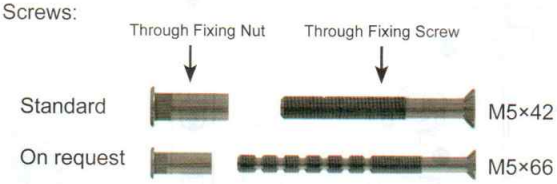
Short Plates for Door

Placas cortas para puertas　ドア用ショートプレート　门锁用短面板



6645 WCP/75
6645 WCR/1/75　6645 WCO/2/75

Screws:



2 screws according to door thickness which needs to be indicated.

Unit Per Set

CODE	Remark	Material	P/N
49 21 77 **78** **79**	- With red-green indicator With thumbturn	Stainless steel	6645 WCP/75 6645 WCR/1/75 6645 WCD/2/75

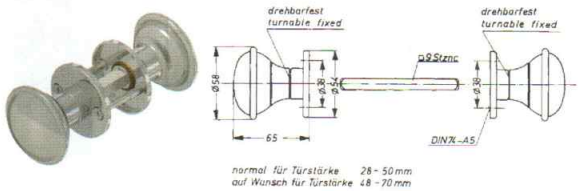
Remark: Short plates are to be supplied with through fixing screw and nut for tightening the plates "for outside of the door" and "for inside of the door".
Standard screw size is M5 x 42mm, but size M5 x 66mm is available on request.

Name of Mfr.: Schwepper No. 6645 WCP/75, 6645 WCR/1/75, 6645 WCO/2/75

Handles

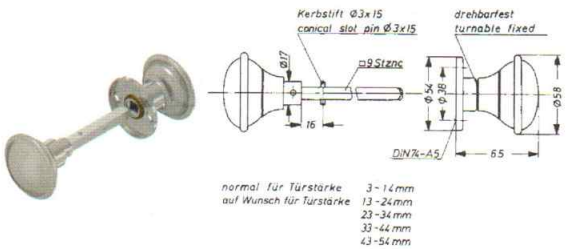
Knob Handles

Picaportes　ノブハンドル　把手



Screws: DIN 74-A5 (5 mm diam) × 2.

Round Knob for Mortise Lock



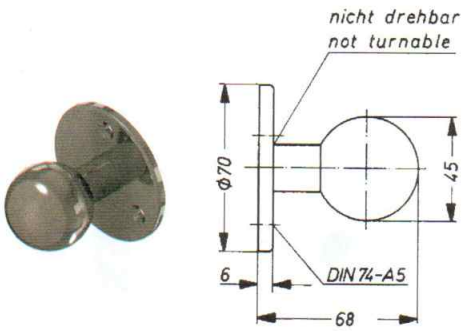
Screws: DIN 74-A5 (5mm diam) x 2.

CODE	Type of Knob	For	Door Thickness	Material	Unit
49 22 01 **02**	Round	Mortise Lock Rim Lock	28-50 mm 3-14 mm	Brass satin chrome	Pc. "

Name of Mfr.: Schwepper No. 227/227A

Door Knobs

Pomo de la Puerta　ドアノブ　门把手



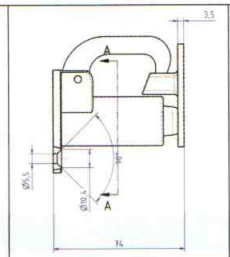
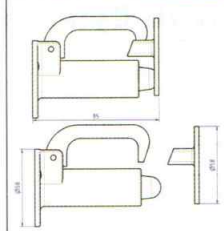
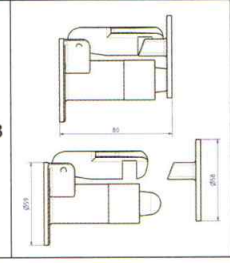
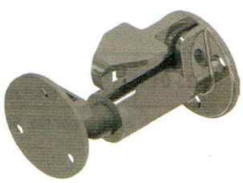
Screws: DIN 74-A5 (5 mm diam) x 2.

49 22 11	Door knob, brass satin chrome Base diam : 70 mm	Set

Name of Mfr. : Schwepper No. 5249

Door Stops with Catch

Fiadores de puerta con enganches
クッション付きドアホルダー　缓冲门挡

49 22 21		Fixed Type
22		
23		Adjustable Type 

Screws : DIN 74-A5 (5mm diam) x 6

Unit Per Set

CODE	Overall Length	Material	Remark	P/N
49 22 21	74 mm	Brass Satin Chromed	Fixed	236
24	74 mm	Stainless Steel		236B
49 22 22	95 mm	Brass Satin Chromed	Fixed	236A
49 22 23	80 mm		Adjustable	2406

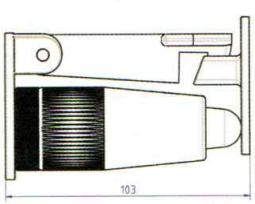
Name of Mfr.: Schwepper No. 236/236A/2406/236B

Door Stops with Catch

Adjustable

Fiadores de puerta con enganches ajustables

調整式クッション付きドアホルダー　可调缓冲门挡





Screws: DIN 74-A5 (5mm diam) x 7

Unit Per Set

CODE	Overall Length	Material	Remark
49 22 26	103 mm	Brass Satin Chromed	Adjustable

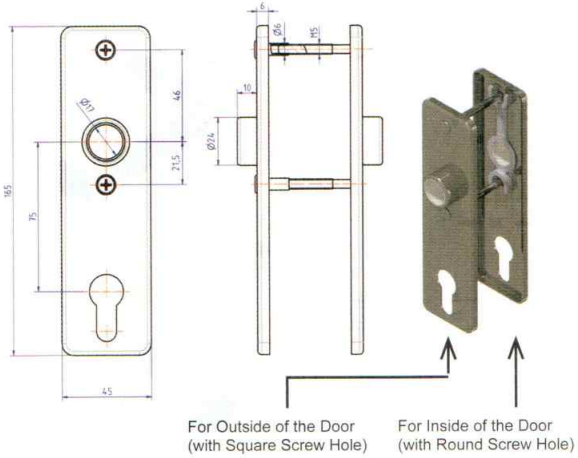
Name of Mfr.: Schwepper No. 1346

Short Door Plates

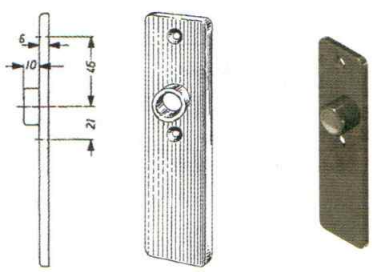
with Cylinder Hole, Stainless Steel

Placas cortas para puertas con agujero cilíndrico

シリンダー錠用 ドア面板　Cylinder门锁面板

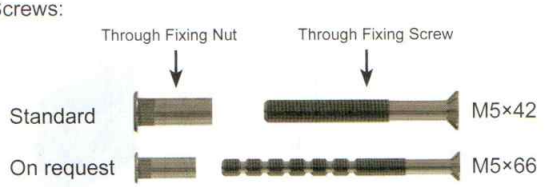


With Cylinder Hole



Without Key Hole

Screws:



2 screws according to door thickness which needs to be indicated.

Unit Per Set

CODE	Distance between Key Hole and Handle Shaft	Material
With Cylinder Hole		
49 22 41	60 mm (6645 Z/2/60)	Stainless Steel
42	72 mm (6645 Z/2/72)	
43	75 mm (6645 Z/2/75)	
Without Key Hole		
49 22 44	- (6645 F/2)	Stainless Steel

Remark: Short plates are to be supplied with through fixing screw and nut for tightening the plates "for outside of the door" and "for inside of the door".
Standard screw size is M5 × 42mm, but size M5 × 66mm is available on request.

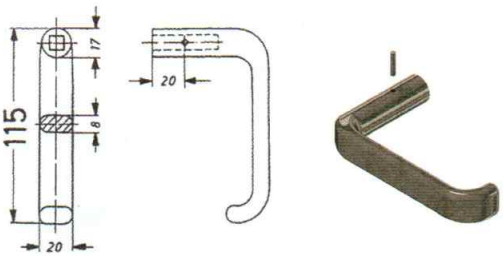
Name of Mfr.: Schwepper No. 6645 Z/60, Z/72, Z/75, 6645 F/2

Handles, Female Part

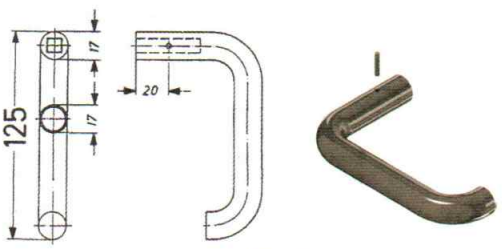
Stainless Steel

Pomos de partes hembra de acero inoxidable

ステンレス製シリンダー錠用ハンドル　不锈钢 Cylinder 锁把手



49 22 45



49 22 46

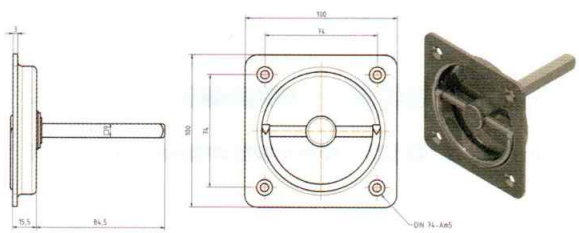
Unit Per Pc.

CODE	Handle Length	Material	For Plate Type
49 22 45	115 mm	Stainless Steel	6645 Z/60 Z/72 Z/75 or 6645 F
46	125 mm		

Name of Mfr.: Schwepper No. 2210, 6610

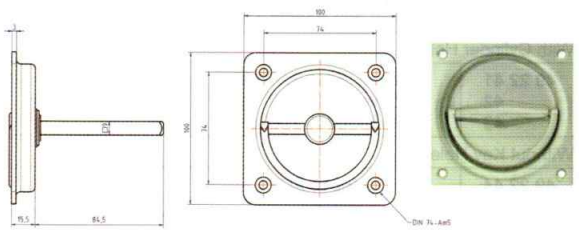
Turnable Handles

Pomos giratorios　回転式ドア取っ手　旋转式门把手



Screws: DIN74-A5 (5 mm diam) × 4

49 22 51



Screws: DIN74-A4 (4 mm diam) × 4

49 22 52/53

Unit Per Pc.

CODE	Size	Material	P/N
49 22 51	96 × 96 mm	Brass Satin Chromed	4033
49 22 52	90 × 90 mm	Stainless Steel	7833
53	100 ×100 mm		

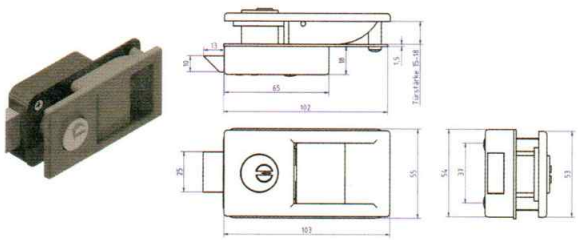
Name of Mfr.: Schwepper No. 4033, 7833

Cabnet Locks

Cabinet Locks with Cylinder

Cerradura con cilindro de Armario

シリンダーキャビネットロック　CYLINDER 门锁



49 23 01	Cabinet lock with cylinder, brass satin chrome, for door thickness 15 – 18 mm	Set

Name of Mfr.: Schwepper No. 5845

Cabinet Locks

with Cylinder and Rose

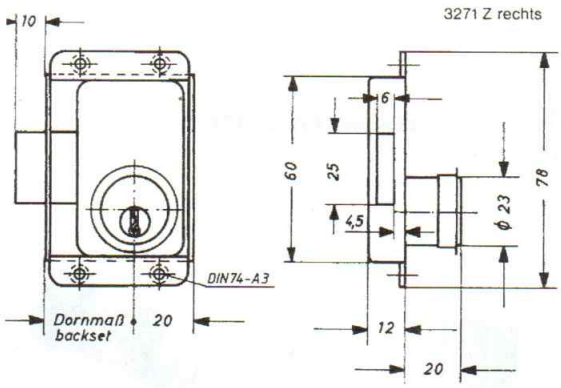
Cerradura con Cilindro y Roseta de Armario

ローズ付きシリンダーキャビネットロック　CYLINDER 门锁

Material: Brass satin chrome.
Screws: DIN 74-A3
(3 mm diam) × 4



3271 Z rechts



Unit Per Set

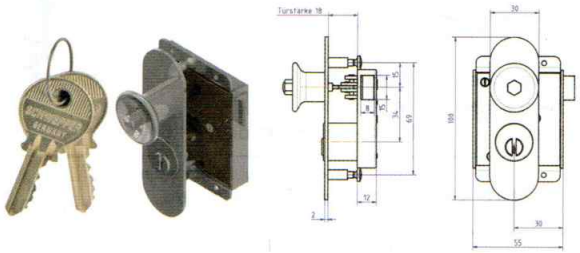
Left Hand		Right Hand	
CODE	Door Thickness	CODE	Door Thickness
49 23 21	20 mm	**49 23 26**	20 mm
22	25	**27**	25
23	30	**28**	30
24	35	**29**	35
25	40	**30**	40

Name of Mfr.: Schwepper No. 3271Z

Cabinet Locks
with Cylinder and Knob Plate

Cerradura con Armario con Cilindro y Chapa
ノブプレート付きシリンダーキャビネットロック
CYLINDER 门锁（付门把）

Knob plate width: 30 mm
Normal for door thickness up to 18 mm
Screws: DIN 74-A3 (3 mm diam) × 4



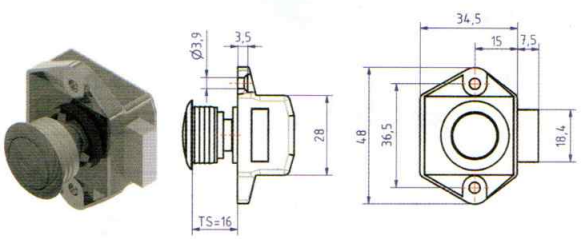
CODE	Type of Hand	Material	Unit
49 23 41	Left hand	Brass satin chrome	Set
42	Right hand		"

Name of Mfr.: Schwepper No. 6039Z

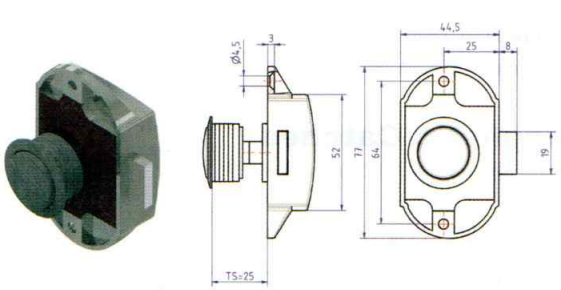
Push Locks

Cerradura con Seguro　プッシュロック　按钮式门锁

For closing push button and for opening push button again.
For door thickness 16 mm.
Material: Plastic stain nickeled.
Screws: DIN 74-A3 (3 mm diam) × 2.



For Door Thickness 16 mm



For Door Thickness 19 mm or 25 mm

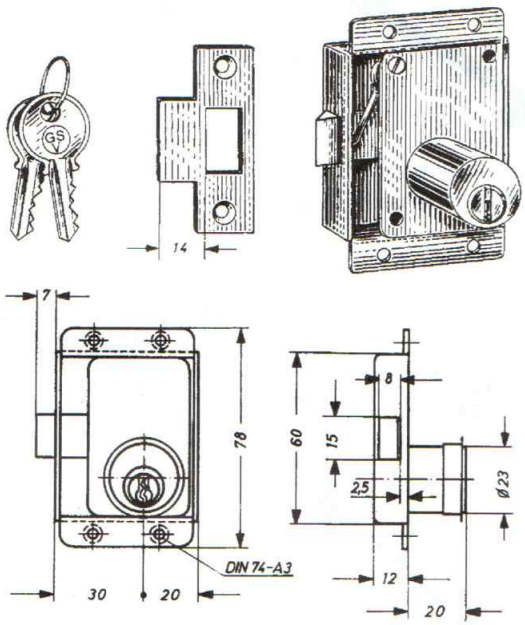
CODE	For Door Thickness	Unit
49 23 45	16 mm	Set
46	19 mm	"
47	25 mm	"

Name of Mfr.: Schwepper No. 7740/7741

Cabinet Locks
with Cylinder and Rose

Cerraduras de Armario con Cilindro y Roseta
シリンダーとローズ付きキャビネットロック　橱柜锁 带锁芯和锁舌

For door thickness up to 20 mm
Screws: DIN 74-A3 (3 mm diam) × 4



CODE	Type of Hand	Material	Unit
49 23 51	Left hand	Brass satin chrome	Set
52	Right hand		"

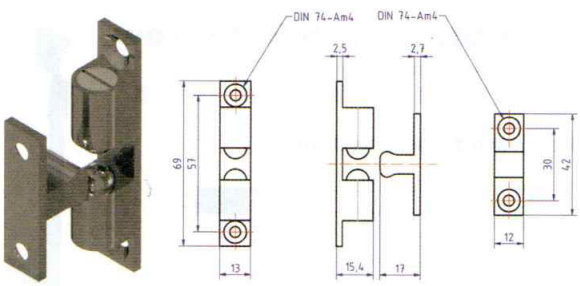
Name of Mfr.: Schwepper No. 3710Z

Cabinet Hardware

Ball Catches

Pestillo de Bola　ボールキャッチ　门爪（门钩）

Material: Brass nickel plated.



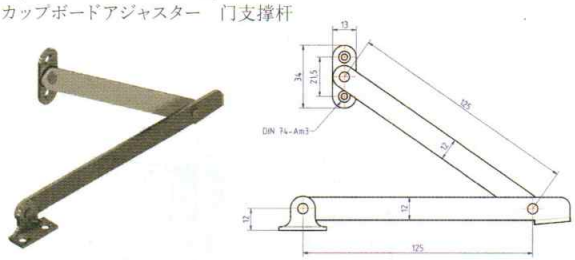
Unit Per Set

CODE	Size mm				Screws
	L	B	H	L1	
49 24 01	43	8	12	26	DIN 74-A3 (3 mm) × 4
02	50	9	14	29	DIN 74-A3 (3 mm) × 4
03	60	10	16	38	DIN 74-A3.5 (3.5 mm) × 4
04	70	13	19	42	DIN 74-A4 (4 mm) × 4

Name of Mfr.: Schwepper No. 4090

Cabinet Stays with Stop

Soportes de Armario con Tope
カップボードアジャスター　门支撑杆

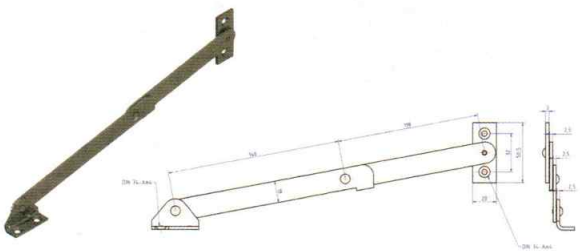


Material: Brass satin chromed
Material thickness: 2 mm, Fixing angle 26 ×12 mm
Fixing plate 34 × 13 mm
Screws: DIN 74-A3 (3 mm diam) × 4

Unit Per Set

CODE	Overall Length	Hand of Door
49 24 21 **22**	250 mm	Left Hand Right Hand
49 24 23 **24**	300 mm	Left Hand Right Hand

Name of Mfr.: Schwepper No. 2658



Material: Brass satin chromed
Material thickness: 2.5 mm,
Fixing angle 40 × 15 mm
Fixing plate 50 × 20 mm
Screws: DIN 74-A4 (4 mm diam) × 4

Unit Per Set

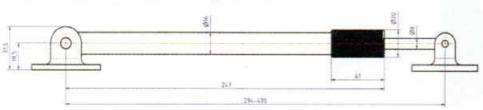
CODE	Overall Length	Hand of Door
49 24 25 **26**	265 mm	Left Hand Right Hand

Name of Mfr.: Schwepper No. 4899

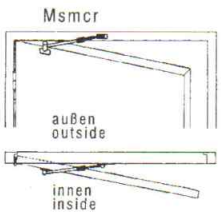
Door Stays with Set-screw

Soportes de puertas con tornillo fijador
セットスクリュー付きドアステイ　带固定螺钉的支门器

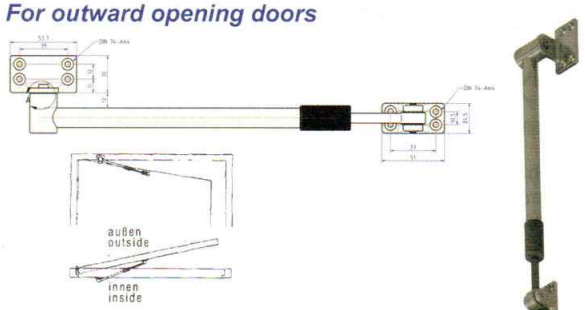
For inward opening doors







For outward opening doors



Fixing plate: 50 × 25 mm
Fixing angle: 50 × 30 mm
Screws: DIN 74 – A5 (5 mm diam) × 8

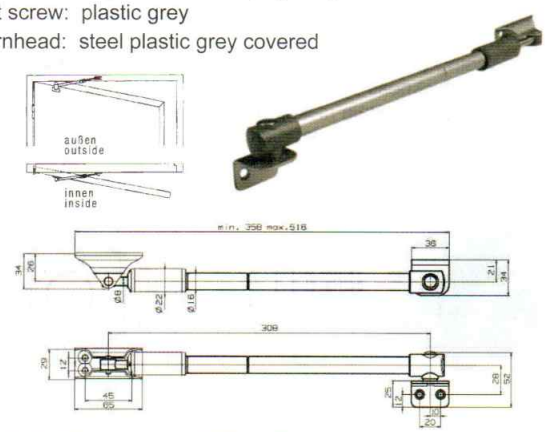
49 24 31	Door stay with set-screw, Brass Satin Chromed fixing plate 50 × 25 mm, fixing angle 50 × 30 mm	Set (5820)
49 24 33	Door stay with set-screw, Stainless Steel fixing plate 50 × 25 mm, fixing angle 50 × 30 mm	Set (5820N)

Name of Mfr. : Schwepper No. 5820/5820N

Door Stays with Set-screw

Soportes de puertas con tornillo fijador
セットスクリュー付きドアステイ　带固定螺钉的支门器

For inward opening doors,
Tube rod, fixing plates: steel grey lacquered
Set screw: plastic grey
Turnhead: steel plastic grey covered



Screws: DIN 74 – A5 (5 mm diam) × 4

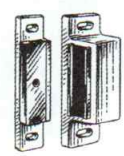
49 24 32	Door stay with set-screw	Set

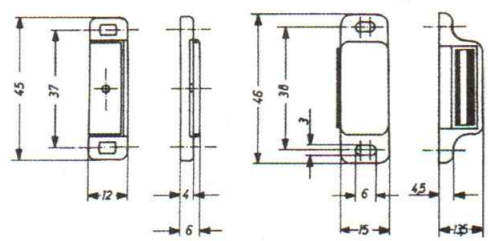
Name of Mfr. : Schwepper No. 5825

Magnetic Catches

Pestillo Mafnético　マグネティックキャッチ
磁性门爪

Screws: DIN 74-A3 (3 mm dima) × 4





49 24 51	Magnetic catch, plastic white, adherance 40 N (4 kgf/cm²)	Set

Name of Mfr.: Schwepper No. 7812

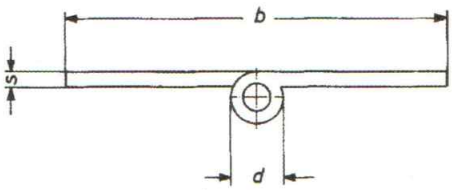
Hinges/Joint Hinges

Hinges with Fixed Pin

Bisagra con Pasador Fijo　ヒンジ　铰链

Material: Brass satin chrome





Unit Per Set

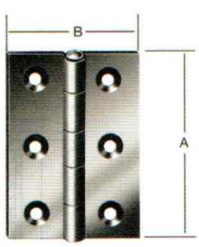
CODE	Size mm L	B	H	L1	Screws
49 25 01	40	30	5	1.75	DIN 74-A3 × 4
02	50	40	5	2	DIN 74-A3 × 6
03	60	50	6	2	DIN 74-A3.5 × 6
04	65	40	5	2	DIN 74-A3.5 × 6
05	70	60	7	2.5	DIN 74-A4.5 × 6
49 25 06	80	65	9	3	DIN 74-A4.5 × 6
07	90	70	10	3	DIN 74-A4.5 × 8
10	150	150	15	5	DIN 74-A5.5 × 10

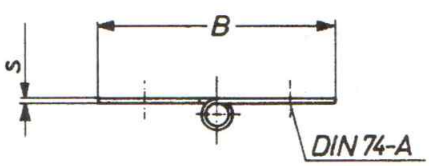
Name of Mfr.: Schwepper No. 145

Hinges Rolled Pin Riveted

Bisagra con Pasador Remachado　ステンレスヒンジ　不锈钢铰链

Material: Stainless Steel





Unit Per Set

CODE	Size mm L	B	S	Screws
49 25 21	40	32	0.9	DIN 74-A2.5 × 4
22	50	39	1.0	DIN 74-A3 × 6
23	60	46	1.2	DIN 74-A3 × 6
24	80	58	1.5	DIN 74-A3.5 × 6
25	100	72	1.5	DIN 74-A4.5 × 8

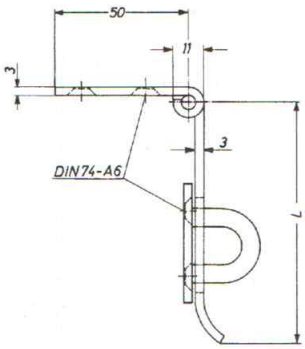
Name of Mfr.: Schwepper No. 8001

Hasps and Staples Rolled

Manecillas y Grapas

ハスプ　铰链式门扣





Unit Per Set

CODE	Size mm L × W	Material	Screws
49 25 52	150 × 45	Brass satin chrome	DIN 74-A6 × 6
53	150 × 45	Steel zinc-plated	DIN 74-A6 × 6

Name of Mfr.: Schwepper No. 3408

Barrel Bolts

Pernos de cañón　バレル ボルト　枪管螺栓

With Surface Striking Plate, Brass Satin Chromed



Unit Per Set

CODE	Plate Width × Length mm	Barrel Diam. mm	Screws
49 26 01	28 × 50	8	DIN 74 A 3.0 mm × 6
02	35 × 75	8	DIN 74 A 3.5 mm × 6
03	45 × 100	10	DIN 74 A 4.5 mm × 6
04	45 × 125	10	DIN 74 A 4.5 mm × 6

Name of Mfr.: Schwepper No. 2512

With Flat Striking Plate, Brass Satin Chromed



Unit Per Set

CODE	Plate Width × Length mm	Barrel Diam. mm	Screws
49 26 05	28 × 50	8	DIN 74 A 3.0 mm × 6
06	35 × 75	8	DIN 74 A 3.5 mm × 6
07	45 × 100	10	DIN 74 A 4.5 mm × 6
08	45 × 125	10	DIN 74 A 4.5 mm × 6

Name of Mfr.: Schwepper No. 2512A

With Surface Striking Plate



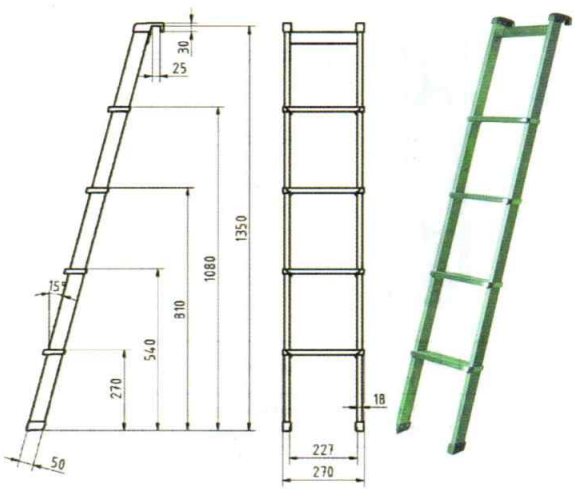
Unit Per Set

CODE	Plate Width × Length mm	Barrel Diam. mm	Screws
Material: Brass Satin Chromed			
49 26 21	50 × 60	10	DIN 74 A 5 mm × 6
22	70 × 90	16	DIN 74 A 6 mm × 6

Name of Mfr.: Schwepper No. 2526

Bed Ladders

Escaleras para cama　ベッド用梯子　床用梯子



49 31 01 / 02

Unit Per Pc.

CODE	Steps	Material	P/N
49 31 01	With 3 steps	Aluminium anodized,	4400/3
02	With 4 steps	grey covered	4400/4

Name of Mfr.: Schwepper No. 4400/3, 4400/4

2 Wall Brackets for Bed Ladder

Soportes de pared para escaleras para cama
ベッド梯子用壁付けブラケット
床用梯子靠壁支架

Screws: DIN74 – A4.5
(4.5 mm diam) × 3



Unit Per Pr.

CODE	Size mm	Material
49 31 03	200 × 45 × 8	Aluminium anodized

Name of Mfr.: Schwepper No. 4402

Waste Buckets with Fire Ring

Cubo de Desperdicios con Cenicero en forma de Anillo
ファイヤーリング付きごみ箱
废物箱



Unit Per Pc.

CODE	Description	Material	Capacity
49 33 21	Waste Bucket with	Silver colour stove	15 Liters
22	Fire Ring	enemelled	30 Liters
23			50 Liters

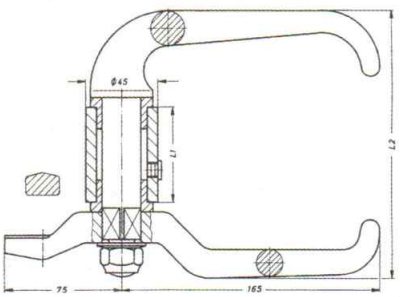
Name of Mfr. : Schwepper No. 7947N

Dog Assemblies

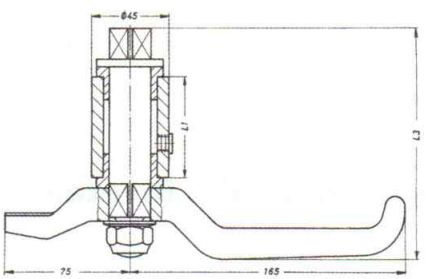
Conjunto de Cierre
ドッグアセンブリー
爪型门把



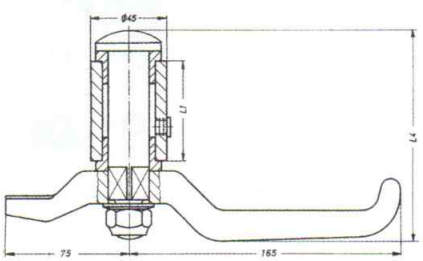
Material: Steel prime



with 2 Handles



with Handle and Square Shaft



with Handle and Flat Head Shaft

Unit Per Pc.

CODE	Size mm		Type
	L1	L2	
49 34 01	73	174	With 2 handles
02	93	194	
49 34 05	73	145	With handle and square
06	93	165	shaft
49 34 11	73	133	With handle and flat head
12	93	153	shaft

Name of Mfr. : Schwepper No. 104A / 104B / 104C

51
Brushes & Mats

Paint Brushes/Paint Rollers  P. 51-1 ~ 4	Floor Brushes/Hand Brushes  P. 51-4 ~ 6
Tube Brushes/Cup Brushes  P. 51 ~ 6	Brooms/Carpet Brushes  P. 51 ~ 7
Brushes for Galley  P. 51-7 ~ 8	Cabin Cleaning Brushes  P. 51-8 ~ 9
Vikan Brushes  P. 51-9 ~ 10	Dusters/Floor Cloths  P. 51-10
Floor Mats/ Deck Mats  P. 51-10 ~ 13	Tiles  P. 51-13

Flat Paint Brushes

Brochas Planas 平ブラシ 油漆平刷

General flat bristle brushes for use with all oil base paints, stains, varnish and other non-water base coatings. The bristles are bound by a metal band to a varnished, wooden handle.



Unit Per Pc.

CODE	Width mm	CODE	Width mm
51 01 01	25	**51 01 06**	90
02	40	**07**	100
03	50	**08**	110
04	65	**09**	130
05	80		

Flat Varnish Brushes

Brochas Planas para Barniz ワニスブラシ 清漆扁刷

Made with white bristle hair bound to a varnished wooden handle with a metal band. Square head brush used for finer, smoother surfaces such as doors and cabinets.



Unit Per Pc.

CODE	Width mm	CODE	Width mm
51 01 16	25	**51 01 21**	90
17	40	**22**	100
18	50	**23**	110
19	65	**24**	130
20	80		

Round Paint Brushes

Brochas Redondas 丸ブラシ 圆头漆刷

A natural, black bristle brush sealed in rubber and bound with a metal band.



Unit Per Pc.

CODE	Diameter mm	CODE	Diameter mm
51 01 31	6	**51 01 36**	25
32	10	**37**	40
33	13	**38**	50
34	16	**39**	65
35	19	**40**	80

Angle Paint Brushes

Japanese Style

Brochas Angulares/Estilo Japonés 筋違いはけ 弯头刷

Made of black or white bristle hair tightly bound to a wooden handle. The brush is angled to make painting sashes, trim, or corners easy with less mess or strain on the hand. Angled varnish brushes are also available upon request.



Unit Per Pc.

CODE	Width mm	CODE	Width mm
51 01 51	10	**51 01 56**	42
52	15	**57**	55
53	25	**58**	70
54	30	**59**	84
55	36		

Angle Radiator Brushes

(Dog Leg Brushes)

Brochas Paletina Radiador
(Cepillos de Pata de Perro)
アングルブラシ 弯头刷



Black bristle hair bound by a metal band. Provided with a long handle to reach difficult spots.

Unit Per Pc.

CODE	Width mm	CODE	Width mm
51 01 65	25	**51 01 68**	65
66	40	**69**	80
67	50		

Round Angle Brushes

With Long Handle

Brochas Redonda Angular Mango Largo
長柄付アングル丸ブラシ 长柄弯头圆刷

Black bristle brush with 1.2 mtr handle.



Unit Per Pc.

CODE	Diameter mm	CODE	Diameter mm
51 01 75	25	**51 01 77**	50
76	40		

Flat Pencil Brushes

Pinceles Planos 平画筆 平头铅笔刷

Black bristle bound by a metal band to a 300 mm long handle. Brush sizes are listed by width below. Suitable for use painting in narrow, constricted areas, or for stenciling.



Unit Per Pc.

CODE	Width mm	CODE	Width mm
51 01 81	4	**51 01 86**	12
82	6	**87**	14
83	7	**88**	16
84	8	**89**	18
85	10		

Round Pencil Brushes

Pinceles Redondos 丸画筆 圆头铅笔刷

Black bristles bound by a metal band to a 300 mm long, round handle. Brush sizes are listed by diameter below.



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
51 01 91	3	**51 01 95**	7
92	4	**96**	8
93	5	**97**	9
94	6	**98**	10

Oval Sash Tools Brushes

Pinceles Ovalados　サッシブラシ　框漆刷

A small paint brush used on window frames or in places where a large brush can not be used conveniently. Black bristle, chisel trim, metal binding and varnished handle. When ordering, please specify the brush diameter in mm, as number sizes differ by country.



Unit Per Pc.

CODE	Major Diam. mm	Size No.
51 02 01	15	27
02	21	26
03	30	25

Stencil Brushes

Brochas Redonda, Rótulos　ステンシルブラシ　镂花刷

Pure black bristles sealed in rubber and bound in a metal ferrule. When ordering, specify the brush diameter as the numbers indicating brush sizes vary from country to country.



Unit Per Pc.

CODE	Diameter mm	CODE	Diameter mm
51 02 11	22	**51 02 14**	38
12	25	**15**	50
13	32		

Tar Brushes

Brochas Plana, Cepillos Alquitrán　コールタールブラシ　焦油刷子

Specially designed for use with tar. The bristles are made with a combination of horse hair and palm. Angle type tar brushes are also available.



Unit Per Pc.

CODE	Type	Hair Width	Overall
51 02 21	Flat	75 mm	230 mm
22	Angle	60 mm	250 mm

Cement Brushes

Brochas Plana, Cemento　セメントブラシ　水泥刷

Used for smoothing cement surfaces before curing, or asphalt coating.



Unit Per Pc.

CODE	51 02 26	51 02 27	51 02 28
Brush Width	75 mm	100 mm	125 mm

File Cleaning Brushes

(File Cards)

Carde Limas　ヤスリブラシ　锉刀刷

For cleaning files clogged with dust. Stiff short wire teeth formed around a wood handle.



51 02 31	File brush	Pc.

Paint Rollers

Rodillos para Pintura　ローラーブラシ　滚筒刷

Specify wool, nylon or acrylic roller when ordering. The acrylic type roller will be supplied unless specified otherwise in the order.



Unit Per Set

Paint Roller with Handle

Wool		Nylon	
CODE	Size mm	CODE	Size mm
51 03 01	25	**51 03 16**	25
02	50	**17**	50
03	75	**18**	75
04	100	**19**	100
05	125	**20**	125
51 03 06	150	**51 03 21**	150
07	180	**22**	180
08	200	**23**	200
09	230	**24**	230
10	250	**25**	250
51 03 11	280	**51 03 26**	280
12	300	**27**	300

Acrylic

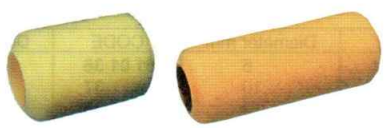
CODE	Size mm	CODE	Size mm
51 03 61	25	**51 03 67**	180
62	50	**68**	200
63	75	**69**	230
64	100	**70**	250
65	125	**71**	280
51 03 66	150	**51 03 72**	300

Spare Paint Roller Replacements

Repuestos Rodillos　替ローラー　滚筒刷头子

Specify whether wool, nylon, or acrylic rollers are required.

The acrylic type spare roller will be supplied unless specified otherwise in the order.



Unit Per Pc.

Wool		Nylon	
CODE	Size mm	CODE	Size mm
51 03 31	25	**51 03 46**	25
32	50	**47**	50
33	75	**48**	75
34	100	**49**	100
35	125	**50**	125
51 03 36	150	**51 03 51**	150
37	180	**52**	180
38	200	**53**	200
39	230	**54**	230
40	250	**55**	250
51 03 41	280	**51 03 56**	280
42	300	**57**	300

Acrylic

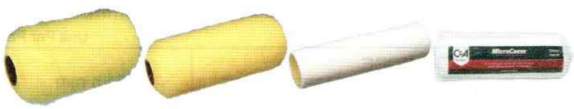
CODE	Size mm	CODE	Size mm
51 03 76	25	**51 03 82**	180
77	50	**83**	200
78	75	**84**	230
79	100	**85**	250
80	125	**86**	280
51 03 81	150	**51 03 87**	300

Replaceable Roller Brushes

Rodillos Cambiables
ウーローラーブラシ　可更換式滚筒刷

A synthetic roller brush which is easy to handle and detaches easily from the roller frame. Three different nap lengths are available, and the rollers can be used with any kind of paint. The rollers have high paint absorption, assuring a good finish and economical use of paint. Microfibre type is also available which is long lasting, easy to clean and reuse, holds 50% more paint for high productivity.

Roller Cover Applications



A　B　C　D

Type		A	B	C	D
Pile Length		Long Nap 40 mm	Med Nap 13 mm	Short Nap 6 mm	10 - 20 mm
Material	Acryl	80%	90%	90%	Microfibre
	Polyester	20%	10%	10%	
Application		Rough surface Requiring heavy paint application.	Concrete, plaster, wooden and acoustical ceilings, etc	Smooth surfaces: building board, plain wood, smooth concrete, iron, sheet metal, etc.	Smooth surfaces: stucco, brick, masonry work, ceilings, walls, wood, metal etc.

Unit Per Set

Replaceable Roller Brush Complete with Frame and Handle

Type A		Type B		Type C		Type D	
CODE	Width mm	CODE	Width mm	CODE	Width mm	CODE	Width mm
51 04 01	77	**51 04 11**	77	**51 04 21**	77	**51 04 27**	77
02	102	**12**	102	**22**	102	**28**	102
03	127	**13**	127	**23**	127	**29**	127
04	156	**14**	156	**24**	156	**30**	156
05	178	**15**	178	**25**	178	**37**	178
51 04 06	228	**51 04 16**	228	**51 04 26**	228	**51 04 38**	228

Spare Roller Brushes

for Replaceable Roller

Repuestos para Rodillas Recambiables
替ウーローラー　可更换式滚筒的备用滚筒刷

Unit Per Pc.

Spare Roller Brush Roller Diam. 38 mm

Type A		Type B		Type C		Type D	
CODE	Width mm	CODE	Width mm	CODE	Width mm	CODE	Width mm
51 04 31	77	**51 04 41**	77	**51 04 51**	77	**51 04 39**	77
32	102	**42**	102	**52**	102	**40**	102
33	127	**43**	127	**53**	127	**47**	127
34	156	**44**	156	**54**	156	**48**	156
35	178	**45**	178	**55**	178	**49**	178
51 04 36	228	**51 04 46**	228	**51 04 56**	228	**51 04 50**	228

Mini Paint Rollers

Mini-rodillos　スモールローラー　迷你刷



Small sized rollers designed for painting radiators, trim or other narrow surfaces. Acryl & Polyester Type and Microfibre type are available.

Unit Per Set　Unit Per Pc.

Complete with Handle		Spare Roller only	
CODE	Size	CODE	Size
Acryl & Polyester Roller			
51 04 65	50 mm	**51 04 66**	50 mm
67	75 mm	**68**	75 mm
61	100 mm	**62**	100 mm
63	150 mm	**64**	150 mm
Microfibre Roller			
51 04 59	100 mm	**51 04 60**	100 mm

Cushion Paint Rollers

Rodillos Almohadillados　曲面塗装ローラー　曲面滚漆筒



Specially designed for painting curved surfaces such as pipes, ducts, poles, etc. Made of synthetic fiber and applicable for use with all paints. Available only in a width of 230 mm. Furnished with handle.

51 04 70	Cushion paint roller 230 mm width complete for curved surface	Set

Paint Roller Trays and Buckets

Cubetas para Rodillos
ペイント皿及びペイントバケツ　滚漆筒托盘及桶



Paint tray with a ridged surface to remove excess paint from the roller. For 230 mm paint roller. Available in heavy tin plate or plastic with the dimensions of 395 x 285 x 100 mm.



Paint bucket with a wire net strainer. Available in heavy tin plate or plastic and provided with a carrying handle. 230 mm and 300 mm sizes are most common.



Paint bucket cartridge is a disposable container made of plastic, and cover inside the paint bucket for repeated use.

Unit Per Pc.

CODE	Kind	Material	Roller Size
51 04 75	Paint Tray	Tin Plate Plastic	230 mm
71			"
51 04 76	Paint Bucket with Strainer	Tin Plate	180 mm
77			200 mm
78			230 mm
79			250 mm
80			300 mm
51 04 72		Plastic	180 mm
73			200 mm
74			230 mm
81			250 mm
82			300 mm
51 04 83	Paint Bucket Cartridge	Plastic	For 1 ~ 7 inch roller

Paint Roller Extension Bars

Alargador para Rodillos　ローラーブラシ用長柄　滚漆筒延长杆

Bamboo pole, 4 mtr, conventional and most economical.



Polished hard wood with a thumb screw attachment slot for connecting the paint roller. 1,200 mm/lgh.



Aluminium, graduated, adjustable extension poles.



Unit Per Pc.

CODE	Length	Description
51 04 84	4 mtr	Bamboo Pole (Manhelp)
51 04 86	1.2 mtr	Wood Handle w/Tightening Screw
51 04 88	1.2 mtr	0.6 × 2
89	2.4 mtr	1.2 × 2
90	2.7 mtr	Alumi Extension 0.9 × 3
91	3.6 mtr	1.2 × 3
92	4.2 mtr	1.4 × 3
93	5.4 mtr	1.8 × 3

Paint Mittens

Manoplas para Pintura　塗装用ミット　油漆手套

Convenient for painting pipes, or concealed areas where paint brushes or rollers can not reach. The inner lining of the mitten eliminates paint seepage and keeps the hand clean. Only one type and size furnished. Supplied in individual pieces, not as pairs.



51 04 96	Paint mitten	Pc.

Paint Pails

Cubos para Pintura　ペイントポット　油漆桶

Available made of plastic, tin plate or steel.



Unit Per Pc.

CODE	Material	Ltr
51 05 01	Plastic	3.0
02		4.0
51 05 05	Tin plate	3.0
51 05 08	Steel	4.0

Coir Deck Brushes

(Piasava Brooms)

Cepillos Cubierta Piasava　シダデッキブラシ　鬃毛刷

Coir hair deck brush for scrubbing deck, hull, and cabin floors. Standard block size is 180 x 60 x 45 (Hair) and 300 x 60 x 45 (Hair) mm.



Unit Per Pc.

CODE		Width mm
W/Long Handle	**Head Only**	
51 06 01	**51 06 02**	180
03	**04**	300

Nylon Deck Brushes

Cepillo Cubierta de Nylón

ナイロンデッキブラシ　尼龙甲板刷子



Deck brush with stiff nylon bristles for scrubbing the deck or sweeping floors. Standard block size is 180 × 60 × 50 (Hair), 300 × 65 × 50 and 450 × 65 × 50 mm.

Unit Per Pc.

CODE		Width mm
W/Long Handle	**Head Only**	
51 06 11	**51 06 12**	180
13	**14**	300
15	**16**	450

Soft Bristle Sweeping Brushes

Cepillo de Barrer, Cerda Suave　白毛キャビンブラシ　软鬃清扫刷

White soft bristle brush used to sweep the cabin or galley areas. Standard block size is 200 × 70 × 60 (Hair) and 300 × 60 × 60 (Hair) mm. For preventing cross contamination of different areas, various colours are available for sanitary management.



Unit Per Pc.

CODE	Description	Width mm
51 06 21	Soft bristle sweeping brushes w/long handle	200
23		300

Replacement Head

CODE	Width mm	Colour	CODE	Width mm	Colour
51 06 22	200	White	**51 06 26**	260	Blue
24	300	White	**27**	260	Red
25	260	Green	**28**	260	Yellow

Wire Deck Brushes

Cepillo Cubierta de Acero　ワイヤデッキブラシ　钢丝甲板刷

Used for sweeping rough floors or scraping surface rust on deck. The standard block size is 180 x 60 x 45 mm.



Unit Per Pc.

CODE	Description
51 06 30	With 1,200 mm Long Handle
31	Wire Brush Head only

Non-Spark Deck Brushes

with Long Handle

Cepillos Anti-chispa con Mango Largo

防爆用デッキブラシ　长柄防爆甲板刷

Furnished with a 900 mm long handle. The brush head size is 115 x 75 x 50 mm. Bristles are made of a special non-spark aluminium-bronze alloy.

51 06 33	Brush, deck, non-spark, special aluminium bronze, 115 mm width with long handle	Pc.

Universal Handle Cabin Brushes

Cepillos para Camarote con Mango Universal
自在自由箒　万象地板推把

Short, soft, black bristles for light sweeping of cabins, messrooms, etc. Available in brush sizes of 300 or 450 mm with or without a long handle.



Unit Per Pc.

CODE		Width mm
W/Long Handle	Head Only	
51 06 36	**51 06 37**	300
38	**39**	450

Brush Handles

Mangos para Cepillo　ブラシ木柄　刷柄

Tapered to fit securely into the thread of a brush head. Available Length is 1,200 mm and 1,500mm.



51 06 42	Handle, wood 1,200 mm for brush	Pc.
43	Handle, wood 1,500 mm for brush	Pc.

Counter Brushes
(Banister Brushes)

Cepillos para Mostrador　カウンターブラシ　床头刷

Black bristle or nylon hair for sweeping dust or dirt on desks, counters, or tables.



51 06 46	Brush counter black hair	Pc.

Square Hand Scrub Brushes

Cepillos Cuadrados Manuales para Fregar　角型ハンドブラシ　方形板刷

Available in 3 kinds of bristles, coir, white hair or nylon.



Unit Per Pc.

CODE	Material.	Size
51 06 51	Coir	185 × 65 × 50 (Hair) mm
52	White hair	185 × 60 × 30 (Hair) mm
53	Nylon	190 × 65 × 45 (Hair) mm

Pointed Hand Scrub Brushes

Cepillos Punteados Manuales para Fregar
先尖り中抜きハンドブラシ　尖形把手板刷

Available in coir or white hair bristles. The brush size is 265 x 55 mm with 45 mm bristles.



Unit Per Pc.

CODE	Material	Size
51 06 56	Coir	265 × 55 × 45 (Hair) mm
57	White hair	265 × 55 × 45 (Hair) mm

Wire Brushes

Cepillos de Alambre　ワイヤブラシ　钢丝手刷

Strong wire brush for cleaning paint brushes, polishing ferrous material, or removing rust, sludge and debris on deck, or in the engine room.



Oval



Standard Handle



Long Handle



Square



Curved Handle

Unit Per Pc.

CODE	Description
51 06 60	Oval 130 × 60 mm
61	Square Block Size 180 × 60 mm
62	Straight Handled Standard Length 270 mm
63	Straight Handled Long 350 mm
64	Curved Handled 270 mm

Stainless Steel Wire Brushes

Cepillos de alambre de acero inoxidable
ステンレスワイヤーブラシ　不锈钢钢丝刷

A straight brush with stainless steel wire 0.35 mm; length 290 mm; rows 3 x 15.

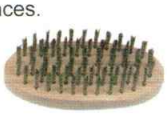


51 06 65	Brush, stainless steel wire, straight, L: 290 mm	Pc.

Brass Hand Brushes

Cepillos Manuales de Latón　真鍮ハンドブラシ　黄铜刷

Soft brass wire brush for cleaning delicate surfaces where heavy scraping suitable. These brushes will not scratch steel surfaces.



Oval



Straight

Unit Per Pc.

CODE	Description
51 06 66	Oval 145 × 65 mm
67	Straight Handled, Length 235 mm

Non-Spark Hand Brushes
Curved Handle

Cepillos Manuales Anti-chispa con Mango curvado
防爆用ハブラシ型ブラシ　防爆手刷

Non-spark hand brushes made of beryllium copper alloy.



Curved Handle



Square

51 06 71	Curved handle, 22 × 250 mm	Pc.
75	Oval, non-spark, 145 × 39 mm	Pc.
76	Square, 185 × 60 mm	Pc.

Round Window Brushes

Cepillos Redondos para Ventanas
丸ウインドーブラシ　圆柄窗户刷子

White soft hair brush, suitable for working with soap and water. Block size is 60 mm in diameter. Furnished with a long wooden handle.



51 08 31	Brush window round with handle	Pc.

Condenser Tube Brushes

Cepillos para Tubo de Condensador　チューブブラシ　冷凝管刷

An effective tool for cleaning condenser tubes. Made of steel or brass wire, or stiff nylon strings.



Steel



Brass



Nylon

Unit Per Pc.

CODE	Size ø × Thread mm		CODE	Size ø × Thread mm	
	Steel				
51 07 01	10 × 1/4	Male	**51 07 09**	19 × 1/4	Female
02	13 × 1/4	Male	**10**	19 × 5/16	Female
03	13 × 1/4	Female	**11**	22 × 1/2	Male
04	13 × 5/16	Female	**12**	25 × 1/2	Male
05	16 × 1/4	Male	**13**	38 × 1/2	Male
06	16 × 1/4	Female	**14**	50 × 1/2	Male
07	16 × 5/16	Female	**15**	63 × 1/2	Male
08	19 × 1/4	Male	**16**	76 × 1/2	Male
			17	100 × 1/2	Male
	Brass				
51 07 21	10 × 1/4	Male	**51 07 26**	16 × 1/4	Female
22	13 × 1/4	Male	**27**	16 × 5/16	Female
23	13 × 1/4	Female	**28**	19 × 1/4	Male
24	13 × 5/16	Female	**29**	19 × 1/4	Female
25	16 × 1/4	Male	**30**	19 × 5/16	Female
	Nylon				
51 07 34	6 × 1/4	Male	**51 07 42**	16 × 5/16	Female
35	8 × 1/4	Male	**43**	19 × 1/4	Male
36	10 × 1/4	Male	**44**	19 × 1/4	Female
37	13 × 1/4	Male	**45**	19 × 5/16	Female
38	13 × 1/4	Female	**46**	22 × 1/2	Male
39	13 × 5/16	Female	**47**	25 × 1/2	Male
40	16 × 1/4	Male	**48**	38 × 1/2	Male
41	16 × 1/4	Female	**49**	50 × 1/2	Male

Wire Cup Brushes

Cepillos de Taza de Alambre
空動 / 電動工具用ワイヤーカップブラシ　钢丝碗刷

Designed for high speed operation on pneumatic or electric scaling and sanding machines. These brushes remove rust and scale from metal, clean tanks and boat hulls, take off old paint, and clean castings and structural metal. Threaded nut type and welded shaft types are available. When ordering, please specify the type of fitting required on the cup brush and the inner diameter of the bolt fitting.

– Caution –

Whenever ordering wire brushes, be certain that they will not be used on machines with speeds higher than the maximum safety speed shown for the brush.



Standard Cup



Knot Type Cup for Heavy Duty Work



Standard Wheel



Threaded Nut Type



Threaded Nut Knot Type for Heavy Duty Work



Shaft Welded Type

Unit Per Pc.

CODE	Type	Cup (Wheel) O.D. mm × Arbor (Inch)	Thickness
51 07 61	Standard Cup	75 × 5/8	25 mm
62		100 × 5/8	30 mm
63		150 × 7/8	40 mm
51 07 66	Knot Type Cup	75 × 5/8	25 mm
67		100 × 5/8	30 mm
68		150 × 7/8	40 mm
51 07 71	Standard Wheel	75 × 3/8	15 mm
72		100 × 3/8	17 mm
73		125 × 1/2	17 mm
74		150 × 3/4	25 mm
75		200 × 3/4	25 mm
76		250 × 1	25 mm
77		300 × 1	25 mm
51 07 85	Threaded Nut Type	75 × M 10 thread	-
51 07 84	Threaded Nut Knot Type	75 × M 10 P1.5 thread	-
51 07 86	Shaft Welded Type	50 × 6 mm arbor	Wheel shape
87			Cup shape
51 07 88		15 × 6 mm arbor	Cylindrical shape

Recommended R.P.M. of Wire Cup Brushes

Nominal Diam.	Type of Brush					
	Cup		Wheel		Shaft Welded Wheel	
	Recom.	Max	Recom.	Max	Recom.	Max
30 mm					8,000	12,000
40 mm					8,000	12,000
50 mm			8,000	12,000	7,200	10,000
65 mm			7,200	10,000		
75 mm	6,000	9,000	7,200	10,000		
100 mm	5,500	9,000	6,000	9,000		
150 mm	5,000	7,000	4,500	6,000		
200 mm			3,600	4,500		
250 mm			2,400	3,600		
300 mm			1,800	3,000		

Note: Recom. denotes Recommended R.P.M.
Max. denotes Maximum R.P.M.

Long Handled Brooms

Escobas con Mango Largo　長柄ほうき　长柄扫帚

Sturdy corn broom has a long handle for use with dust pan.



Corn Broom 1,500 mm

For heavy sweeping jobs. Handle is made of bamboo.



China Broom 1,300 mm

Tough, durable brooms made of bamboo twigs. Attached with bamboo handle.



Bamboo Broom 1,800 mm

51 08 01	Corn broom long handled	Pc.
02	China broom long handled	"
03	Bamboo broom long handled	"

Short Handled Brooms

Escobas con Mango Corto　短柄手ぼうき　短柄扫帚



Corn Broom 730 mm



Coir Broom 750 mm

Unit Per Pc.

CODE	Description
51 08 06	Broom Corn Short Handled
07	Broom Coir Short Handled

Corn Whisks

Escobas de Esparto con Mango Corto
ウィスクブルーム　小扫帚

Used for sweeping work-benches and dusting off light dirt or rust from machinery and other difficult to reach spots.



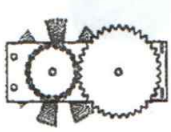
51 08 11	Broom corn whisk hand	Pc.

Manual Floor Sweepers

Cepillo de Suelo Manuales　手押し式産業用掃除機　手推式掃地機

Motorless push sweeper for cleaning small stones, sands, wood chips up from ground or deck surface. Available two patterns of sweeping brush: Flap brush for sweeping small stones, sands, wood chips, and so on. Round brush for sweeping fine dust, particles. Sweeping capacity is approx. 1,650 m²/hour.





Flap Brush (ST)



Round Brush (SR)

Unit Per Pc.

CODE	Type of Brush	Size W × H mm	Weight kg
51 08 36	Flap (ST)	650 × 860	22
39	Round (SR)	650 × 860	24

Hand Carpet Cleaners

Limpiadores Manuales para Alfombras
手動カーペットクリーナー　手动地毯清扫器

Manually operated roller brush. Removes dust and other small particles easily from the carpet surface by a simple rolling action.



51 08 37	Carpet Cleaner Manual	Pc.

Duster Brushes

Cepillo para el Polvo　ダスターブラシ　粉刷

Dusting for delicate objects or narrow corners with static electricity. Made of fine soft polypropylene strings head. Available extensible handle type for inaccessible position by hand reach.



Unit Per Pc.

CODE	Overall Length mm	CODE	Overall Length mm
Fixed Handle		Extensible Handle	
51 08 41	270	51 08 43	1,450 - 2,000
42	440		

Handy Dust Mops

Fregona Práctica para el Polvo　ハンディーモップ　輕便拖把

Acryl strings pick up and hold large amount of dust. Strings can be washed and reusable many times. Approx. overall length is 330 mm.



51 08 45	Handy dust mop, Acryl, with handle Overall Length 330 mm	Pc.

Kitchen Brushes

Cepillo Lava-platos　台所ブラシ　洗盘刷

Dishwashing Brush

Cepillo Lava-platos
食器洗いブラシ　洗碗刷

White bristle hair for dishwashing, general galley, and pantry use. For preventing cross contamination of different food groups, various colours are available for sanitary management.

Overall length is 270 mm.



Unit Per Pc.

CODE	Colour	CODE	Coour
17 41 01	White	17 41 16	Yellow
13	Red	17	Green
14	Blue		

Tumbler Brush

Cepillo Lava-vasos　コップ洗いブラシ
滚筒刷

For cleaning glasses, cups, or other difficult to clean tableware. Made of a sponge brush with a plastic handle. A white bristle tumbler brush is also available.



17 41 03	Sponge head tumbler brush	Pc.
04	White hair tumbler brush	"

Bottle Brush

Cepillo para Botellas　瓶洗いブラシ　瓶刷

Designed for cleaning bottles, etc. where the brush has to be able to fit through narrow spaces.



Unit Per Pc.

CODE	Brush Size	Overall Length
17 41 07	50 × 100 mm	340 mm
08	75 × 140 mm	450 mm

Percolator Brush

Cepillo para Percolador
パーコレーターブラシ　咖啡壺刷

A handy brush to clean the inside of percolator stems. White hair, furnished with twisted wire handle and ring on the handle end.



17 41 11	Brush percolator	Pc.

Toilet Brushes

Escobillas de W.C.
トイレットブラシ
盥洗室刷子

Sanitary bowl brushes shaped to clean easily under the toilet rim.



Coir　Nylon　Nylon w/ Holder　Nylon/S. Steel Holder

17 42 51	Toilet brush, coir	Pc.
52	Toilet brush, nylon	Pc.
53	Toilet brush, nylon with holder	Set
60	Toilet brush with stainless steel holder	Set

Hand Snaps

Snaps de Mano　ハンドスナップ　手用抹布

Made of soft white yarn, and used for cleaning or wiping as duster.



17 42 65	Hand snap	Pc.

Yacht Mops

Fregonas　ヨットモップ　游艇抹布



Made of soft white yarn and fastened to the handle end. For preventing cross contamination of different areas, various colours of replaceable heads are available for sanitary management. Length overall is 1,580 mm.

Unit Per Pc.

CODE	Description	Colour
17 42 71	Yacht mop complete	White Yarn
17 42 72	Replaceable head for yacht mop	White
73	"	Red
74	"	Blue
78	"	Yellow
79	"	Green

Spring Clamp Mops

Fregonas con Pinza　スプリングモップ　弹簧夹式抹布

Quick-way type spring clamp eliminates cutting or untangling. Merely slide off the old mop head and slide on the new one, takes just seconds.



17 42 75	Mop complete with spring clamp handle	Pc.
76	Spring clamp mop handle only	"
77	Spring clamp mop head only	"

Mopping Pails with Strainer

Cubos de Fregar con Colador
ストレーナー付きモップバケツ　带过滤器的拖布桶

A mopping bucket comes with a strainer made with plastic. The strainer helps to trap big particles or debris that the mop caught and dispose them easily.



Complete Set　Mopping Pail　Strainer

17 42 68	Mopping pail with strainer, complete	Set
69	Mopping pail 290 x 320 x 250 mm (15 Ltr)	Pc.
70	Strainer 265 mm	Pc.

Wringer Mop Buckets

Cubos de Fregonas con Escurridor　モップバケツ　抹布绞拧桶

A handy foot pedal device to wring out the mop without bending over. The size is 330 x 340 x 280 mm made of hard plastic or galvanized steel with a steel wringer frame. For preventing cross contamination of different areas, various colours are available for sanitary management.



Plastic　　Steel

Unit Per Pc.

CODE	Material	Size (mm)	Colour
17 42 80	Plastic	330 × 340 × 280	-
81			Blue
82			Green
83			Red
84			Yellow
85			White
17 42 98	Steel	285 × 475 × 370	Galvanized

Floor Wipers

Abrillantador de Suelos/Barredora
フイトルモップ　地板托刷

Large mop to sweep dust or wipe up water from floors. Furnished with long handle.



Unit Per Pc.

CODE	17 42 86	17 42 87	17 42 88	17 42 89
Mop Width	240 mm	400 mm	540 mm	860 mm

Rubber Squeegees

Limpia-cristales　水切りモップ　橡皮刮擦

Designed for squeezing water off windows, glasses, cabin floors, etc. Available in 3 different blade widths. All types furnished with a 1,200 mm plastic handle.



Refill Blades



Unit Per Pc.

CODE	17 42 91	17 42 92	17 42 93
Blade Width	330 mm	400 mm	480 mm

Refill Blades for Squeegee

Unit Per Pc.

CODE	17 42 90	17 42 94	17 42 95
For Blade Width	330 mm	400 mm	480 mm

Sponge Mops

with Spring Handle

Fregonas de Espoja con Mango　スポンジモップ
海绵拖布

Designed for cleaning galleys and accommodations. To rinse the mop, simply wet the sponge and press the spring lever handle. Sponge width is 180 mm.



17 42 96	Sponge mop with spring handle	Pc.
97	Spare sponge for sponge mop	"

"Vikan" Brushes

Cepillos "Vikan"　ヴァイカンブラシ　"Vikan" 刷子

"Vikan" brushes are sturdy, long lasting, and suitable for most deck or interior floor sweeping jobs. The products most suitable for ships use are listed below.

These models are all furnished without handles. Interchangeable aluminium handles are sold separately.



3654



3661



70422 / 70423 / 70424 / 70425 / 70426



3177-S



3151



2717H / 2520H



2945 / 2947 / 29592 / 29593 / 29594 / 29595 / 29596

Unit Per Pc.

CODE	Model	Description	Material	Colour	Block Size
Floor Scrubber					
51 08 82	3654	w/screw thread for handle	Wood w/Union fiber	-	305x65mm
51 08 83	3661	"	Plastic w/P.P. hair	-	295x45mm
51 08 76	70422	"	"	Green	225x40mm
77	70423	"	"	Blue	225x40mm
78	70424	"	"	Red	225x40mm
79	70425	"	"	White	225x40mm
80	70426	"	"	Yellow	225x40mm
CODE	Model	Description	Material		Block Size
Sweeping Broom					
51 08 86	3177-S	w/screw thread for handle	Arenga w/PP briistle		Block width 420 mm
88	3151	w/screw thread for handle	Plastic w/mixed hair		200×60 mm
Street Broom					
51 08 89	2717H	-	Wood w/PVC bristle		400×75 mm
90	2520H	-	Wood w/PVC bristle		540×75 mm
Handle					
51 08 91	2945	22×1,300mm	Aluminium		-
92	2947	22×1,500mm	"		-
93	29592	25×1,460mm	"		Green
94	29593	"	"		Blue
95	29594	"	"		Red
96	29595	"	"		White
97	29596	"	"		Yellow

Chamois Leather

Bayeta de Gamuza　セーム皮　鹿皮



Soft chamois leather for cleaning and absorbing water, oil, dirt, etc. Size approx. 400 x 400 mm wrapped in polyethylene bag.

51 10 02	Chamois leather	Pc.

Yellow Dusters

Bayeta para Polvo　イエローダスター　黄绒抹布



For cleaning and polishing furniture, floors, panelling, and instruments. Made of a mixture of cotton and rayon. Washes clean with water. Size is approximately 280 x 370 mm.

51 10 04	Yellow duster	Pc.

Floor Cloths

Bayeta Piso　綿ぞうきん　抹布



Made of cotton. Suitable for cleaning or wiping up water on floors, windows, etc.

51 10 06	Floor cloth cotton	Pc.

Bath Mats

Alfombrilla para Baño　バスマット　浴室垫



For laying at the entrance of a shower or a bathroom. Made with a rubber, anti-slip backing. Size is approximately 700 x 400 mm.

51 10 08	Mat, bath, 700 × 400 mm	Sht

Bath & Shower Safety Mats

Alfombrilla de Goma Antideslizante para Ducha/Baño
浴槽用すべり止めマット　浴室防滑垫



Mats with small rubber suction cups on the bottom allowing the mat to grip to the floor of a shower or bath, assuring safe footing. These mats will not slip even on soapy or slippery surfaces.

51 10 10	Bath and shower mat, rubber, safe footing, size 355 × 558 mm	Sht

Fibre & Rubber Jointed Door Mats

Fibra y caucho articulado de la puerta Mats
ファイバー＆ゴムジョイントドアマット　纤维与橡胶关节门垫

Made from synthetic fibres on a non-slip rubber backing. Placed at the entrances to accommodation areas from the deck or engine room, in lifts and between the galley and saloon. It absorbs and retains oil, moisture and dry dirt which would be tracked onto polished floors and expensive carpets. Can be washed by either machine or hand and in normal use, Available in black/white and black/brown fleck.

Unit Per Sht.

CODE	Size cm	CODE	Size cm
51 10 15	75 × 85	**51 10 16**	75 × 150

Coir Door Mats

Felpudos de Fibra de Coco para Entrada　ココドアマット　棕门垫



Made from coir coco. Removes soil from shoes like a brush.

Unit Per Sht.

CODE	Size cm	CODE	Size cm
51 10 21	36 × 60	**51 10 24**	90 × 120
22	45 × 75	**25**	90 × 150
23	60 × 90	**26**	90 × 180

Combination Door Mats

Felpudos Combinados para Entrada　コンビマット　合成门垫



Galvanized steel, meshed mat made with a combination of wire, coir, and polypropylene.

Unit Per Sht.

CODE	Size cm	CODE	Size cm
51 10 31	36 × 60	**51 10 33**	60 × 90
32	45 × 75		

Vinyl Mats

Felpudos de Vinilo　ビニールマット　塑胶垫



Coloured, perforated mesh made of E.V.A. (Ethylene-vinyl acetate copolymer).

Unit Per Sht.

CODE	Size cm	CODE	Size cm
51 10 36	45 × 60	**51 10 38**	60 × 90
37	45 × 75		

Lawn Step Mats

Alfombras con Filamentos de Nylon/Superficie de Linón
ローンステップマット　细布踏板垫



Made of nylon pile filament (Treated anti-electrostatics) and backed with non-slip P.V.C. Has a soft texture and is water resistant.

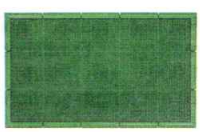
Unit Per Sht.

CODE	Size cm	CODE	Size cm
51 10 41	36 × 60	**51 10 44**	90 × 120
42	45 × 75	**45**	90 × 150
43	60 × 90	**46**	90 × 180

Vinyl (E.V.A.) Jointed Door Mats

Lawn Surface

Felpudos Combinados de Vimolo (E.V.A.) para Entrada
E.V.A. ジョイントドアマット芝タイプ
乙烯（E. V. A.）合成门垫草皮面



A lawn type surface mat, approximately 15 mm thick. Made of E.V.A. (Ethylene vinyl acetate copolymer). 300 × 300 mm sheets of mat can be firmly joined together using a connector and special rimming. The standard sizes are listed below. Sizes out of standard must be made to order.

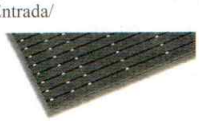
Unit Per Sht.

CODE	Size cm	CODE	Size cm
51 10 51	30 × 60	**51 10 53**	90 × 120
56	45 × 60	**54**	90 × 150
52	60 × 90	**55**	90 × 180

Vinyl (P.V.C.) Jointed Door Mats

Corrugated Surface

Felpudos Combinados de Vimolo (P.V.C.) para Entrada/ Superficie Corrugado
P.V.C. ジョイントドアマット筋入り
乙烯（P. V. C.）合成门垫波纹曲面



Made of P.V.C., and vinyl, corrugated together by steel wire.

Unit Per Sht.

CODE	Size cm	CODE	Size cm
51 10 61	36 × 60	**51 10 63**	60 × 90
62	45 × 75		

Rubber Jointed Door Mats

Felpudos Combinados de Goma para Entrada
ラバージョイントドアマット　橡胶合成门垫

Made of synthetic rubber matting with sheets that can be connected together. The sheet size is 36 × 60 cm. This mat is not as flexible as the mats above but the corners of the mat will not curl or turn up.



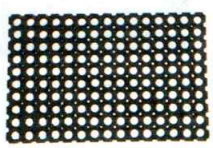
Unit Per Sht.

CODE	Size cm	CODE	Size cm
51 10 66	36 × 60	**51 10 67**	45 × 75
69	45 × 60	**68**	60 × 90

Deck Rubber Mats

Plancha de Goma Alveolar Negra　デッキラバーマット　甲板橡胶垫

Made of rubber and composed of octagonal corrugated pads which are specially designed to cushion ones feet while working. These mats also drain water which may collect on the floor of the galley or deck. Reduces fatigue and provides safe footing under wet conditions. Standard size of one sheet is 1 mtr/square, but several sheets can be joined together using a connector piece. Usually provided in black, but also available in green or red colour upon request.



Mat



Joint

51 10 71	Mat deck rubber 1 mtr/sq × 16 mm Thick	Sht
72	Connector for deck rubber mat	Pc.

Deck Protection Mats

Deckmate® Cargo Landing Mats

Esteras de protección de cubiertas　デッキ保護用マット　甲板保护垫

Deckmate® Cargo Landing Mats



Scotgrip® HD Deckmate® Cargo Landing Mats are heavy duty, high-traction, anti-slip polyurethane mats used to protect decks from heavy loads. The mats are easily positioned as designed load landing areas. Manufactured four standard mat sizes or can be custom made for individual locations.

The unique Scotgrip® anti-slip safety surface is fully integrated with this substrate and is designed to give a long lifespan. Standard thickness is 20mm (approx. 3/4") and can be multi-coloured with safety messaging borders and diagonals.

Manufactured under BS EN ISO 9001:2015 quality controlled conditions.

Key Product Specifications

Tensile Strength	26 MPa
Tear Strength	85 kN/m
Hardness	95 Shore A rating
Weight	20 kg/m² (4.1 lb/ft²)



Unit Per Sht.

CODE	Model	Dimensions	
		mm	Inch
51 11 10	SCLM1	3,000 × 3,000mm	9'10" × 9'10"
11	SCLM2	4,500 × 3,000mm	14' 9" × 9'10"
12	SCLM3	6,000 × 3,000mm	19' 8" × 9'10"
13	SCLM4	7,500 × 3,000mm	24' 7" × 9'10"

Name of Mfr. : Scotgrip International

Deckmate® Dunnage Mats



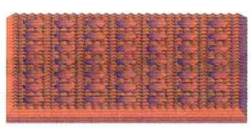
Scotgrip® Deckmate® UHD Dunnage Mats are heavy duty polyurethane mats used to protect decks from heavy loads. Tough and resilient to match the harshest environments, provide excellent protection to the deck, chemical resistant and are designed to give a long lifespan. Manufactured with unique, fully integrated Pyragrip® textured surface, all-round chamfered edges and pick-up holes in solid and lightweight versions.

Key Product Specifications

Tensile Strength	26 MPa
Tear Strength	85 kN/m
Hardness	95 Shore A rating



Solid Mats



Lightweight Mats

Unit Per Sht.

CODE	Type	Thickness	Sizes (mm)	Weight	
				Kg	Lbs
51 11 02	Solid	15mm	300 × 300mm	1.47	3.24
03		18mm		1.77	3.91
04		20mm		1.96	4.32
15		15mm	400 × 400mm	2.60	5.73
14		18mm		3.15	6.95
16		20mm		3.50	7.72
18		15mm	500 × 500mm	4.10	9.04
17		18mm		4.86	5.40
19		20mm		5.40	11.91
21		15mm	600 × 600mm	5.70	12.57
20		18mm		6.75	14.88
22		20mm		7.50	16.54
51 11 05	Lightweight	15mm	300 × 300mm	1.10	2.42
06		18mm		1.32	2.91
07		20mm		1.46	3.22
33		15mm	400 x 400mm	2.00	4.41
32		18mm		2.34	5.16
34		20mm		2.60	5.73
36		15mm	500 x 500mm	3.00	6.61
35		18mm		3.60	7.94
37		20mm		4.00	8.82
39		15mm	600 x 600mm	4.40	9.70
38		18mm		5.22	11.51
40		20mm		5.80	12.79

Name of Mfr. : Scotgrip International

Vinyl Lawn Mat Units

Estera de Vinilo エバック人工芝ユニット 合成塑料门店



Made of vinyl (Ethylene vinylacetate copolymer). A lawn style mat about 25 mm thick treated to remain free of electrostatic current. The standard size for one mat is 300 mm/sq. but several sheets can be joined together using the built in connector pieces.

51 10 76	Vinyl lawn mat unit, 300 × 300 mm with edge connector	Pc.

Corrugated Plastic Matting

Estera de Plástico Corrugado プラスチック筋入長マット 波纹塑料垫



This green, corrugated matting is lightweight and easy to install. Made of strong, oil resistant material. Furnished in 910 mm wide rolls of 20 mtr length with a thickness of 2 mm.

51 10 78	Matting plastic corrugated 2mm × 910 mm × 20 mtr	Rls.

Corrugated Rubber Matting

Estera de Goma Corrugado ゴム筋入長マット 波纹橡胶垫



Rubber made, non-slip corrugated matting. Furnished only in green. 1,000 mm wide and rolled in 20 mtr length sections.

Unit Per Rls.

CODE	Thick × W × L mm × mm × mtr	CODE	Thick × W × L mm × mm × mtr
51 10 85	3 × 1,000 × 10	**51 10 93**	5 × 1,000 × 5
81	3 × 1,000 × 20	**83**	5 × 1,000 × 20
51 10 90	4 × 1,000 × 5	**51 10 94**	6 × 1,000 × 5
82	4 × 1,000 × 20	**95**	6 × 1,000 × 10
		84	6 × 1,000 × 20

Corrugated Rubber Matting

for Electricity



New SOLAS regulation requests that "where necessary, nonconducting mats or gratings shall be provided at the front and rear of the switchboard" in Chapter II Part D "Electrical Installations" of SOLAS consolidated edition 2011.

Unit Per Lgh.

CODE	**51 10 98**	**51 10 99**
Thickness x Width	3 mm×1,000 mm	4.5 mm×1,000 mm
Length per Coil	10 mtr	
Colour	Grey	
Proof Voltage	20,000 volt	50,000 volt
Standard	DIN EN, 60243-1 VDE 0303-21	
Approval	IEC 61111:2009, Class 2	IEC 61111:2009, Class 4

Name of Mfr.: Alligator

Palm Matting

Estera de Palma　コールヤーン長マット　棕榈垫

Made of palm and used to lay along corridors. Supplied 45 mtr in a roll in widths of 45, 60, 75, and 90 cm.



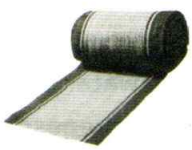
Unit Per Rls.

CODE	Size Width × Length	CODE	Size Width × Length
51 10 86	45 cm × 45 mtr	**51 10 88**	75 cm × 45 mtr
87	60 cm × 45 mtr	**89**	90 cm × 45 mtr

Sisal Matting

Estera de Sisal　麻ランナー　剑麻垫

Conventional type matting woven from sisal. Mostly for use in corridors or to protect carpeted areas where there is a lot of traffic. Supplied 50 mtr in a roll in widths of 75 and 90 cm. Light brown colour with a dark brown trim.



Unit Per Rls.

CODE	Size Width × Length	CODE	Size Width × Length
51 10 91	75 cm × 50 mtr	**51 10 92**	90 cm × 50 mtr

Lawn Step Matting

Alfombrilla de Pasillos　ローンステップ長マット　草皮门垫

Made of nylon pile filament and treated against electrostatic current. Matting is backed with P.V.C., is waterproof and acts as a cushion with a soft surface. Supplied 20 mtr per roll with a width of 90 cm.



51 10 96	Matting lawn step 90 cm × 20 mtr	Rls.

3M Nomad Matting - Extra Duty

Alfombrilla Nómada 3M
3M ノーマッドマット・エクストラデューティ　3M 移动垫 - 额外负载

Resilient vinyl loop construction scrapes dirt, sand or grime from boots or shoes, also hold and hides them.

Open loop construction allows dirt and moisture to pass through for easy cleanup.



Unit Per Sht.

CODE	Size	CODE	Size
51 11 51	900 × 600 mm	**51 11 56**	900mm × 6 mtr
52	900 × 750 mm	**57**	1,200mm × 6 mtr
53	900 × 1,200 mm		
54	900 × 1,500 mm		

3M Oil Trap Floor Mats

Alfombrilla 3M Atrapa Aceites
3M 油汚れ防止床マット　3M 集油池地毯

Made from polypropylene non woven. Traps and holds oil and moisture from sole of boots or shoes.

Anti-slip sheet are provided for oil trap floor mat to prevent the mat slipping. Supplied in one mat base with exchangeable floor mats.



Oil Trap Floor Mat with Mat Base

Unit Per Set

CODE	Size mm	N. of Mats in Set
51 11 61	912 × 601 mm	10 mats
62	912 × 1,501 mm	5 mats

Mat Base Only

Unit Per Sht.

CODE	Size	CODE	Size
51 11 65	966 × 643 mm	**51 11 66**	955 × 1,554 mm

Oil Trap Floor Mat Only

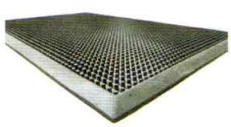
Unit Per Set

CODE	Size mm	No. Per Set	CODE	Size mm	Unit
51 11 67	912 × 601	10's	**51 11 70**	912 × 30 mtr	Rls.
51 11 68	912 × 1,501	5's			

Disinfectant Mats

Alfombrillas desinfectantes　除菌マット　消毒垫

Used for disinfecting shoes and boots at entrances without splashing the surrounding area.



51 11 71	Disinfectant Mat, Rubber, 610 × 810 mm	Sht

Plastic Tiles (P-Tile)

Loseta de Vinilo　P- タイル　塑料瓷砖

An excellent floor tile made of semi-hard vinyl chloride resin. Easy to maintain and has a long product life.



Many sizes and colours are available according to manufacturer's specifications. The standard size is 2 mm thick, 304.8 mm (12") square. 3 mm thick, 303 mm square tiles are also available upon request.

51 11 01	Tile, plastic, 2 × 304.8 × 304.8 mm	Pc.

53
Lavatory Equipment

Wall Faucets



P. 53-1 ~ 4

Hand Basins



P. 53-5

Water Closets



P. 53-5 ~ 6

Toilet Seats &
Flush Valves



P. 53-6 ~ 8

Sinks



P. 53-9

Shower Room
Fittings



P. 53-9 ~ 11

Trays/Shelves



P. 53-11

Mirrors/Medicine
Cabinets



P. 53-11 ~ 12

Bathroom Items

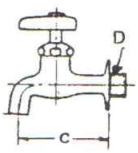


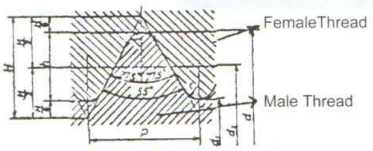
P. 53-12

Faucet Fitting Threads

Conexiones Roscadas para Grifos　水せんの取付ねじ　水龙头接头螺纹

The Faucet Fitting Thread marked "D" conforms to Japanese Standard Faucet Thread JIS-B2061. The details of which are as follows:





Threads Details

Nominal Size		Thread per 25.4 mm	Pitch	Standard Size mm		
				d	d2	d1
13	1/2	14	1.8143	20.955	19.793	18.631
20	3/4	14	1.8143	26.441	25.279	24.117
25	1	11	2.3091	33.249	31.770	30.291

Above threads are equal to the Parallel Pipe Threads (PF) where pressure tight joints are not made on the threads.

The equivalent Standards of the threads are listed below.

Standards		Nominal Size		
JAPAN	JIS-B2061	13	20	25
		1/2	3/4	1
	JIS-B0202	G1/2	G3/4	G1
		PF1/2	PF3/4	PF1
UK	BS2779	G1/2	G3/4	G1
ISO	ISO228/1	G1/2	G3/4	G1

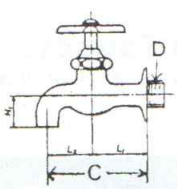
Faucets are made of bronze casting and are chrome plated. The maximum working pressure is 7.5 kgf/cm^2 [0.74 MPa] for water.

Wall Faucets

Grifos de Pared　横水せん　水龙头



T23AUN13



Unit Per Pc.

CODE	Thds "D"	Lgth "C" mm	TOTO No.
53 01 01	13 (1/2)	80 mm	T23AUN13
02	20 (3/4)	130 mm	T23BU20

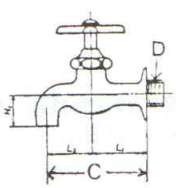
Long Shank Wall Faucets

Grifos de Pared con Boquilla Larga

胴長横水せん　长柄墙壁手龙头



T23BNR13



Unit Per Pc.

CODE	Thds "D"	Lgth "C" mm	Remark	TOTO No.
53 01 05	13 (1/2)	110	-	T23BNR13
53 01 09	13 (1/2)	110	w/Adjustable flange	T23BEN13
10	20 (3/4)	107		T23AE20

Self Closing Wall Faucets

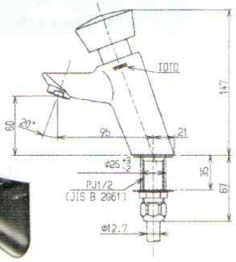
Grifos de Pared con Cierre Automático

自閉横水せん　自动关闭墙壁水龙头

Faucet valve closes automatically when handle is released. Available 1/2" standard pipe thread only.



TL19



Unit Per Pc.

CODE	Size	TOTO No.
53 01 16	1/2"	TL19

Hose End Wall Faucets

Grifos de Pared con Toma para Manguera

カップリング付横水せん、ホーム水せん　软管端墙壁式水龙头





53 01 24-25
w/Rotary Spout



53 01 26
w/Adjustable Flange

Unit Per Pc.

CODE	Thds "D"	Lgth "C"	Remark	TOTO No.
53 01 24	13 (1/2)	120	w/Rotary spout	T200SUN13
25	20 (3/4)	140	"	T200SU20
26	13 (1/2)	131	w/Adjustable flange	T200ESNR13

Wall Faucets

w/Snap on Hose Coupling

Grifos de Pared con Racord y Enchufe para Manguera

自動接手付横水せん　墙壁式水龙头



T28AUNH13



Unit Per Pc.

CODE	Thds "D"	Lgth "C"	TOTO No.
53 01 36	13 (1/2)	90 mm	T28AUNH13
37	20 (3/4)	108 mm	T28AUH20

TOTO's faucets and sanitary earthen-ware are originally designed and produced for the use of residencies/facilities on land. Therefore, when they are used on board ships, they are not covered by TOTO's guarantee.

Sill Cocks
with Hose Coupling
Grifos de Alfeizara con Acople para Manguera
散水せん　帯软管接头的洒水龙头


T28UNH13



53 01 43-45
w/Snap on Hose Coupling

Unit Per Pc.

CODE	Thds "D"	Lgth "C"	Remark	TOTO No.
53 01 43	13 (1/2)	98 mm	w/Snap on hose coupling	T28UNH13
44	20 (3/4)	106 mm		T28UH20

Lavatory Faucets
Grifos para Lavabo　立水せん　洗手盆水龙头



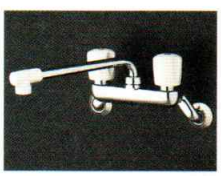

53 01 51

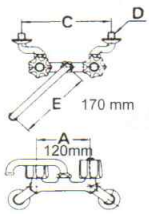

53 01 52
w/Rotary Spout

Unit Per Pc.

CODE	Thds "D"	Lgth "C"	Remark	TOTO No.
53 01 51	13 (1/2)	75 mm	-	T205DUN
52	13 (1/2)	75 mm	w/Rotary spout	T210SNSC

Combination Wall Faucets
w/Overhead Swivel Spout
Grifos de Pared Combinados con Bocha Giratoria Superior
湯水混合栓高位置蛇口型　合成材料墙壁式水龙头


53 01 56 w/Swivel Spout

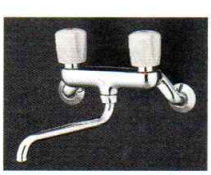


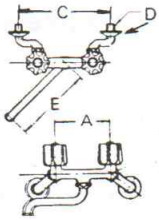
Dimension	
A	120 mm
C	200 +15 -110 mm
E	170 mm
D	13 (1/2)

Unit Per Pc.

CODE	Thds "D"	Remark	TOTO No.
53 01 56	13 (1/2)	w/Swivel spout	TKJ20AAU

Combination Wall Faucets
w/Underside Swivel Spout
Grifos de Pared Combinados con Bocha Giratoria Inferior
湯水混合栓低位置蛇口型　合成材料墙壁式水龙头


53 01 61 w/Swivel Spout



Dimension	
A	120 mm
C	200 +15 -110 mm
E	170 mm
D	13 (1/2)

Unit Per Pc.

CODE	Thds "D"	Remark	TOTO No.
53 01 61	13 (1/2)	w/Swivel spout	T20B

Mixing Lavatory Faucets
for Hand Basin
Grifos de Lavabo de Doble Manija para Palangana
洗面器用湯水混合せん　洗手台用冷熱混合龍頭

Single handle or double handle mixing faucets for hand basin. Chrome plated die cast body and double handle faucets mounted on 4" (102 mm) centers


TLS04302J

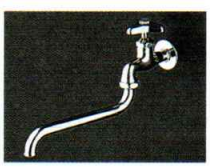

TLS21U

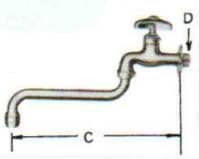

TLHG30EGR

Unit Per Pc.

CODE	Center to Center	Fitting for Water Supply	For Hand Basin	TOTO No.
Single Handle				
53 01 64 65	-	1/2	L210C/ L250C	TLS04302J TLS21U
Double Handle				
53 01 68	102 mm	1/2	L250C	TLHG30EGR

Wall Faucets
w/Underside Swivel Spout
Grifos a la Pared con Surtidor Giratoorio Inferior
自在水栓　墙壁式水龙头


T30AR20C

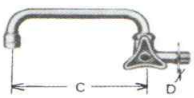


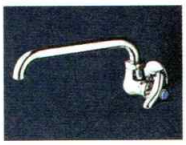
Unit Per Pc.

CODE	Thds "D"	Lgth "C"	Remark	TOTO No.
53 01 72	20 (3/4)	270 mm	-	T30AR20C
73	13 (1/2)	250 mm	w/Aerator	T130AUN13

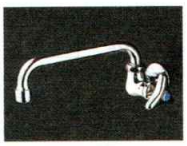
Right Handle Wall Faucets
w/Overhead Swivel Spout
Grifos a la Pared con Mango Derecho con Surtidor Giratorio Superior
横取っ手自在水栓　横向把手墙壁式水龙头

TOTO's faucets and sanitary earthen-ware are originally designed and produced for the use of residencies/facilities on land. Therefore, when they are used on board ships, they are not covered by TOTO's guarantee.





53 01 77



53 01 78
w/Aerator

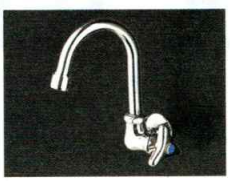
Unit Per Pc.

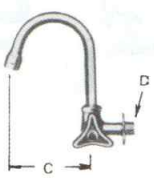
CODE	Thds "D"	Lgth "C"	Remark	TOTO No.
53 01 77	20 (3/4)	170 mm	-	T31S20
53 01 78	13 (1/2)	170 mm	w/Aerator	T131SUN13

Right Handle Wall Faucets

w/Goose Neck Swivel Spout

Grifos a la Pared con Mango Derecho con Surtidor Giratorio de Cuello de Ganso
横取っ手グースネック型自在水栓　横向把手墙壁式水龙头





53 01 88
w/Aerator

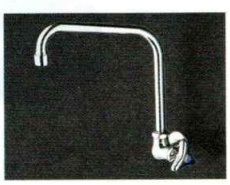
Unit Per Pc.

CODE	Thds "D"	Lgth "C"	Remark	TOTO No.
53 01 88	13 (1/2)	110 mm	w/Aerator	T131AUN13

Right Handle Wall Faucets

w/High Swivel Spout

Grifos de Pared con Mango Derecho con Surtidor Giratorio Elevado
横取っ手自在水栓高位置蛇口型　横向把手墙壁式水龙头





53 01 92
w/Aerator

Unit Per Pc.

CODE	Thds "D"	Lgth "C"	Remark	TOTO No.
53 01 92	13 (1/2)	205 mm	w/Aerator	T131BUN13

Lavatory Faucets

Waterline Series

Grifos de Lavabo　洗面器用水栓　洗面器用水龙头

Material: Chromed



53 11 01



53 11 02

with Swivel Spout



53 11 03　53 11 04

Unit Per Pc.

CODE	For	with Swivel Spout	Size	Alligator No.
53 11 01 **02**	Cold Hot	-	1/2"	SA56035 SA56036
53 11 03 **04**	Cold Hot	with Swivel Spout	1/2" - 200 mm 1/2" - 145 mm	SA56060 SA56065

Name of Mfr.: Alligator

Sink Faucets

Waterline Series

Grifos de fregadero　流し用水栓　水槽用水龙头

Material: Chromed



Single Lever



with Overhead
Swivel Spout



with Underside
Swivel Spout

Unit Per Pc.

CODE	Type	Size	Alligator No.
53 11 06	Single lever	130 - 170 mm	SA557295
53 11 11 **12**	w/overhead swivel spout w/underside swivel spout	128 - 178 mm	SA558031 SA558050

Name of Mfr.: Alligator

Wall Faucets

Waterline Series

Grifos de pared　壁付水栓　墙壁安装式水龙头

Material: Chromed



with Hose
Coupling



with Upper Swivel
Spout



with Under Swivel
Spout

Unit Per Pc.

CODE	Type	Size	Alligator No.
53 11 16	With hose coupling	1/2"	SA83115
53 11 17 **18**	U upper swivel spout S under swivel spout	1/2" - 200 mm	SA83330 SA83360

Name of Mfr.: Alligator

Washbasin Faucets

Waterline Series

Grifos de lavamanos　洗面器用水栓　洗漱盆用水龙头

Material: Chromed



Fixed Spout



Swivel Spout



Single Lever



Swivel Spout

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Unit Per Pc.

CODE	Type	Size	Alligator No.
53 11 21	1 hole fixed spout	125 mm	SA555019
22	1 hole with swivel spout	140 mm	SA555020
53 11 24	Single lever	-	SA557950
53 11 26	With swivel spout 145 mm	160 - 250 mm	SA600019

Name of Mfr.: Alligator

Bath/Shower Faucets

Waterline Series

Grifos de baño/ducha 浴槽・シャワー用水栓 浴缸、淋浴用水龙头

Material: Chromed

Bath/Shower Faucets



w/Swivel Spout



Single Lever

Shower Faucets



—



Single Lever



Thermostatic

Unit Per Pc.

CODE	Type	Size	Alligator No.
Bath / Shower Faucets			
53 11 31	w/S swivel spout, reversible	128–178 mm, 1/2"	SA545025
32	Single lever, reversible	130–170 mm, 1/2"	SA557040
Shower Faucets			
53 11 34	-	128–178 mm, 1/2"	SA545026
35	Single lever	130–170 mm, 1/2"	SA557210
36	Thermostatic	130–170 mm, 1/2"	SA847005

Name of Mfr.: Alligator

Kitchen Faucets

Waterline Series

Grifos de cocina 台所流し用水栓 厨房水槽用水龙头

Material: Chromed



w/Swivel Spout



Fixed Spout



Single Lever



Single Lever incl. Shower

Unit Per Pc.

CODE	Type	Size	Alligator No.
53 11 41	1 hole w/swivel spout	200 mm	SA555021
42	1 hole fixed spout (21067)	185 mm	SA555022
53 11 44	Single lever	200 mm	SA557290
45	Single lever incl. shower	250 mm	SA557292

Name of Mfr.: Alligator

Bib Taps

Waterline Series

Grifos de boca curva 横水栓 横式水龙头



53 11 51
(30025 Cold)



53 11 52
(30026 Hot)



53 11 53
(30053 Cold)

Unit Per Pc.

CODE	Type	Size	AlligatorNo.
53 11 51	Cold	1/2"	SA83430 (30025)
52	Hot		SA83431 (30026)
53	Cold		SA83435 (30053)

Name of Mfr.: Alligator

Washers for Tap

Arandelas para grifos

水栓用ワッシャー 水龙头垫圈

A rubber washer for tap.



Unit Per Pc.

CODE	Size mm	CODE	Size mm
53 11 54	15 × 4 × 4 (3/8)	53 11 56	23 × 4 × 4 (3/4)
55	17 × 4 × 4 (1/2)		

Assortment

15 sizes, containing 390 of the most common used gaskets for sanitary use in an assortment set.

53 11 57	Washer set for tap, 15 sizes, 390 pcs	Set

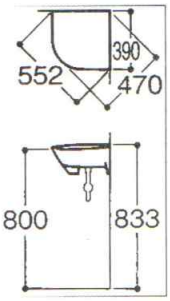
Gummi-ring			Fiber-ring		
Nominal Size	Actual Size mm	Q'ty	Nominal Size	Actual Size mm	Q'ty
M22x1	15 × 21 × 2.0	30	3/8"	8 × 14 × 1.5	25
3/8"	8 × 14 × 2.0	25	1/2"	10 × 18 × 1.5	50
1/2"	12 × 18 × 3.0	50	3/4"	15 × 24 × 2.5	30
3/4"	15 × 24 × 3.0	30	11/16"	17 × 21 × 1.5	30
1"	23 × 30 × 2.0	20	13/16"	21 × 24 × 1.5	30
5/4"	30 × 39 × 2.0	15	1"	23 × 30 × 2.0	20
1-1/2"	35 × 44 × 2.0	10	5/4"	30 × 39 × 2.0	15
			1-1/2"	35 × 44 × 2.0	10

Wall Hung Corner Hand Basins

Lavavo Cogido a la Pared (de Rincón)
すみ付洗面器　墙壁悬挂式角式洗手盆

Porcelain made wall hung type for corner installation. Fittings are furnished if required.





CODE	Description	TOTO No.	Unit
53 02 11	Wall hung corner hand basin 552 x 470 mm, 4.5 ltr	L30D	Pc.
Fittings			
53 01 51	Lavatory faucet 1/2"	T205UNRC	Pc.
53 02 33	Mounting bracket	TL220D	Set
53 03 41	Water supply w/stop 1/2" distance end to end 706 mm	TL4D1FU	Set
53 03 47	S-trap 1-1/4" w/plug & chain	T22BS	Set

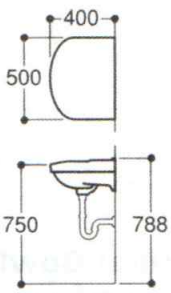
Wall Hung Hand Basins

Small Size

Lavavo Cogido a la Pared/Tamaño Pequeño
そで付洗面器　小号墙壁悬挂式洗手盆



500 × 400 mm



CODE	Description	TOTO No.	Unit
53 02 25	Wall hung hand basin small size 500 x 400 mm, 4.0 ltr	L210C	Pc.
Fittings			
53 01 51	Lavatory faucet 1/2"	T205UNRC	Pc.
53 02 34	Mounting bracket	TL250D	Set
53 03 42	S-trap 1-1/4" w/plug & chain	T6BMS	Set

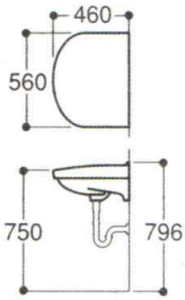
Wall Hung Hand Basins

Large Size

Lavavo Cogido a la Pared/Tamaño Grande
角型大洗面器　大号墙壁悬挂式洗手盆



560 × 460 mm



CODE	Description	TOTO No.	Unit
53 02 42	Wall hung hand basin large size 560 x 460 mm, 6.5 ltr	L250C	Pc.
Fittings			
53 01 51	Lavatory faucet 1/2"	T205DUN	Pc.
53 02 34	Mounting bracket	TL250D	Set
53 03 42	S-trap 1-1/4" pop-up type	T6BMS	Set

Washbasins

Waterline Series

Lavamanos　洗面台　洗漱台



410 x 300 mm



540 x 410 mm

Unit Per Pc.

CODE	Size mm	Tap Hole	Alligator No.
53 13 01	410 x 300	1	SA885360
02	540 x 410		SA890100

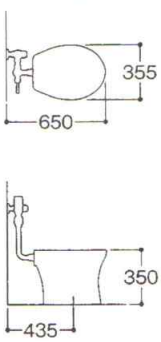
Name of Mfr.: Alligator

Wash-down Water Closets

CS140

Retretes Modelo CS140　隅付形便器　冲水式抽水马桶





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CODE	Description	TOTO No.	Unit
53 03 01	Wash down water closet	CS140	Set
Fittings			
53 03 59	Flush valve (for fresh water)	TV550S	Pc.
49	Plumbing set for flush valve	TSF75LR	Set
45	Inlet spud 32 mm	T82CR32	Pc.
34	Seat closed front & cover	TC290	"
44	Floor flange for 75 mm pipe	T53WR75	"

Wash-down Water Closets CS494M

Urinarios grandes con desagüe de suelo
床置床排水大便器
落地式地漏大型便池



CODE	Description	TOTO No.	Unit
53 03 02	Wash down water closet	CS494M	Set
Fittings for CS494M			
53 03 03	Flush valve (for fresh water)	TV565P	Pc.

Water Closets

Waterline Series

Asientos para taza de retrete　水洗便器　坐便器



P-Trap
(Wall Connection)



S-Trap
(Floor Connection)



AO
(Back Outlet)



Combination BO
(Back Outlet)



Combination P-Trap

Unit Per Pc.

CODE	Type	Feature	Alligator No.
53 15 01	-	P-trap	SA076005
02	-	S-trap	SA076006
53 15 03	-	AO	SA076008
04	Combination	BO	SA076009
05	Combination	P-trap	SA076010

Name of Mfr.: Alligator

Toilet Seats

Asientos para Taza de Retrete　便座　马桶座圈

Made of highly impact resistant plastic which will not crack. Easy cleaning smooth shape. Please refrain from applying thinners or benzine for cleaning toilet seats.

Please specify the model type and number of the seat required from the table below when ordering.

Unit Per Pc.

CODE	Model	Description	Applicable Model No.
53 03 33	 TC1R	Open Front w/o cover	CS140
53 03 34	 TC290	Closed Front w/cover	CS140
53 03 35	 TC291	Closed Front w/cover	C21N C480N

Toilet Seats

Waterline Series

Asientos para taza de retrete
便座　坐便器



Unit Per Pc.

CODE	Type	Feature	Alligator No.
53 15 11	Closed front	Universal	SA120000

Name of Mfr.: Alligator

Urinal Bowls

Waterline Series

Orinales　小便器　小便池



Unit Per Pc.

CODE	Feature	Alligator No.
53 15 21	Europa 55	SA86020

Name of Mfr.: Alligator

Cisterns

Waterline Series

Cisternas-Waterline Series
水洗便器用水槽　抽水马桶水箱



Unit Per Pc.

CODE	Type	Feature	Content	Alligator No.
53 15 31	Low level	Universal	6 ltr / 3 ltr	SA10030

Name of Mfr.: Alligator

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Lavatory & Water Closet Fittings

Conexiones para Lavabo y Taza de Retrete
洗面器・便器セット器具　盥洗室及抽水马桶附件

CODE	Model	Description Size	Unit	Applicable Model No.
53 02 33	 TL220D	Mounting Bracket	Set	L10D
53 02 34	 TL250D	Mounting Bracket	Set	L210C L250C
53 03 13	 T53DN	Screws to floor 63mm, 2's	Set	C21N
53 03 41	 TL4D1FU	Water Supply w/Stop 1/2" (Distance of end to end: 706 mm)	Set	L10D
53 03 42	 T6BMS	S-trap 1-1/4" (Distance of end to end: 613 mm)	Set	L210C L250C
53 03 47	T22BS (Same as above)	S-trap 1-1/4" w/ plug & chain	Set	L10D
53 03 44	 T53WR75	Floor flange for 75 mm pipe	Pc.	CS140 C21N C480N
53 03 45	 T82CR32	Inlet spud 32 mm	Pc.	CS140
53 03 46	 T52SR32	Inlet spud 32 mm	Pc.	C21N C480N

Flexible Hoses

Joining Faucet and Water Pipe

Mangueras flexibles de conexión de grifo y de tubería de agua
配水蛇腹ホース　水道波纹软管



A flexible hose to connect faucets to the water pipes, they are below the washbasin.

Unit Per Lgh.

CODE	Size	Length mm	Alligator No.
53 18 26	10 x 10mm clip	300	SA036001
27	10 x 12mm clip		SA036002
28	10 x 15mm clip		SA036003
53 18 29	12 x 12mm clip	300	SA036004
30	12 x 15mm clip		SA036005
53 18 31	15 x 15mm clip	300	SA036006
37	3/8" BSP female x female	400	-
38	3/8" BSP female x female	800	-
39	3/8" BSP female x female	1,200	-
53 18 32	M10 male x 1/2 BSP female	300	SA036007
53 18 33	1/2" BSP female x female	300	SA036008
34	1/2" BSP female x male	300	SA036009
35	1/2" BSP female x female	600	SA036010
53 18 36	1/2" x 1/2"	1,000	SA036011

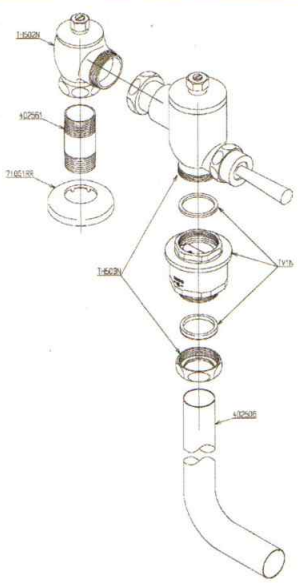
Name of Mfr.: Alligator

Flush Valves

Valvulas para Limpieza　フラッシュバルブ　冲水阀

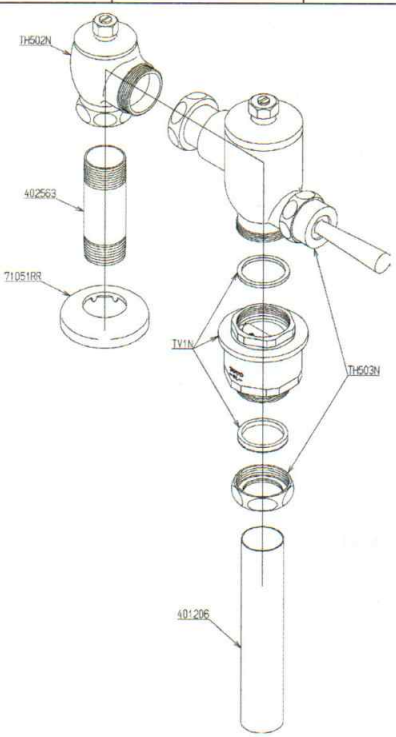
TOTO Flush Valve Parts List

Part No.	Name	Material
TV150NLRS		
TH502N	Stop valve	-
TH503N	Body	-
TV1N	Vacuum breaker	-
4025013 A	Drain pipe	Brass
402561 A	Supply pipe	Copper
71051RR TP	Cover	Stainless steel

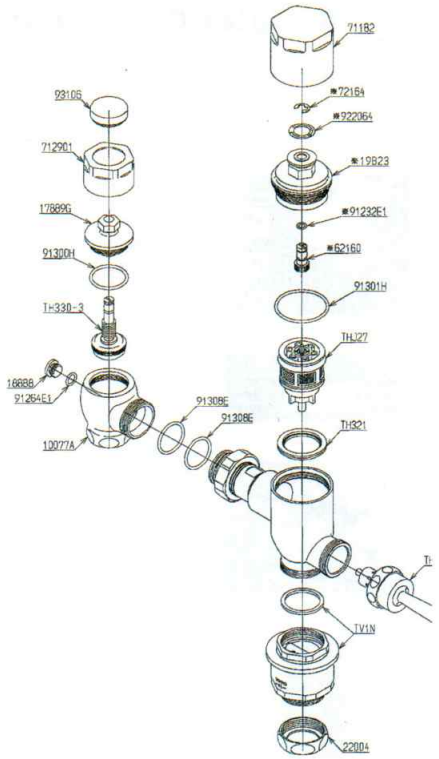


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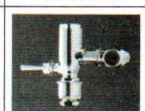
Part No.	Name	Material
TV150NSRS		
TH502N	Stop valve	-
TH503N	Body	-
TV1N	Vacuum breaker	-
401206 BA	Drain pipe	Brass
402563 A	Supply pipe	Copper
71051RR TP	Cover	Stainless steel



Part No.	Name	Material
TV550X		
TH321	Seat packing	-
TH330-3	Spindle	-
THJ27	Spindle valve	-
THYD9	Handle	-
TV 1N	Vacuum breaker	-
10077A	Stop valve body	Brass
17889GR	Spindle guide	"
18888 BV	Dam cover	"
19B23	Cover	"
22004 A	Cap nut 40	"
62160	Adjusting screw	Brass
71182 A	Cover	"
712901 A	Cover	"
72164	Retaining ring	Stainless steel
91232E1	O ring	Synthetic rubber
91264E1	O ring	Synthetic rubber
91300H	O ring	"
91301H	O ring	"
91308E	O ring	"
922064	Index	Synthetic resin
93106	Cushion	Synthetic resin



Unit Per Pc.

CODE	Model	Inlet Pipe Thread	Outlet Pipe OD mm	Appli-cable Model	Remark
53 03 55	 TV550S & TSF75LR	PT1	32	C21N	Wall supply elbow outlet w/vacuum breaker
53 03 56	 TV550S & TSR100AR	PT1	32	C480N	Wall supply straight outlet w/vacuum breaker
53 03 59	 TV550S	PT1	32	CS140 C480N C21N	
53 03 49	 TSF75LR	Plumbing set for flush valve		CS140 C21N	
53 03 50	 TSF100AR	Plumbing set for flush valve		C480N	

TOTO's faucets and sanitary earthen-ware are originally designed and produced for the use of residencies/facilities on land. Therefore, when they are used on board ships, they are not covered by TOTO's guarantee.

Note: Special metal alloy and other corrosion resistant materials are used for the vital moving parts. Recommended for marine use and other special installations where the flush water is of poor quality.

Laundry Sinks

Lavadero (de Ropa)
洗たく流し　洗衣水槽



Unit Per Set

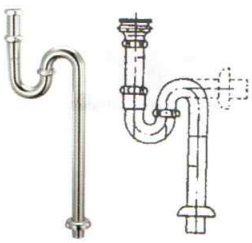
CODE	Dimensions mm W × D × H	Exhaust Pipe Diam.	TOTO No.
53 03 62	510 × 500 × 405	38 mm	SK507

Drain Pipes w/S-Trap

Residuos con Trampa-S
排水金具　排水管道

Designed for above Laundry sink.

38 mm pipe diameter and the distance from end to end is 719 mm.



53 03 66	Pipe, drain, w/S-trap, 38 mm diam.	Pc.

Shower Heads

Cabezas de Ducha　シャワーヘッド　喷淋头

Wall mounted or hand held types are available. Fitting thread PF 1/2.



53 03 75



53 03 78



53 03 79

Unit Per Pc.

CODE	Type	Description	TOTO No.
53 03 75	Hand held	Plastic head with 1.2 mtr rubber hose	TBW01021
78	Wall mounted	Ball joint with flow control valve	TB18CR
79		Ball joint with wide face	TB18RR

Hand Shower Sets

Waterline Series

Conjuntos de duchas de mano　ハンドシャワーセット　手持花洒套件



SA020900



SA020901



SA020902

Unit Per Pc.

CODE	Type	Content	Alligator No.
53 18 01	-	Hand shower, Hose – size 1/2"	SA020900
53 18 02 03	- w/Thermostatic faucet	Rail, Hand shower 1/2", Hose 1/2" and Soap tray	SA020901 SA020902

Name of Mfr.: Alligator

Hand Showers

Waterline Series

Cabezales de duchas de mano-Waterline Series
ハンドシャワー　淋浴花洒

Material: Chromed



SA17030



SA17050

Unit Per Pc.

CODE	Size	Alligator No.
53 18 11	1/2"	SA17030
12	Adjustable 1/2"	SA17050

Name of Mfr.: Alligator

Shower Hoses

Waterline Series

Mangueras de ducha　シャワーホース　淋浴软管



White



Chrome

Unit Per Pc.

CODE	Colour	Material	Size	Length	Alligator No.
53 18 21	White	PVC	1/2"	150 cm	SA210150
53 18 22	Chrome	PVC	1/2"	125 cm	SA210200
23		"		150 cm	SA210300
24		"		200 cm	SA210400
25		Metal		150 cm	SA210900

Name of Mfr.: Alligator

Thermostatic Mixing Valves

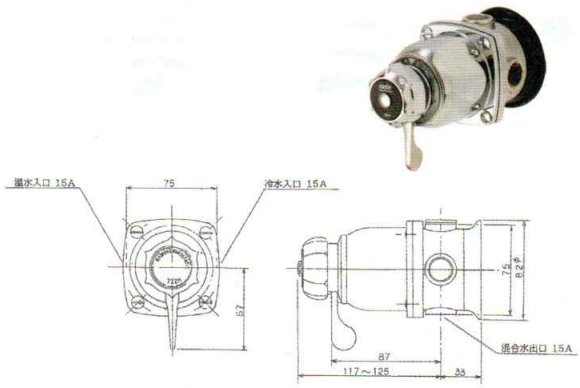
Model Rada 722M

Válvulas Mezcladoras Termostáticas　サーモ付湯水混合栓　恒温混和阀

Model Rada 722M

Thermostatic mixing valves for use with hot and cold fresh water, fitted on shower baths on board ships as anti-scalding mixing valves.

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53 03 91	Thermostatic mixing valve Rada 722M	Set

Model	Rada 722M
Type	Exposed type with Inlet & Outlet Union Elbow
Feature	The temperature of the shower water can be varied by the person using the shower over a range of temperatures between a cold water temperature and a temperature of 35°C to 40°C.
Working Pressure	Minimum 0.3 kgf/cm² - Maximum 8.5 kgf/cm²

Name of Mfr.: Kohler Mira Ltd.

Emergency Drench Showers/ Eye Washes

Ducha de Emergencia/Limpiador de los Ojos
緊急用ドレンチシャワー・洗眼ユニット　紧急润湿喷头 / 洗眼剂

Designed for washing off accidentally splashed acid or chemicals over human's body by clean water. Available three types of systems; Drench shower for the whole body, Eye wash for the eyes and Combination for both units. Pipe and fittings are galvanized steel pipe protected with yellow coating. Compliance to EN 15154-1:2006, EN 15154-2:2006, AS 4775:2007, ANSI/ISEA Z358.1-2014. Please specify the details of the connection to ships water supply.

Drench Shower:

Emergency safety shower designed to be wall-mounted, made from galvanized steel with yellow coating. It supplies torrential shower as soon as the pull-rod with triangular safety yellow ABS handle is operated. Water flow: 76 L/Min, water working pressure is 0.2 MPa - 0.8 MPa.



Horizontal Supply



Vertical Supply

Eye Wash:

Eye wash bowl is made from ABS with ABS safety yellow spray head. Eye wash valve is made of 1/2" SS ball valve, water working pressure is 0.2 – 0.8 MPa, Flow control is 11.5 L/Min. The wall-mounted style is perfect for use in settings where tight conditions prevent using a freestanding eye wash. The eye wash and valve assembly are pre-built, thoroughly water/pressure tested to ensure no leaks and proper function, ultimately reduces installation time and gives the end contractor an added peace of mind. The unit also ships with a pre-assembled galvanized steel wall bracket to assist in the installation assembly.

Stand type is designed for locations where wall mounted are impractical. Eye wash is operated by a large, attractive push handle and also could be operated by the foot treadle.



Wall Mounted Type



Stand Type

Combination:

Combined of Drench shower and Eye wash in free-standing unit designed for locations where all-mounted are impractical. The shower valve operates quickly by a pull rod, the shower provides a superior washdown with a more even spray pattern. Eye wash is operated by a large, attractive push handle and also could be operated by the foot treadle. Safe, steady water flow under varying water supply conditions from 0.2 - 0.8 MPa is assured by integral flow control valve assembly.



Free Standing

Unit Per Set

CODE	Name	Type	Water Supply	Pipe & Fittings
53 06 01 **02**	Drench shower	Horizontal supply Vertical supply	1" NPT female "	1" "
53 06 11 **12**	Eye wash	Wall mounting Stand	1/2" NPT female "	1/2" 1-1/4"
53 06 21	Combination	Free-standing	1-1/4" NPT female	1-1/4"

Name of Mfr. : Fortune Protection Safety Ltd.

Portable, Self-Contained Eye Washes

Lavaojos portátiles y autónomos
緊急用ポータブル洗眼ユニット　应急便携式洗眼器

Portable, self-contained eyewash, ideal for remote locations that do not have a water source. Eyewash flow gravity activated, 9 or 16 gallons high-density polyethylene tank The unit can be counter or wall-mounted with no additional plumbing required.



9 Gallon Type



18 Gallon Type

Unit Per Set

CODE	53 06 04	53 06 05
Water storage	Max 9 gallon (34.1 L)	Max 16 gallon (60.5 L)
Material	High-quality non-toxic polyethylene	
Water supply	Self-contained	
Flow control	1.5 L/min,15 min. flow	
Source of water	Clean water or leached water	
Water quality	Water in the unit should be changed at least once every six months	
Standard approved	EN 15154-4:2009, AS 4775:2007, ANSI/ISEA Z358.1-2014	
Dimension (mm)	610 x 270 x 380	550 x 525 x 600
Weight (kg)	5.6	10.5

Name of Mfr.: Fortune Protection Safety Ltd.

Wall Mount Soap Trays

Jaboneras Montadas a la Pared　壁掛石けん受　墙壁肥皂架



53 04 11



53 14 12



53 14 13

Unit Per Pc.

CODE	Type	Material	Size mm		
			W	L	D
53 04 11	Wall Mount	Porcelain	86	128	56
12		Chrome Plated	74	99	13
13		S. Steel	80	125	23

Bathroom Shelves

Estantes para Cuarto de Baño　化粧だな　浴室支架



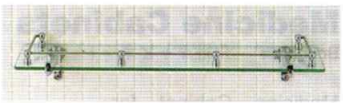
53 04 16



53 04 17



53 04 18



53 04 19 / 53 04 20

Unit Per Pc.

CODE	Type	Material	Size mm		
			W	L	D
53 04 16	Shelf	Porcelain	140	454	65
53 04 17		Porcelain	120	300	50
53 04 18	Recessed	Porcelain	97	389	16
53 04 19	With Guard Bar	Chrome plated brass frame with glass plate	100	410	80
53 04 20		Chrome plated brass frame with plastic plate	125	456	94

Towel Bars

Toalleras　タオル掛け　毛巾挂

Made of chrome plated brass bar.



Single Bar



Double Bar

Unit Per Pc.

CODE	Length mm	Remark
53 04 25	457	Round Single Bar
26	610	Round Double Bar
27	450	Round Single Bar
28	450	Hex. Single Bar

Mirrors

Espejos　鏡　镜子

Plain 5 mm thick glass plate, regular mirror, provides excellent reflection. Mounting fittings are furnished with the mirror.



Unit Per Pc.

CODE	Size W × H mm	CODE	Size W × H mm
53 04 51	303 × 363	**53 04 57**	303 × 760
52	303 × 455	**58**	506 × 760
53	363 × 455	**59**	608 × 760
54	363 × 608	**60**	608 × 811
55	455 × 608	**61**	201 × 912
53 04 56	201 × 760	**53 04 62**	303 × 912

Mirrors

Waterline Series

Espejos Serie Waterline
鏡ウォーターラインシリーズ　镜面水线系列

Unit Per Pc.

CODE	Size	Alligator No.
53 19 01	W 40 cm x L 50 cm	SA020749
02	W 40 cm x L 57 cm	SA020750

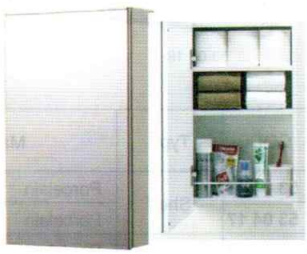
Name of Mfr.: Alligator



Medicine Cabinets

Botiquines 化粧キャビネット 药柜

Medicine Cabinet for lavatory and powder rooms. Ideal for storage of various toiletries.



Unit Per Set

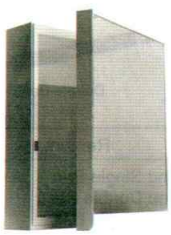
CODE	Cabinet Size mm	Mirror Size mm
53 04 66	265 x 485 x 135	254 x 355
67	305 x 510 x 145	304 x 353
68	415 x 715 x 160	407 x 458

Medicine Cabinets

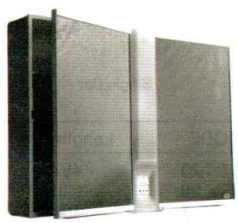
Waterline Series

Botiquín 化粧戸棚 化妆台

Material: PVC



Size: 35×45×15 cm



Size: 65×49×11 cm

Unit Per Pc.

CODE	Size	Material	Remark	Alligator No.
53 19 11	35×45×15 cm	PVC	-	SA020756
12	65×49×11 cm	"	220V plug & lamp	SA020754

Name of Mfr.: Alligator

Accessories for Bathroom

Waterline Series

Accesorios de baño 浴室用装備品 浴室装备品



Shelf



Towel Rail



Hook



Soap Tray

Unit Per Pc.

CODE	Name	Size	Alligator No.
53 19 21	Shelf	Length: 50 cm	SA020500
53 19 26	Towel rail	Length: 60 cm	SA020700
53 19 31	Hook for towel or coat double	-	SA020710
53 19 41	Soap tray, thread model	-	SA020800

Name of Mfr.: Alligator

Bathroom Equipment

Equipamiento para Cuarto de Baño 浴室用備品 浴室用品

Plastic made equipment generally used in Japanese style bathroom.



Wash Basin



Basin w/Handle



Stool



Stirring Bar

Unit Per Pc.

CODE	Description	Size	Capacity
53 05 01	Wash basin	Diam. 270 mm	3.0 ltr
02	Wash basin	Diam. 320 mm	4.3 ltr
53 05 03	Basin with handle	Diam. 140 mm	1.8 ltr
53 05 04	Soap case		
53 05 06	Bathroom stool	H: 150 mm	
53 05 08	Stirring bar	L: 560 mm	

Shower Curtains

Cortinas de Ducha

シャワーカーテン 淋浴帘



Shower bath curtain in coloured, durable, waterproof vinyl with metal grommets. Standard size is 1,000 × 1,900 mm or 1,800 × 2,000 mm with 8 - 12 grommets. When ordering, please specify the size and colour required.

How to order: 15 - 07 - 14

Curtain, shower, vinyl, size x colour (Pc.)

Adjustable Rails

Chromed Adjustable Rail is also available, Standard size is 22 mm dia with range 1,100 mm to 2,000 mm length.

How to order: 15 - 07 - 17

Adjustable rails, chrome, dia and length (Pc.)

TOTO Items List

CODE	Descriptions		TOTO Model
53 01 01	Wall faucet	13 (1/2)	T23AUN13
02	Same	20 (3/4)	T23BU20
53 01 05	Long shank wall faucet	13 (1/2)	T23BNR13
09	Long shank wall faucet w/Adjustable Flange	13 (1/2)	T23BEN13
10	Same	20 (3/4)	T23AE20
53 01 16	Self closing wall faucet	13 (1/2)	TL19
53 01 24	Hose end wall faucet w/Rotary spout	13 (1/2)	T200SUN13
25	Same	20 (3/4)	T200SU20
26	Hose end wall faucet w/Adjustable flange	13 (1/2)	T200ESNR13
53 01 36	Wall faucet w/Snap on hose coupling	13 (1/2)	T28AUNH13
37	Same	20 (3/4)	T28AUH20
53 01 43	Sill cock w/Hose coupling w/Snap on hose coupling	13 (1/2)	T28UNH13
44	Same	20 (3/4)	T28UH20
53 01 51	Lavatory faucet	13 (1/2)	T205UNRC
52	Lavatory faucet w/Rotary spout	13 (1/2)	T210SNSC
53 01 56	Combination wall faucet w/Overhead swivel spout	13 (1/2)	TKJ20AAU
53 01 61	Combination wall faucets w/Underside swivel spout	13 (1/2)	T20B
53 01 64	Mixing lavatory faucet for hand basin, single handle	13 (1/2)	TLS04302J
65	Same	13 (1/2)	TLS21U
68	Mixing lavatory faucet for hand basin, double handle	13 (1/2)	TLHG30EGR
53 01 72	Wall faucet w/Underside swivel spout	20 (3/4)	T30AR20C
73	Wall faucet w/Underside swivel spout w/Aerator	13 (1/2)	T130AUN13
53 01 77	Right handle wall faucet w/Overhead swivel spout	20 (3/4)	T31S20
78	Same, w/Aerator	13 (1/2)	T131SUN13
53 01 88	Right handle wall faucet w/Goose neck swivel spout, w/Aerator	13 (1/2)	T131AUN13
53 01 92	Right handle wall faucet w/High swivel spout, w/Aerator	13 (1/2)	T131BUN13
53 02 11	Wall hung corner hand basin		L30D
53 02 25	Wall hung hand basin, small size		L210C
53 02 42	Wall hung hand basin, Large size		L250C
53 03 01	Wash-down water closet		CS140
53 03 02	Wash-down water closet		CS494M
03	Flush valve		TV565P
53 03 33	Toilet seat, Open front without cover		TC1R
34	Toilet seat, Closed front w/Cover		TC290
35	Same		TC291
53 02 33	Mounting bracket		TL220D
34	Same		TL250D
53 03 13	Screws to floor 63 mm 2's		T53DN
41	Water supply w/Stop, 1/2"		TL4D1FU
42	S-trap, 1-1/4"		T6BMS
47	Same		T22BS
44	Floor flange for 75 mm pipe		T53WR75
45	Inlet spud, 32 mm		T82CR32
46	Same, 32 mm		T52SR32
53 03 55	Flush valve		TV550S+TSF75LR
56	Same		TV550S+TSR100AR
59	Same		TV550S
49	Plumbing set for flush valve		TSF75LR
50	Same		TSF100AR
53 03 62	Laundry sink		SK507
53 03 75	Shower head		TBW01021J
78	Same		TB18CR
79	Same		TB18RR

55
Cleaning Material & Chemicals

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<td>Hand Cleaning Soap and Detergent
 
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Solid Soap

Jabón Sólido　洗濯石鹸　肥皂



High grade yellow laundry soap, solid cakes or bars.

Unit Per Pc.

CODE	grm Per Pc.	Case Contains	CODE	grm Per Pc.	Case Contains
Cake			Bar		
55 01 01	225	60	**55 01 02**	600	30

Laundry Soap Powder

Detergente en Polvo　粉石鹸　洗衣皂粉



Throughly cleans all washable fabrics, cotton and tetoron. Furnished in 500 grm & 1 kg packets, 10 kg in cartons, and 20 kg in woven bag.

CODE	Weight	Packaging	Unit
55 01 07	500 grm	24/Case	Pkt
03	1 kg	-	Pkt
08	10 kg	-	C/T
04	20 kg	-	Bag

Laundry Soap Powder with Enzyme

Detergente en Polvo con Enzima
酸素入り粉石鹸　衣物柔順剤　加酶洗衣皂粉



Higher performance laundry soap powder with stain removal efficiency by enzyme power. Also effective with cold water washing.

Unit Per Pkt.

CODE	Weight	CODE	Weight
55 01 10	1.0 kg	**55 01 11**	1.2 kg

Laundry Detergent Sheets

Hojas de detergente　洗濯用洗剤シート　洗衣粉片





Laundry detergent sheets are the answer to plastic-free maritime laundry.

Each sheet contains the same detergent content as a dose of liquid, powder or a pod but comes in a cardboard packet weighing up to 16 times less than conventional plastic detergent containers or boxes and taking up a fraction of the space onboard. Simply place one sheet of detergent into the drum of the washing machine with the dirty clothes and then it disintegrates completely when in contact with water leaving nothing but spotlessly clean clothes.

Each small box can contain 25, 30, 50 or 75 detergent sheets. Sheet size is 140 × 110mm and 1mm thick. Available in bio and non-bio options.

55 01 12	Laundry detergent sheets, bio type	Sht
13	Laundry detergent sheets, non-bio type	Sht

Laundry Starch

Almidón en Aerosol　洗たくのり　喷雾



Aerosol



Emulsion

Starch for laundry in aerosol type or emulsion type.

CODE	Type	Content (Unit Per Tin)	CODE	Type	Content (Unit Per Btl.)
55 01 15	Aerosol	330 ml	**55 01 16**	Emulsion	600 ml

Laundry Starch Powder

Almidón en Polvo　粉末洗たくのり　洗衣粉



For use with water to stiffen clothes, curtains, etc. Packed 1 kgs and 150 grm in a polythene bag.

CODE	Size	Packaging	Unit
55 01 17	150 grm	80/Case	Bag
18	1 kg	15/Case	"

Bleaching Water for Laundry

Agua para blanquear la ropa　衣料用漂白剤　洗衣漂白水



A liquid chlorine bleach containing deodorizer which is added to the water when washing clothes.

Unit Per Btl.

CODE	Content	CODE	Content
55 01 20	600 ml	**55 01 21**	1,500 ml
22	1 kg		

Laundry Softener

Suavizador de ropa　柔軟仕上剤　衣物柔順剤



Fabric softener that reduces static cling and makes clothes easier to iron.

55 01 24	Laundry softener,	1.65 ltr	Btl
25	"	2.5 ltr	"

Soft Soap

Jaboncillo　軟石鹸　软肥皂

A semi-liquid soap for general cleaning. Made from vegetable oil mixed with soap and can be used when mixed with water for cleaning painted surfaces, woodworking and for general deck cleaning. Furnished in 18 kg cans.

55 01 28	Soap, soft, 18 kg	Can

General Cleaning Detergent

Detergente en Polvo de Limpieza General　一般用粉石鹸　普通洗涤剂

For general cleaning and manual dishwashing as well as for cleaning painted or varnished surfaces, floors, windows, mirrors, bathtubs, basins, and tiles.



Unit Per Bag

CODE	Type	Content	CODE	Type	Content
55 01 30	ALVA	10 kg	**55 01 36**	Local brand	20 kg

Heavy Duty Detergent

Detergente en Polvo de Limpieza General
強力粉石鹸　重荷洗涤剂

For general cleaning and manual washing as with the above detergent but for heavy duty use



Unit Per Bag

CODE	Description	Content	CODE	Description	Content
55 01 33	ALVA KRAFT	10 kg	**55 01 37**	Local brand	25 kg

Laundry Machine Detergent

Detergente en Polvo para Lavadora
洗濯機用粉石鹸　洗衣机用洗涤剂

Made of synthetic powder with a bleaching agent for all kind of fabric. For machine use only.



55 01 34	Laundry machine detergent, 10 kg	Bag

Liquid Soap

Japón Líquido　液体洗剂　洗洁精

A liquid detergent for washing tableware and kitchen utensils. Formulated to cut greasy stains in a wide range of conditions including hard water. Soft and mild on the hands.



CODE	Name	Size	Packaging	Unit
55 01 41	Soap Liquid for Galley	800 cc btl	12/case	Btl.
42	Soap Liquid for Galley	18 kg can		Can
43	Soap Liquid Teepol	18 kg can		Can

Disinfectant Liquid Soap

Japón Líquido Desinfectante　液体殺菌中性洗剂　杀菌液体肥皂

A neutral type condensed liquid detergent with disinfectant effect especially for washing knives, cutting boards, including galley equipment, such as slicers, meat choppers, etc. Will eliminate extra times because of the unique pre-mixed components for washing and disinfecting.



Unit Per Btl.

CODE	Contents	CODE	Contents
55 01 45	2 kg	**55 01 47**	20 kg
46	10 kg		

Bleaching Water for Kitchen

Solución Blanqueadora para la Cocina
台所用漂白剤　厨房用漂白劑

A liquid chlorine bleach for sanitizing cutting boards or kitchen cloths.



Unit Per Btl.

CODE	Content	CODE	Content
55 01 48	600 ml	**55 01 49**	1,500 ml

Cleanser

Limpiador en Polvo　クレンザー　清洗剂

For cleaning and polishing pots, kettles, sinks, bathtubs, earthenware porcelain, aluminium, and stainless steel.

Can be used for floors, woodworks or wherever dirt and grease collects.



CODE	Name	Size	Package	Unit
55 01 51	Galley powder	400 grm/tin	24/ctn	Tin
55 01 53	Vim	500 grm/tin	20/ctn	C/T
54			12/ctn	"

Scouring Cream

Crema limpiadora　クリームクレンザー　洗涤乳

Contains soft abrasives suitable for scouring kitchen tables, cooking pans or stainless steel fittings in the bathroom as well as tiles, enamels, etc.



55 01 56	Scouring cream , 400 grm		Btl
57	" , 2.8 kg		"
58	" , 5.6 kg		"

All Purpose Liquid Cleaner

with Ammonia

Limpiador Líquido Multi-usos/con Amoniaco
多目的液体クリーナー　多功能清洁剂

Tough institutional cleaner which works on all washable surfaces including linoleum, tile, walls, woodwork, venetian blinds, porcelain and appliances. Contains a dirt and grease removal agent called "ammonial".

Dilute at a ratio of 1/4 cup of cleaner to a gallon of water and you get a powerful cleaning solution that doesn't need to be rinsed or wiped dry.



For windows or mirrors, use 1 teaspoon of cleaner per gallon of water and wipe dry. For spots, stubborn stains or tough jobs, use at full strength and rinse afterwards. Mild on the hands and non-flammable.

Warning!

Do not use in combination with chlorine.

Unit Per C/T

CODE	Content	Packaging
55 01 61	28 oz	12 btl/case
63	750 ml	16 btl/case
60	2 ltr	6 btl/case

Toilet Cleanser

Limpiador de Baño　トイレ洗浄剤　廁所清潔劑

A neutral ingredient cleanser for removing dirt spots and scales over the toilet bowl.



Unit Per Btl.

CODE	Q'ty	CODE	Q'ty
55 02 35	500 ml	**55 02 36**	800 ml

Uric Acid Cleaner Concentrate

Limpiador de ácido úrico concentrado
濃縮タイプトイレ洗浄剤　尿酸清洁浓缩液

A blend of concentrated cleaners for effective removal of uric acid deposits. Strong acid to be handled with caution, suitable for all types of marine sanitation systems.



55 02 37	Uric Acid Cleaner Concentrate, 25 ltr	Drum

Heavy Duty Kitchen Liquid Cleaners

Limpiador Líquido Extrafuerte para Multi-usos
台所用強力洗剤　多功能重任务液体除垢剂

An all purpose liquid cleaner with grease-cutting formula for cleaning greasy kitchen dirt. Use diluted or at full strength.



Concentrated　Spray

Unit Per Btl.

Concentrated		Spray	
CODE	Q'ty	CODE	Q'ty
55 01 65	500 ml	**55 01 73**	400 ml
70	800 ml	**74**	Refill (400 ml)

Grease Remover
for Kitchen Plates

Quitagrasas para superficies de cocina
台所用グリースリムーバー　厨房表面除油剤

Specially formulated for the cleaning of kitchen griddles and ovens. Highly alkaline product specially formulated for the cleaning of metal surfaces, which makes it specially suitable for use on kitchen griddles. It contains tensioactives and special components which help the product soak the griddle.



55 01 79	Grease remover for kitchen plate surface, 5 ltr	Btl.

Grease Remover for Kitchen
Eco-friendly

Desengrasante de Cocina, Ecológico
台所用エコグリース洗浄剤　厨房油脂去除剂

Powerful degreaser which thoroughly removes all stubborn dirt and grease. Suitable for cleaning any type of hard surface that is not damaged by water. Ideal for thoroughly cleaning kitchens, grilles, ovens, extractor hoods, tiles... Pleasant citrus allergen-free fragrance. Phosphate-free. Cruelty free. Dermatologically tested. Recycled and recyclable packaging. No dangers, no transport restrictions.



55 01 92	Grease remover for kitchen, eco-friendly, 750 ml	Btl.
55 01 93	Grease remover for kitchen, eco-friendly, 5 ltr	Btl.

General Purpose Liquid Cleaners

Limpiador Líquido para Uso General
一般そうじ用洗剤　普通用液体除垢剂

A concentrated general purpose cleaner for use on all surfaces not harmed by water. Cleans floors, porcelain, leather, plastic, stainless steel, aluminium surfaces, and appliances. Dilute before using for concentrated type.



Concentrated　Spray

Unit Per Btl.

Concentrated		Spray	
CODE	Q'ty	CODE	Q'ty
55 01 68	500 ml	**55 01 75**	400 ml
69	2,000 ml	**76**	Refill (350 ml)

Biodegradable Multi-Purpose Cleaner "Rydlyme Marine® Boat Cleaner"

Limpiador multiusos biodegradable
生分解性多目的クリーナー　生物可降解多用途清洁剂

A powerful, multi-purpose, multi-surface detailing cleaner. RYDLYME Marine® Boat Cleaner is biodegradable and scientifically formulated to clean and eliminate oil, grease, grime, dirt and many other pollutants from all types of surfaces. This ready-to-use, non-toxic formula contains no

bleach or ammonia. Just spray it on, let it penetrate the deposit for 20-30 seconds and rinse off and/or wipe clean with a damp cloth. For larger or tougher jobs that may require brushes, pressure washer or other equipment. Please shake bottle before use.



CODE	Contents	CODE	Contents
55 01 86 **87**	6 x 710 ml / case 4 x 3.8 ltr / case	**55 01 88** **89**	18 ltr / pail 208 ltr / drum

Name of Mfr.: Apex Engineering Products Corporation

Bathroom Cleaning Liquid

Limpiador Líquido para Cuarto de Baño
浴室用洗剤　浴室清洗液

Heavy duty cleaner for cleaning bath tubs and wall surfaces in bathroom.



Concentrated



Spray

Unit Per Btl.

Concentrated		Spray	
CODE	Q'ty	CODE	Q'ty
55 01 71 **72**	500 ml 4 ltr	**55 01 77** **78**	400 ml Refill (350 ml)

Bathroom Cleaning Liquids

Eco-friendly

Líquidos limpiadores para cuartos de baño, Ecológico
浴室用エコ洗剤　浴室清洁液

Its powerful formula cleans and descales the most stubborn dirt, avoiding and preventing the formation of incrustations, limescale and rust. Ideal for daily cleaning of the bathroom; taps, showers, tiles, bathtubs etc. Phosphate-free. Allergen-free fragrance. No artificial colourings. Cruelty free. Dermatologically tested. Recycled and recyclable packaging. No dangers, no transport restrictions.



55 01 90	Bathroom cleaning liquid, eco-friendly, 750ml	Btl.
55 01 91	Bathroom cleaning liquid, eco-friendly, 5 ltr	Btl.

Mold Cleaners

Limpiador de Moho　カビキラー　除霉剂

For destroying and preventing mold germination over the surface in saturated area, especially in kitchens and bathrooms. Please wash your hands and eyes after spraying to avoid irritating to the skin or eyes.





Unit Per Btl.

CODE	Q'ty	CODE	Q'ty
55 02 31 **32**	400 grm Refill (400 grm)	**55 02 33** **34**	1,000 grm Refill (1,000 grm)

Washroom Cleaners

Eco-friendly

Limpiadores de lavabos , Ecológico
洗面所用エコ洗剤　洗手间清洁剂





Probiotic biological solution using UK-cultivated, sustainably-sourced enzymes to break down organic matter and odour. Non-harmful to marine and aquatic life, no long-term adverse environmental effects. Complies with all current and forthcoming legislation, including EC Detergent Regulation 1272/2008 and REACH 1907/2006.

Bottle made from 30% recycled plastic.

55 01 96	Washroom cleaner, eco-friendly, 750 ml	Btl.
55 01 97	Refill for washroom cleaner, eco-friendly, 5 ltr	Btl.

Dishwashing Detergents

Eco-friendly

Detergentes lavavajillas, Ecológico
食器洗浄機用エコ洗剤　餐具洗涤剂





Dishwashing liquid specially formulated to remove the most stubborn grease and dirt from all types of dishes. Dilute 1 ml of product per litre of water for moderate dirty dishes. Phosphate-free. Fragrance-free and no artificial colourings. Cruelty free. Dermatologically tested. Recycled and recyclable packaging.

No dangers, no transport restrictions.

55 01 94	Dishwashing detergent, eco-friendly, 750ml	Btl.
55 01 95	Dishwashing detergent, eoc-friendly, 5 ltr	Btl.

Dish Washing Machine Detergent

Detergente para Máquina Lavavajillas
食器洗浄機用洗剤　洗碗碟机洗涤剂



A strong alkaline detergent in powder or liquid for use with any type of dish-washing machine. Creates very little foam. Please pay attention of mixing density with water according to the instruction of usage from each manufacturer.

DANGEROUS SUBSTANCE

Caution!

Don't use the detergent in close proximity to the eyes or other sensitive areas.

Unit Per C/T | Unit Per Btl.

Powder		Liquid	
CODE	Contents	CODE	Contents
55 01 80 81	15 kg 20 kg	55 01 82	25 kg

Dish Washing Machine Rinse Additives

Aditivo de Enjuague para Máquina Lavavajillas
食器洗浄機用乾燥仕上げ剤
洗碗碟机漂洗添加剂



A translucent brownish liquid made of sugar, ester, and glyceride, etc. and used as a rinse additive to dry machine washed dishes.

55 01 85	Dish washing machine rinse additive, 10 kg	Can

Machine Warewashing Detergent

Detergente para Máquina Lavavajillas
食器用洗浄剤　机器器具清洗剂



A wide variety of detergents for cleaning tableware and kitchen utensils are available.

The most common detergents are listed below.

CODE	Item	Content	Purpose	Unit
For Conventional Dispensers				
55 02 01	Impact	1 kg × 25's per C/T	One-pass, volume washing with heavy soil loads in hard water. For tableware including plastic-ware.	C/T
55 02 03	Soilite	1 kg × 25's per C/T	For use in soft water (to 7 gpg) where coffee stains, milk solids and animal fats are a problem.	"
55 02 05	Acclaim	1 kg × 25's per C/T	For use in soft (or mechanically softened) to medium-hard water.	"
Tableware Presoak Detergent				
55 02 11	Assure	1 kg × 10's per C/T	Presoak for stainless and silver flatware. Detarnishes silverware.	"
Final Rinse Additives				
55 02 13	New Rinse-dry	4 ltr/Btl	For speed drying and eliminating spotting and streaking after machine washing. For automatic injection into rinse.	Btl.
Manual Washing Powder				
55 02 15	Tetrox	20 kg Drum	For manually washing tableware, glassware, pots and pans.	Drm
Specialty Product				
55 02 18	Lime-A-Way	10 kg Drum	Removal of lime film, iron stains and scale; for use on dish-machine interiors, stainless and aluminium surfaces hospital glassware, toilet bowls and urinals animal cages.	Drm
55 02 19	Dip-it	20 kg Drum	For cleaning plastic ware, china or metal surfaces, stained with coffee or food stains.	"
55 02 20	Grease-Cutter	4 ltr/Btl	Removes grease from ovens, stove hoods, grills, broilers, deep fat fryers.	Btl.

Name of Mfr.: Ecolab Co., Ltd.

(to be continued)

Toilet Soap

Japón de Tocador　化粧石鹸　卫生皂



For washing face, body and hands.

CODE	Description	Size	Packaging	Unit
55 02 51	Private Brand	71 grm/pc.	200/Case	Pc.
55 02 52	Lux	3 oz/pc.	72/Case	Pc.
53		75 grm/pc.	72/Case	C/T
48		90 grm/pc.	2's/Pkt	Pkt
49		100 grm/pc.	3's/Pkt	Pkt
55 02 56	Camay	85 grm/pc.	72/Case	Pc.

Pumice Soap (Lava Soap)

Japón Pómez　手洗い石鹸　洗手肥皂

Used to remove grease and oil from the hands. Useful for mechanics, painters and those doing work with difficult to remove greases or dirt. Supplied 144 bars in a case.

55 02 60	Soap, pumice, 95 grm	Pc.

Disinfectant & Antiseptic Hand Liquid

Líquido Desinfectante y Antiséptico para Manos
手用殺菌消毒剤　手用消毒防腐洗涤剂



A condensed liquid detergent with disinfectant effect especially for hands washing. Normally stored in wall-mounted dripping tank. A few drops will foam and make clean hands by scrubbing with water. Will eliminate extra times because of the unique pre-mixed components for washing and disinfecting.

Unit Per Btl.

CODE	Contents	CODE	Cotents
55 02 62 63	500 grm 3 kg	55 02 64	5 kg

Wall Mount Dispensers

for Disinfectant & Antiseptic Hand Liquid

Refipientes Montados a la Pared/Líquido Desinfectante y Antiséptico para Manos

手用消毒防腐洗涤剂用墙壁式容器　手用殺菌消毒剤用壁付け容器

Wall mount type plastic container for storing disinfectant & antiseptic liquid in washroom or lavatory. Can be furnished with glue on the wall. Various colours are available for the purpose of sanitary management required for Ship Sanitary Certificate (SSC) issued in compliance to the WHO International Health Regulations.



Unit Per Pc.

CODE	Description	Colour
55 02 65	Wall mount container, plastic, for disinfectant & antiseptic liquid	-
55 02 95	Wall mount container, for sanitiser	Red
55 02 96	Wall mount container, for handwash	Light blue
55 02 97	Wall mount container, for shower gel	Dark blue
55 02 98	Wall mount container, for barrier/ skin protection cream (before work)	Yellow
55 02 99	Wall mount container, for skin moisturiser/ restoring cream (after work)	Green
55 03 00	Wall mount container, for heavy duty hand cleaner	Purple

Rapid Hand Cleaner

Limpiador Rápido para Manos

強力ハンドクリーナー　快干洗手液

British made antiseptic rapid hand cleaner, conforms to British P.A.S.16. Removes oil, grease, paint, tar, oil based inks, creosote, resins, waxes, and rubber compounds.

Warning!

Do not use the cleaner in close proximity to the eyes or other sensitive areas.

55 02 66	Hand cleaner rapid	1 ltr	Tin
67	Hand cleaner rapid	1 ltr x 6 tins	C/T
68	Hand cleaner rapid	4.5 ltr	Tin
69	Dispenser for above	4.5 ltr tin	Set

Waterless Hand Cleaner

Limpiador sin Agua para Manos

ユニゾール“T”ハンドクリーナー　无水洗手液

Dissolves grease, paint, ink, grime, dirt, tar and difficult to clean substances. Smooth, gelatin, waterless hand cleaner for engineers.



55 02 71	Hand cleaner, waterless, "YUNISOL TL"	1 Ltr	Btl.
55 02 72		10 Ltr	Box

Hand Cleaners Eco-friendly

Limpiamanos ecológicos　エコハンドクリーナー　环保洗手液

Plant-based formula, non-toxic, non-flammable, non-carcinogenic, non-harmful to marine and aquatic life. Phosphate-free, pH neutral. Complies with all current and forthcoming legislation, including EC Detergent Regulation 648/2004 and REACH 1907/2006. Bottle made from 40% recycled plastic.



55 02 73	Hand cleaner, eco-friendly, 500 ml	Btl.
55 02 74	Refill for hand cleaner, eco-friendly, 5 ltr	Btl.

Vaseline

(Soft Paraffin)

Vaselina　ワセリン　凡士林

Moistens dry skin and protects it from chapping. Applied to the hands after working with paint, paint thinner, or any other substance which dries out the hands or causes chapping. Supplied in 500 grm jars.

55 02 76	Vaseline, 500 grm	Jar

Barrier Cream

Crema de Protección　バリアクリーム　护肤脂

Used for the same purpose as vaseline but this cream is applied before work and washed off afterwards.

55 02 78	Barrier cream 300 grm	Jar

Hand Cleaning Wipes

Secadores para Manos　強力手拭き紙　手用清洁纸

Tough extra large wipe combined with powerful liquid heavy duty hand cleanser, containing moisture to leave skin feeling conditioned after use. Can be used in and around the workshop or away from the workplace - no water required.



The wipes act quickly and effectively leaving no residue and a pleasant after smell on the skin.

**** Red Box (for workshop wipes)***

Suitable for removing oil, grease and grime. Liquid is a blend of cosmetic quality non-ionic and anionic cleaners, refined aliphatic dibasic esters, moisturisers, preservatives and water.

**** Black Box (for paintshop wipes)***

Suitable for removing synthetic, 2 pack and cellulose paints (base coats and lacquers), body fillers, adhesives and sealants, plus most other refinishing soilings.

* Tough Wipes (Anti-bacterial protection)





The textured surface acts like a scrub to remove ingrained grime, whilst the active ingredients lift off a wide variety of soiling easily. The smooth side locks in dirt and prevents re-transfer. Tough Wipes also include anti-pathogen agents to combat Weils Disease, common germs and viruses, as well as 'super-bugs'. Removes: grease, oil, silicone, paints, sealants, inks, adhesives.

Unit Per Can/Pkt.

CODE	Name	For	No. of Sht	Weight kg
55 02 81	Red box	Workshop wipes	150/Can	1.5
82	Black box	Paintshop wipes	150/Can	1.5
55 02 83	Tough wipe	Anti-bacterial	30/Pkt	0.35
84	Tough wipe 100	protection	100/Pkt	1.2

Name of Mfr.: "Red Box" and "Black Box": SC Johnson
"Tough Wipes" : CRC Industries

Hand Cleanser

Loctite SF7850 / SF7855 (Loctite Orange)

Limpiador de Mano Loctite Naranja
ハンドクレンザー　洗手用液剤

Product No.35228



Thicker consistency to scoop straight from container. Biodegradable, waterless, and petroleum-solvent-free; cleans with fresh-scented, natural citrus power. Contains aloe, lanolin, jojoba, and other premium skin conditioners.

SF7850 – General purpose cleaner, removes ground-in dirt, grease grime and oil.

SF7855 – For removal of ink, paint, resin or adhesives.

55 15 24	Hand Cleanser SF7850, 400 ml	Btl.
25	Hand Cleanser SF7850, 3 ltr	Btl.
26	Hand Cleanser SF7855, 400 ml	Btl.

Hand Cleaner "Scrubs"

Limpiador de Mano "Scrubs"
ハンドクリーナー"スクラブ"
洗手用液剤（SCRUBS）



Revolutionary heavy-duty hand cleaner towel that loosens, dissolves and absorbs dirt, greases, oil paint adhesives, tar, silicone and more from hands.

55 02 87	SCRUBS 72, 72 towels/bucket	Bkt.
88	SCRUBS 36, 36 towels/bucket	"
89	SCRUBS Multi, 24 towels/pack	Pack

Name of Mfr.: ITW Devcon

Hand Soap in Pump Dispenser

Jabón para Manos en Dispensador
ポンプ入り薬用石鹸　泡沫洗手乳

A medicated soap in pump dispenser. Simply press the bottle head with one hand, and rub over hands or face after received soap spouted from the nozzle. Available two types of soap spouted, jell or foam.



Unit Per Btl.

Jell		Foam	
CODE	Q'ty	CODE	Q'ty
55 02 91	250 ml	**55 02 93**	250 ml
92	Refill (250 ml)	**94**	Refill (250 ml)
55 02 38	500 ml	**55 02 40**	500 ml
39	Refill (500 ml)	**41**	Refill (500 ml)

Oven Cleaners

Rociador, Limpia Hornos　オーブンクリーナー　烤炉清洁剂



Aerosol type cleaner which cleans ovens fast without scouring and scrubbing. Penetrates baked on grease and grime and leaves a clean surface. Furnished in 226 grm cans.

55 03 01	Cleaner oven 300 ml	Tin

Toilet Bowl Cleaners

Eco-friendly

Limpiadores de inodoros, Ecológico
エコトイレクリーナー　马桶清洁剂



Plant-based formula, non-toxic, non-flammable, non-carcinogenic, non-harmful to marine and aquatic life. Complies with all current and forthcoming legislation, including EC Detergent Regulation 648/2004 and REACH 1907/2006. Bottle made from 40% recycled plastic.

55 03 04	Toilet bowl cleaner, eco-friendly, 1 ltr	Btl.
55 03 05	Refill for toilet bowl cleaner, eco-friendly, 5ltr	Btl.

Toilet Bowl Cleanser

Limpiador WC　トイレットクレンザー　厕所用去污粉



Removes stains where toilet germs lurk. Keeps toilets glistening clean without scrubbing. Works chemically and cleans even hidden traps. Use at least twice a week to remove film stains, incrustations and toilet odors.

Duck Neck

Unit Per Btl.

CODE	Description	Content	CODE	Description	Content
55 03 07	Harpic	500 grm	**55 03 10**	Duck neck	750 ml

Aerosol Glass Cleaner

Crema de Protección　ガラスクリーナー　玻璃清洁剂



A general purpose aerosol cleaner for glass, mirrors, car windows, plastic products, enamelware, earthenware, tile, marble, furniture and automobiles. Spray and wipe clean with a cloth to get a lustered surface.

Caution!

Do not use near foodstuffs or on tableware. Harmful if ingested.

Unit Per Tin

CODE	Contents	CODE	Contents
55 03 12	280 ml	55 03 11	310 ml
14	300 ml	13	480 ml

Window Cleaners

Eco-friendly

Limpiacristales, Ecológico　窓用エコクリーナー　窗户清洁剂 环保



Superior cleaning power window cleaner suitable for all types of surfaces. Tackles and removes dirt without any trace, leaving a perfect shine. Fast evaporation and residue-free drying. Allergen free, pleasant fresh fragrance. Cruelty free. Dermatologically tested. Recycled and recyclable packaging. No dangers, no transport restrictions.

55 03 15	Window cleaner eco-friendly, 750 ml	Btl.
55 03 16	Window cleaner eco-friendly, 5 ltr	Btl.

Deodorizers

Desodorantes　脱臭剂　除臭剂



For absorbing disagreeable odors in the refrigerator or other places that require deodorizing. Made from quality activator carbon. Furnished in small and large sizes.

55 03 21	Deodorizer, regular	60 grm	Pc.
22	"	120 grm	"

Air Freshener

Ambientador　エアークリーナー　空气清醒剂



One spray makes a room fresh.

Unit Per Tin

CODE	Description	Size	Packaging
55 03 31	Air Freshener	220 ml tin	15/case
32		420 "	12/case



Concentrate air freshener with long duration. Its natural perfume provides a cool, clean and nice environment. It deodorizes and perfumes all kind of environments.

55 03 33	Air freshener, 5 ltr	Btl.

Liquid Air Freshener



*** For Linen and Cloths**

Designed for neutralizing and deodorizing the unpleasant odors in clothing and linens. Made of blended organic components.

*** For Shoes**

Specially designed for deodorizing against unpleasant odors generated from the inside of the shoes.

*** For Toilet**

Specially designed for removing and preventing from ammonia odors generated in toilet.

55 03 37	Liquid Air freshener for Linen & Cloths, 400 ml	Btl.
38	Liquid Air freshener for Shoes, 400 ml	Btl.
39	Liquid Air freshener for Toilet, 400 ml	Btl.

Liquid Air Fresheners

Eco-friendly

Ambientadores líquidos , Ecológico
エコ液体消臭剤　液体空气清新剂 环保型



Plant-based formula, non-toxic, non-flammable, non-carcinogenic, non-harmful to marine and aquatic life. Complies with all current and forthcoming legislation, including EC Detergent Regulation 648/2004 and REACH 1907/2006.

Bottle made from 30% recycled plastic.

55 03 45	Liquid air freshener, eco-friendly, 750 ml	Btl.
55 03 46	Refill for liquid air freshener, eco-friendly, 5 ltr	Btl.

Deodorizing Coagulant Powder

Polvo coagulante desodorante
脱臭・凝固剂　除臭凝固剂



Sprinkle this powder and cover the vomits or excrement. Quickly absorbs, congeals, and deodorizes vomits.

55 03 34	Deodorizing coagulant powder 10 kg	Pkt.

Disinfecting Deodorant

Desodorante desinfectante
除菌消臭剂　杀菌除臭剂



For disinfecting the bacteria and degrading disagreeable odors in the room, locker, refrigerator or any places. Tear open the outer package, remove inner package and place or hang in area to be deodorized.

Effective space for 1 unit is aprox. 20m²., lasting 2-3 month. Available from 50 pkt/ Case.

55 03 35	Disinfecting deodorant, 50'pkt	C/S

Toilet Odor Balls

Bolas Quitaolores　オーダー球　厕所香气球

For removing disagreeable odors in toilets. Just put into the urine pot. Supplied 60 balls per carton.



55 03 36	Toilet odor ball	Pc.

Drain Pipe Cleaner

Desatascador de Tuberías　パイプクリーナー　排水管除垢剤

A plumbing detergent designed to dissolve clogs in pipes. Dissolves everything except glass or metal without damaging the piping.



Caution!

Harmful. Do not use with bare hands or expose to the skin. Do not use on dishes or aluminium.

Unit Per Btl.

CODE	Size	CODE	Size
55 03 40	250 grm	55 03 42	1 kg
41	500 grm	43	5 kg

Liquid Metal Polish

Limpiametales　液体金属磨　液体金属抛光剂

For polishing almost all metals, such as brass, copper, nickel, chrome, stainless steel, aluminium and even for machinery and golf clubs.



55 03 51	Metal polish, liquid,	300 grm	Tin
52	"	360 grm	"

Stainless Steel Cleaner and Polish

Limpiametales para Acero-inoxidable
ステンレスクリーナー&ポリッシュ
不锈钢除垢剂及抛光剂

Cleans and polishes in just one operation. Resists finger-printing and masks surface blemishes on stainless steel, chrome, architectural aluminium and laminated plastic. Contains harmless food grade oil petroleum distillates.



55 03 55	Cleaner & polish, spray stainless steel 600 ml	Tin

Paste Metal Polish

Pasta Limpiametales　金属磨ペースト　浆糊金属抛光剂

Same as liquid metal polish but for precision machine or shaft grinding. Furnished in 250 grm tins.



55 03 58	Metal polish, paste, 250 grm	Tin

Glass & Stainless Steel Cleaners

Eco-friendly

Limpiacristales y acero inoxidable, Ecológico
エコガラス&ステンレスクリーナー
玻璃和不锈钢清洁剂 环保型



Plant-based formula, biodegradable, ammonia-free, non-toxic, non-flammable, non-carcinogenic, non-harmful to marine and aquatic life. Also suitable for use on plastics, chrome, ceramics and laminates. Complies with all current and forthcoming legislation, including EC Detergent Regulation 648/2004 and REACH 1907/2006. Bottle made from 40% recycled plastic.

55 03 59	Glass & stainless steel cleaner, eco-friendly, 750 ml	Btl.
55 03 60	Refill for glass & stainless steel cleaner, 5 ltr	Btl.

Liquid Furniture Polish

Liquidpo Anrillantaador para Muebles
液体家具磨　液体家具抛光剂

This liquid polish can clean and keep furniture, wood corridors, linoleum tile, porcelain, stonework, leather, and metal in good condition. Mix with water or apply two or three drops to wet cloth and clean. Wipe surface with dry cloth after cleaning.



55 03 61	Polish, liquid, furniture	200 cc	Btl.
62	"	400 cc	"
63	"	1.13 ltr	"
64	"	4.5 ltr	"

Spray Furniture Polish

Rociador Limpiamuebles スプレー家具磨　喷射家具抛光剂

For polishing furniture and keeping a good luster. Instant aerosol spray can clean tables, sideboards or any other furniture made of wood.



55 03 68	Furniture polish spray	250 grm	Tin
69	"	420 grm	"

Plain Wood Polish Liquid

Liquidpo para Pulir Madera
白木用光沢剤　普通木头抛光液

For polishing unvarnished or unpainted wood surfaces. Maintains the natural wood finish and protects against dust, scratches, etc. Furnished in liquid or paste types.



Unit Per Tin

CODE	Size	CODE	Size
Liquid		Paste	
55 03 75	500 cc tin	55 03 80	260 grm tin
74	700 cc tin	81	500 grm tin
76	1 ltr tin		
77	2 ltr tin		
78	4 ltr tin		

Varnished Floor Polish Liquid

Barniz para Suelos　ニス塗り木床用光沢剤　涂漆地板抛光液

For polishing varnished wood floors. Protects from dust and scratching.

Unit Per Tin

CODE	Size	CODE	Size
55 03 84 **85**	500 cc tin 1 ltr tin	**55 03 86** **87**	2 ltr tin 4 ltr tin

Floor Cleaners

Eco-friendly

Limpiadores de suelos , Ecológico
床用エコクリーナー　地板清洁剂 环保



Powerful cleaners suitable for use on any hard surface. These cleaners are specially formulated for use on floors, although they are also suitable for other surfaces. Its natural ingredients provide fast and effective cleaning. Allergen-free fragrances. Cruelty free. Dermatologically tested. Recycled and recyclable packaging. No dangers, no transport restrictions.

55 03 88	Floor cleaner eco-friendly, 5 ltr	Btl.

Tile Emulsion Polish

Emulsion Limpiadora Azulejos
化学タイル用水性ワックス　瓷砖乳液抛光剂

For cleaning and polishing chemical floor tiles. Will not leave behind a slippery surface after waxing.

Unit Per Tin

CODE	Size	CODE	Size
55 03 90 **91**	500 cc tin 1 ltr tin	**55 03 92** **93**	2 ltr tin 4 ltr tin

Carpet Shampoo & Cleaner

Champu y Limpiador de Alfombras
カーペットクリーナー　地毯洗涤液及除垢剂

Carpet shampoo and cleaner remove dirt and restore a carpet to its original texture. No need for hard scrubbing because the dirt is lifted to the surface automatically where it can be brushed or vacuumed clean.

55 03 96	Carpet shampoo, spray, 480 cc	Tin
97	Carpet cleaner, liquid, 4 ltr	"
98	Carpet cleaner, liquid, 18 ltr	"

Floor Maintenance Products

Products de Mantenimiento de Suelos
フロアメインテナンス製品　地板保养工具



Liquid wax for use in floor cleaning and maintenance. When ordering, please specify the name and size of the product you require.

Summary List

CODE	Name	Size	Coverage per 18 ltr	Alternative in U.S.A.
	Floor Stripper（床用剥離剤）			
55 05 02	New Super All-go	18 ltr	450-900 m²	Freedom
55 05 03	Power Go	18 ltr	450-900 m²	Pro Strip
04	New Powerful Bika	18 ltr	-	Bravo Heavy Duty Stripper
05	Get Off	18 ltr	450-900 m²	Bravo
	Floor Cleaner（表面洗浄剤）			
55 05 07	Forward (Non phosphorus)	18 ltr		Go Forward
08	Big Bare	18 ltr		No Comparable
10	Forward Non Rinse	18 ltr		Forward DC
12	Neutra Fresh	18 ltr		Stride
	Wood Floor Maintenance（木床管理製品）			
55 05 18	Sted Fast	18 ltr	600-1,200 m²	Traffic Wax Paste
19	Gymace	18 ltr	1,100 m²	No Comparable
	Synthetic Chemical Floor Maintenance（化学床管理製品） **Self Shining Type Synthetic Resin Wax**（樹脂仕上げ剤）			
55 05 32	Stardom	18 ltr	1,200 m²	Complete
33	Complete S	5 gal	1,200 m²	Complete
36	Super Complete	18 ltr	1,200 m²	Complete
39	John Star	18 ltr	1,500 m²	Vectra
42	Impress Coat	18 ltr	1,500 m²	Vectra
45	Non-buff	18 ltr	1,500 m²	No Comparable
46	Neutra Coat	18 ltr	1,200 m²	ZF 175
	Hi-solid Synthetic Resin Finish（高濃度樹脂仕上げ剤）			
55 05 48	Jsaver	18 ltr	1,200 m²	Signature
49	Pro Stage	18 ltr	1,200 m²	Premia
50	Fast Step	18 ltr	1,200 m²	Show Place
51	Grandprix	18 ltr	1,200 m²	Show Place
52	Centurion	18 ltr	1,200 m²	Show Place
	Buffable Type Water Emulsion Wax（水性ワックス）			
55 05 56	T/G	18 ltr	1,200 m²	No Comparable
	Sealer（シーラー）			
55 05 64	Basic Coat	18 ltr	1,200 m²	Technique
66	Concrete Sealer	18 ltr	400-1,000 m²	JX-4000

Floor Stripper

Unit Per Can

CODE	Name	Size	Remark
55 05 02	New Super All-go	18 ltr	Powerful fast stripper
03	Power Go	18 ltr	Ultra powerful fast stripper
04	New Powerful Bika	18 ltr	Wax stripper
05	Get Off	18 ltr	Fast stripper

Floor Cleaner

Unit Per Can

CODE	Name	Size	Remark
55 05 07	Forward (Non phosphorus)	18 ltr	General purpose cleaner
08	Big Bare	18 ltr	General purpose cleaner
10	Forward Non Rinse	18 ltr	General purpose disinfectant cleaner
12	Neutra Fresh	18 ltr	General purpose neutral cleaner

Wood Floor Maintenance

Unit Per Can

CODE	Name	Size	Remark
55 05 18	Sted Fast	18 ltr	Polishing wax for wood floors
19	Gymace	18 ltr	Finish for wood floors

Synthetic Chemical Floor Maintenance

Mantenimiento para Suelos Químico Sintético
化学床メインテナンス製品
人造地板保养化学品



Synthetic Resin Wax Self Shining Type

Cera de Resina Sintética　樹脂ワックス　地板蜡

Unit Per Can

CODE	Name	Size	Remark
55 05 32	Stardom	18 ltr	High gloss floor finish
33	Complete S	5 gal	Toughest long lasting floor finish wax
36	Super Complete	18 ltr	Metal-interlock floor finish
39	John Star	18 ltr	High gloss floor finish
42	Impress Coat	18 ltr	High gloss floor finish
45	Non-buff	18 ltr	Self shining, non buff, non-slip
46	Neutra Coat	18 ltr	Zinc-free finish

Hi-solid Synthetic Resin Finish

"Finalizador" de Resina Alta Sintética
高濃度樹脂仕上げ剤　地板抛光剂

Unit Per Can

CODE	Name	Size	Remark
55 05 48	Jsaver	18 ltr	High performance UHS finish
49	Pro Stage	18 ltr	Ultra high-speed floor finish
50	Fast Step	18 ltr	High performance floor finish
51	Grandprix	18 ltr	High performance floor finish
52	Centurion	18 ltr	High performance floor finish

Water Emulsion Wax Buffable Type

Cera de Emulsión Acuosa/Tipo Puliente
水性ワックス　水性乳状蜡

Unit Per Can

CODE	Name	Size	Remark
55 05 56	T/G	18 ltr	Self polishing floor finish

Sealer

Sellador　シーラー　封闭机

Unit Per Can

CODE	Name	Size	Remark
55 05 64	Basic Coat	18 ltr	Long lasting sealer/Base coat
66	Concrete Sealer	18 ltr	Concrete sealer/Finish

Pine Scent Disinfectant Solution

Solición Desinfectante Fragancia de Pino
パインオイル消毒液　松香消毒液

Contains ingredients such as soap, pine oil, and Isopropyl Alcohol. This solution kills germs such as the influenza virus and gerous staph and strep on surfaces preventing the spread of germs in kitchens and bathrooms.

CODE	Contents per	Unit
55 06 01	500 ml	Btl.
02	4 ltr	Tin
03	18 ltr	Can

Insecticide Fluid

Insecticida Líquido　スイチオン殺虫剤　杀虫液

Excellent Insecticide with quick & lasting effects. Highly effective in disabling flies, maggots, mosquitoes, mosquito larvae, fleas, bedbugs, cockroaches & house ticks.

55 06 06	Insecticide fluid 4 ltr	Can
07	" 18 ltr	Tin

Insecticide Residual

Insecticida residual　残留殺虫剤　杀虫剂残留

The product fights effectively the crawling insects. Residual effect is 6 to 12 months. Solvent base formulation.



Spray



Liquid

55 06 10	Insecticide residual spray, 400ml	Tin
55 06 08	Insecticide residual liquid, 5 ltr	Btl.

Disinfectant Liquid "Cresol"

Líquido Desinfectante "Cresol"
クレゾール石鹸液　"Cresol" 消毒液

Used for general disinfection, has phenolic order.

55 06 11	Disinfectant liquid cresol 500 cc	Btl.
12	" 18 ltr	Tin

Disinfectant Liquid "Phenol" *(Carbolic Acid)*

Líquido Desinfectante "Fenoll" (Ácido Carbólico)
液状フェノール　"Phenol" 消毒液

Antiseptic, disinfectant and germicide for external use only. Never use on wounds and ulcerations. Also used for general disinfection, and antiseptic purpose.



Caution!

Toxic by ingestion, inhalation and skin absorption.

55 06 16	Disinfectant liquid phenol 500 ml	Btl.
17	" 18 ltr	Tin

Acetic/Citric Acid Disinfectant Liquid

Líquido desinfectante ácido acético/cítrico
酢酸 / クエン酸消毒液　醋酸 / 柠檬酸消毒液

Contains minimum 60% of acetic or citric acid liquid. This solution kills germs such as the influenza virus and staph and strep on surfaces preventing the spread of germs in kitchens and bathrooms.

55 06 18	Disinfectant liquid, acetic/citric acid	Ltr

Plastic Pump Spray Bottles

Botellas pulverizadoras de plástico
プラスティック製スプレーボトル　塑料泵式喷雾瓶



General purpose pump spray bottles for spreading any liquids such as cleaning liquid or disinfectant liquid etc.

55 06 19	Pump spray bottles, plastic 500 ml	Btl.

Cockroach Killers

Mata-cucarachas, Aerosol　ゴキブリスプレー　灭蟑螂药



Aerosol cockroach killer with a rapid disabling effect. For use indoors. Has a pleasant fragrance.

CODE	Contents	Unit
55 06 21	300 ml	Tin
22	600 ml	Tin

Insect Killers

Insecticida, Aerosol　殺虫剤　杀虫剂



Aerosol insect killer which will eliminate insects and prevent them from entering the accommodations.

CODE	Contents	Unit
55 06 24	300 ml	Tin
25	600 ml	Tin

Insecticide Powder

Insecticida en Polvo　殺虫剤　杀虫粉

Effective for the control of flies, fly larvae, mosquitoes, mosquito larvae, cockroaches, fleas, bedbugs and house-ticks.

Application is made by dusting over the places where harmful insects are liable to breed.

55 06 27	Insecticide powder, 500 grm	Btl.

Rat Poison

Veneno para Ratas　ラットライス　鼠药

Improved rat poison that kills rats when they feed upon it. Supplied in 125 grm packets with 12 packets in a case.

55 06 30	Rat poison, 125 grm	Pkt.

Self-Heating Cockroach Fumigator

Fumigador Auto-calentamiento para Cucaracha
ゴキブリ退治器　自动加热蟑螂熏蒸剂



Begins working when the lid is removed to fumigate insects effectively.

Features:

1. Heats up when in contact with air and disperses an effective vapor.
2. Kills all exposed insects: cockroaches, house ticks, bedbugs, fleas, flies, mosquitoes, gnats, etc.
3. Flashing effect - infected insects will die after being flushed out from where they hide and breed.
4. Easy to use - just remove the cap.
5. Safe pyrethrin chemical used.
6. Applications: cabin, galley, store rooms, etc.

Instructions for use:

1. Open cabinets, doors and drawers in the area to be treated.
2. Close doors and windows and shut off all fans and air conditioning.
3. Place the canister in the center of the room.
4. Exit after opening the lid and keep the area closed for 1 - 3 hours.

Unit Per Pc.

CODE	Main Ingredient Content	Unit	Capacity
55 06 35	20 grm	Pc.	10 - 13 m^2
36	40 grm	"	20 - 26 m^2
37	60 grm	"	30 - 40 m^2
38	80 grm	"	40 - 50 m^2

Disposable Cockroach Traps

Trampas Desechables para Cucaracha
ゴキブリホイホイ　一次性蟑螂夹



Easiest, cleanest way ever to kill roaches without poisons or chemicals harmful to humans and pets.

The cockroach trap works in a completely different way. It consists of a mini house with special insect glue and special food bait that lures roaches inside the trap where they are caught and die.

55 06 40	Cockroach trap with special food bait 5's	Pkt.

Sanitary Items for Quarantine Inspection

Sanitary Items for Quarantine Inspection
船舶衛生検査品目　船舶卫生检查用品

The listed below are standard items required to maintain ship in a sanitary condition by local quarantine office.

Items	IMPA Code	Remarks
*** Rat Guards**		
Rat Guard	23 23 61 - 64	At least the number of mooring ropes and 2 spares.
*** Rat Traps**		
Rat Trap	17 43 52 - 53	At least 5 traps.
*** Rat Poisons**		
Rat Poison	55 06 30	At least 500 grm of rat poisons.
*** Insecticides**		
Insecticide Fluid Sprayer or Insect Killer	55 06 06 55 06 60 - 61 55 06 24 - 25	At least 1 to 2 ltr emulsion insecticide, or At least 1 to 2 dozens aerosol (300 ml) insecticide.
*** Disinfectant for Portable Water**		
Sodium Hypochlorite Solution	55 06 71	At least 5 ltrs of disinfectants.
General Disinfectants		
Disinfectant Liquid "Phenol" and Disinfectant Liquid "Cresol"	55 06 16 55 06 11	500 grm x 3 - 5 btls 500 grm x 3 - 5 btls

Smoke Insecticides

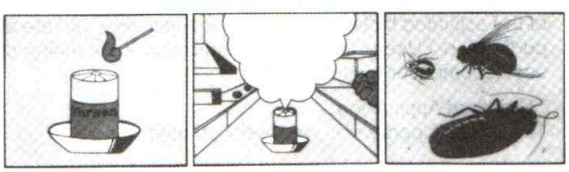
Insecticidas de Humo　バルサン　烟雾杀虫剂



An insecticidal smoke generator containing Permethrin as the active ingredient. Highly effective for the control of cockroaches, house ticks, bedbugs, fleas, and larvae of fly and mosquitoes in buildings, vessel-holds, warehouses, ships, restaurants, hospitals and factories. When fumigated, insecticidal smoke is emitted penetrating into every corner and hard-to-reach place to eradicate the insects.

Features:

1. Highly effective both in knockdowns and long-lasting effects.
2. Flushes insects from hiding places and kills them.
3. Simple to use, ignite the wick of the can with a match.
4. Not harmful to people or animals.
5. Does not corrode metals.



Standard amounts to be used for Covering Space

Size of Tin / Insects to be exterminated	No.3 120 grm	No.2 240 grm	No.1 480 grm
Cockroaches, house ticks, bedbugs, etc.	100-134M³	200-267M³	400-533M³
Larvae of fly and mosquito	200-400M³	400-800M³	800-1,600M³

CODE	Nominal Size of Tin	Actual Size	Packaging	Unit
55 06 51	No. 3	120 grm tin	40/Case	Tin
52	No. 2	240 grm tin	12/Case	"
53	No. 1	480 grm tin	12/Case	"

Handy Sprayers

Aerosoles Tipo Manual　噴霧器　喷雾器



Tin made handy sprayer for insecticides, etc.

55 06 60	Sprayer, handy	Pc.

Shoulder Sprayers

Mochila Desinfeccion　肩掛け噴霧器　背式喷雾器



For spraying insecticide or any liquid by utilizing a hand pump. Can be carried on the shoulder for easy use anywhere.

55 06 61	Sprayer shoulder type	4 ltr	Set
62	"	10 ltr	"
63	"	11 ltr	"

Drinking Water Disinfectant

Hadex

Desinfectante para agua potable

飲料水用消毒剤　饮用水消毒剂

A safe, effective and easily applied product, especially intended for disinfecting drinking water in tanks and pipelines. Also keeps the drinking water in good condition.

A liquid product which mixes quickly and easily with water for immediate use. Hadex starts disinfecting immediately, and the water is ready for consumption after a short period of only 30 minutes.

Hadex treatment is based on the tried and tested use of chlorine in the preparation and final treatment of drinking water with long shelf life at least one year under normal conditions (Temperature = 25 deg. C).

Hadex has been tested and approved by a number of maritime authorities, such as ; the Dutch Ministry of Health (CTB registration No.9574 N), the Dutch Directorate General for Shipping and Maritime Affairs – Shipping Inspection Division NSI (NL), DOT (UK), NMD (Norway), DNV and NATO.

There are three standard dosages for drinking water treatment in most situations.

- Suitable for standard Hadex proportional dosing installations for single flow through drinking water systems.
- Automatic dosing installations for drinking circulation water systems.
- 30ml, dropper bottles for the individual users such as travelers.

Available in 1, 2.5, 10 and 25 litre polythene containers. Non inflammable or explosive.

Unit Per Can

CODE	Contents	CODE	Contents
55 06 65	1 ltr	**55 06 67**	10 ltr
66	2.5 ltr	**68**	25 ltr

Name of Mfr.: Hatenboer - Water

Fruit and Vegetable Extra-Shelf-Life Cleaners "ORGACURE®"

Limpiador para prolongar la frescura de frutas y verduras
生鮮食保存期間延長用抗菌クリーナー
生鮮食品保存时间延长用抗菌粉末



Antibacterial and antibrowning washing powder to keep whole and fresh-cut fruits, vegetables and salads safe, fresh and with extra shelf-life (All-in-one). No aftertaste, no residues, no waste. Sustainable, 100% food-grade product. Pour 1 teaspoon per liter tap water, dip fruits and vegetables for 60 sec. in solution, take off, drain well and serve directly or store cold and consume within 7 days. Safe to dispose directly into the sewer. Approved by Agri-Food & Veterinary Authority (AVA) Singapore.

CODE	Contents	Unit
55 06 69	Orgacure powder, 500 grm x 3 pouch	C/T
70	Orgacure powder, 1 kg x 5 pouch	C/T

Name of Mfr. : Orgacure B.V.

Sodium Hypochlorite Solution

Solución de Hipoclorito de Sodio
飲料水用消毒剤　磁氯酸钠溶液



6 % Sodium Hypochlorite (NaClO) solution. Disinfectant for use in drinking water. Use one drop of solution per 10 ltrs of drinking water, 600 ml of solution per 36 tons of drinking water.

55 06 71	Sodium hypochlorite solution,	600 cc	Btl.
72	"	18 ltr	Can

Attention!

The industrial chemicals and cleaning agents in this section have been provided with information about their chemical properties and any hazards which may be involved with their use. Discretion and care must always be taken in reading the instructions for the proper storage and use of chemical products. To avoid careless injury, always wear protective clothing, gloves, face shield, or respirator when indicated so in the chemicals instructions.









Sewage Sanitary Disinfectant

(Chlorinated Isocyanurate Tablet)

Desintectante para Aguas Residuales De Sanitario
污水消毒錠剤　污水卫生消毒剂



The Chlorinated Isocyanurate has excellent characteristics and advantages compared with conventional inorganic chlorine compounds.

It is a tablet formulated from chlorinated isocyanuric acid with good chemical stability for algae control, effluent treatment, and disinfection of septic tanks. Available Chlorine is 65%, and packed in special made strong carton drums.

CODE	Weight	Contents	Unit
55 06 76	10 kg	15 grm/tablet × 20 tab/pkt × 33 pkt	C/T
77	15 kg	15 grm/tablet x 1,000 tab	"

IMPORTANT!

Direction for Storage and Handling



Chlorinated Isocyanurate (C.I.) tablets are strong oxidizing agents, which release chlorine on contact with water. Care should be exercised, therefore, in their storage; all C.I. tablets should be stored under cool dry conditions. They should be stored away from water, moisture, ammonium compounds, amines, oil, grease, any easily oxidizable matter, strong acids, alkalis, and sources of heat. No sweepings or waste should be put into bins, as accidental contamination with easily oxidizable matter could cause ignition and fire.

Decomposers for Ship Digestion Tank Activated Microbial Preparation

1) For the maintenance of sewage devices, the regular application of decomposer stabilizes effluent qualities and prevents the treatment equipment from malfunctioning.

   * Standard Application
   60 g / 1 person / 1 day, every 10 days

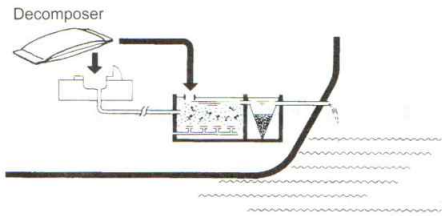
2) For seeding at the initial start of new plants or as treatment measures after drawing off sludge. Addition to the decomposer will shorten the lag period of decomposition of the activated biological masses and increase the rate of purification. Use of micro-organisms: at the beginning of use decomposer must be added.

   * Standard Application
   15 – 25 g / 1 person / 1 day, every 10 days

3) Early recovery from accidents (foul smell, bad effluent). In the case where the device is deteriorated due to a change in the quality of flushing water or the tank environment, decomposer assures early recovery of performance and stable operation of the device.

   * Standard Application
   15 – 50 g / 1 person / 1 day, every 5 – 10 days

Apply the appropriate amount of decomposer into a toilet bowl and flush 2 – 3 times.



55 06 80	Activated microbial preparation decomposes 10 kg	C/T

Microzyme Sewage Liquid

Microzyme Líquido para Aguas Residuales
汚水処理用微生物分解促進液　微酶污水处理液

A concentrated blend of liquid living aerobic and anaerobic bacteria especially selected for the unique ability to produce active enzymes, which are required for the degradation of sanitation wastes. It is naturally occurring and is not genetically engineered. Therefore, it is safe for usage under all types of applications. With its unique ability to formulate bacteria strains, which produce large amounts of amylase (starch), protease (protein), cellulase (cellulose), and lipase (grease), if used on a routine basis, it will supplement the bacteria normally present and thereby degrade waste material more rapidly and with greater efficiency.

55 06 81	Microzyme Sewage Liquid, 10 ltr	Can
55 06 82	Microzyme Sewage Liquid, 25 ltr	Can

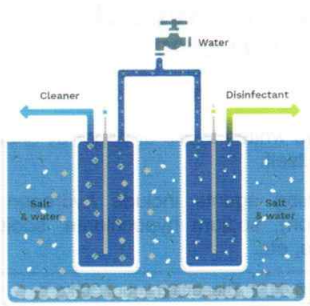
ECA Water Generating Device

Dispositivo Generador de Agua ECA
ECA ウォーター生成装置　ECA 制水装置

ECA (Electro-Chemically Activated) Water is created by electrolysis using ordinary water and salt to create an effective sustainable cleaning and sanitizing solution. The process recombines the sodium and chlorine in salt (NaCl) with the hydrogen and oxygen in water (H2O) to produce hypochlorous acid (HOCl) and sodium hydroxide (NaOH). This creates a powerful liquid cleaner and disinfectant that can be used on almost all surfaces. ECA Water is completely hypoallergenic, non-toxic and environmentally friendly while being safer, and more effective than standard bleach. To reduce waste, the system produces ECA water on-demand, helping to not only reduce chemical usage but also reduce plastics, costs, logistics, transport contributing to a lower carbon footprint.

ECA Water systems can be supplied with stand or without stand, and require power and a fresh water supply, so please specify the type when ordering.





Specification

Model	Flow 40 Device (no stand)	Flow 40 Plus (with stand)
Power	90 to 264 VAC, 1,700 W(max)	
Dimension (mm)	H:750 × W:540 × D:300	H:1,630 × W:545 × D:535
Weight (kg)	35	75

55 06 85	ECA water generating device, complete	Set

Name of Mfr.: Tower Supplies

Drinking Distilled Water Additives

Aditivo para Agua Destilada para Beber
蒸留水飲用添加剤　饮用蒸馏水添加剂

A distilled water additive for drinking water. By applying this additive, well balanced essentials to maintain human health are composed and distilled water is turned into uninjurious water.

1. Add this additive at the ratio of 100 g (100 ppm) to 1 ton of drinking water.
2. Inject a previously dissolved 2 - 3% solution into the drinking water tank.

Example:

In case of drinking water of 5 tons. Take 20 ltr of drinking water in a dissolving container (Bucket or any other similar containers) of exclusive use and dissolve 500 g of additives in it, and then feed it into the drinking water tank.

Physical Properties

Appearance	Water color and granular product
pH (1% solution)	7.0 ± 0.5
Special gravity (1% solution)	1.008 ± 0.05

55 06 84	Distilled water additive for drinking water 10 kg	C/T

Distilled Water

Agua Destilada　蒸留水　蒸馏水

Pure, distilled water for refilling batteries or accumulators. Supplied in 500 cc or 20 ltr plastic containers.

55 06 88	Distilled water, 500 cc	Btl
89	" 20 ltr	"

Water Purifiers

Depuradoras de agua　浄水器　净水器



All-in-one component system to install easily in mess room, kitchen, bridge or engine room that eliminates contaminants or impurities from water by filters and ensure it is suitable for drinking and cooking. It helps to reduce plastic drinking water bottles to contributes to SDGs. Mainly two types are available, tap type which will purify the water within the system and connect directly to the water tap, or the independent server type. Filters need to be replaced in certain period to maintain the quality of water. There are several manufacturers providing this system, so please specify the type, manufacturer, model when ordering.

55 06 90	Tap type with filter, complete	Set
55 06 91	Replacement filter for tap type	Set
55 06 92	Server type with filter, complete	Set
55 06 93	Replacement filter for saver type	Set

Acetone, CH_3COCH_3
(Dimethylketone)

Acetona　アセトン　丙酮

A colourless, volatile liquid with a sweetish odor. **This chemical is flammable and presents a dangerous fire risk.** Used as a paint, varnish, and lacquer solvent or as a spinning solvent to clean and dry parts of precision equipment.



55 08 01	Acetone 500 ml	Btl.
02	Acetone 14 kg	Can

Activated Alumina

Alumina Activada　活性アルミナ　活性氧化铝

A highly porous, granular form of aluminium oxide having preferential adsorptive capacity for moisture and odor contained in gases and some liquids. When saturated, it can be regenerated by heat. The cycle of adsorption and reactivation can be repeated many times. Used as a catalyst or carrier in chromatography, and in water purification.

55 08 06	Alumina activated, 500 grm	Btl.
07	" 15 kg	Can
08	" 160 kg	Drm

Activated Carbon
(Activated Charcoal/Coconut)

Carbón Activo　活性炭　活性炭

An amorphous form of carbon characterized by high adsorptivity for many gases, vapors, and colloidal solids.

Used for water and air purification, solvent recovery, waste treatment, removal of sulfur oxide from stack gases and "clean" rooms as a deodorant, and for air conditioning.

55 08 12	Activated carbon 15 kg	Bag

Aluminium Oxide, Al_2O_3

Óxido de Aluminio　酸化アルミニウム　氧化铝

Non flammable, white powder, balls or lumps of various mesh. Used for absorbing gases and water vapors.

Industrially used for the manufacture of abrasives, electrical insulators, catalyst and catalyst supports.

55 08 15	Aluminium oxide 500 grm	Btl.
16	" 20 kg	C/T

Ammonium Chloride

Cloruro Amónico　塩化アンモニウム　氯化铵

White crystals, cool saline smell, somewhat hygroscopic. Soluble in water and glycerol. Used for dry batteries, dyeing and painting, soldering flux, fertilizer, electroplating, washing powder, etc.

55 08 20	Ammonium chloride 500 grm	Btl
21	" 25 kg	Bag

Ammonia Solution

Solución Amoníaca　アンモニア水　氨水

For general cleaning and chemical purposes.



55 08 25	Ammonia solution, 500 grm	Btl.
26	" 18 kgs	"

Barium Chloride, $BaCl_2 \cdot 2H_2O$

Cloruro de Bario　塩化バリウム　氯化钡

Colourless flat crystals. Soluble in water. **Toxic by ingestion**. Used as a chemical reagent, lubrication oil additive, boiler compound, textile dyeing, pigments, etc.



55 08 30	Barium chloride, 500 grm	Btl.
31	" 25 kg	Bag

Benzene, C_6H_6

Benceno　ベンゼン　苯

A colourless to light yellow, mobile, nonpolar liquid of highly retractive nature; aromatic odor; vapors burn with a smoky flame. **Flammable, dangerous fire risk.** Used in the manufacture of ethylbenzene (for styrene monomer); dodecylbenzene (for detergents) maleic anhydride, benzene sulfonic acid, as a solvent.



55 08 34	Benzene 500 cc	Btl.

Benzine - Ligroin

Bencina-Ligroin　ベンジン　轻质汽油

A saturated, volatile fraction of petroleum boiling in the range of 60 – 100 °C. There is a special grade of ligroin known as petroleum benzine.





Highly flammable, dangerous fire risk. Toxic by ingestion and inhalation. Used as a solvent for resins, paints, varnishes, etc.

55 08 36	Benzine, 500 cc	Btl.

Calcium Chloride, $CaCl_2$ or $CaCl_2 \cdot H_2O$

Cloruro de Calci　塩化カルシウム　氯化钙

White, deliquescent crystals, granules, lumps or flakes.

Used for de-icing and dust control for thawing refrigeration brines, and as a drying and desiccating agent.

55 08 40	Calcium chloride, flake 25 kg	Bag

Calcium Hypochlorite Solution
(Bleaching Liquor)

Solución de Hipoclorito de Calcio (Licor para Blanquear)
さらし液（次亜塩素酸カルシウム溶液）　漂白粉溶液

Used to whiten textile or paper by chemical action. Also the agent itself.

Bleaching agents include hydrogen peroxide (the most common), sodium hypochlorite, sodium peroxide, sodium chlorite, etc.

55 08 44	Bleaching liquor 30 kg	Can

Calcium Hypochlorite, $Ca(OCl)_2$

Hipoclorito de Calcio　次亜塩素酸カルシウム　次氯酸钙





A white, solid, crystalline oxidizing material. **Hazard: Toxic by ingestion, skin contact, and inhalation. Dangerous fire risk when in contact with organic materials.**

Used as an algicide, bactericide, deodorant, portable water purifier, and disinfectant for swimming pools, etc.

55 08 47	Calcium hypochlorite 500 grm	Btl.
48	" 20 kg	Bag

Calcium Hydroxide , $Ca(OH)_2$

(Slaked Lime or Lime Powder)

Hidroxido de Calcio (Aal Apagada o Polvo de Calcio)　消石灰　氢氧化钙

Soft, white crystalline powder with an alkaline, slightly bitter taste.

Used for mortar, cements, white wash, soil conditioner, drying hold, and cleaning.

55 08 50	Calcium hydroxide, 20 kg	Bag

Carbon Tetrachloride, CCl_4

Teraclporuro de Carbono　四塩化炭素　四氯化碳





Colourless liquid, vapor 5.3 times heavier than air. **Hazard: Toxic by ingestion, inhalation, and skin absorption.**

Use: As a refrigerant, metal degreaser, agricultural fumigant, solvent, or for chlorinating organic compounds.

55 08 60	Carbon tetrachloride 500 grm	Btl.
61	" 25 kg	Can

Industrial Castor Oil

Aceite de Ricino Industrial　工業用ヒマシ油　工业用蓖麻油

Pale yellow or almost colourless, transparent, viscid liquid with a taint, mild odor.

Use: Plasticizer in lacquers and nitrocellulose, polyurethane coatings, elastomers and adhesives, surface acting agents, industrial lubricants, electrical insulating compounds, etc.

55 08 65	Industrial castor oil, 500 grm	Btl.
66	" 17 kg	Can

Caustic Soda, NaOH

Sodium Hydroxide

Sosa Cáustia, NaOH Hidróxido de Spdio
苛性ソーダ　烧碱、苛性钠、氢氧化钠



White deliquescent solid, chiefly in the form of beads or pellets.

Hazard: Corrosive to tissue in the presence of moisture. Strong irritant to tissue (eyes, skin, mucous membrane).

Used as a detergent.

55 08 70	Caustic soda, flake 225 grm	Btl.
71	" 500 grm	Can
72	" 15 kg	"
73	" 25 kg	Bag
55 08 75	Caustic soda, block 5 kg	Can
76	" 10 kg	"
77	" 20 kg	"

Soda Ash

(Cenizas de) Cal　ソーダ灰　纯碱（苏打灰）

Grayish white powder or lumps containing up to 99 % sodium carbonate. Soluble in water, non combustible, non toxic.

Used for soap and detergents, water treatment, cleaning preparation, etc.

55 08 80	Soda ash, 25 kg	Bag

Common Crystal Soda, $Na_2CO_3 \cdot H_2O$

Sodium Carbonate

Soda Cristal Común　洗いソーダ　普通石碱

White, odorless, small crystals or crystalline powder. Used for cleaning and as a boiler compound. Also used for the pH control of water and for cleaning and bleeding textiles.

55 08 83	Crystal soda 20 kg	Bag
84	" 25 kg	"

Chlorothene NU

(Motor Clean)

Cloroteno NU (Limpieza Motor)　クロローセン　氯乙烯 NU

Dow chemical product name for a series of chlorinated organic solvents. Used for cold cleansing metal parts as an industrial solvent. **Avoid prolonged inhalation of the vapor or repeated contact with the skin.**

55 08 86	Chlorothene NU, 24 kg	Can

Denatured Alcohol

Alcohol Desnaturalzado　変性アルコール　变性酒精



A mixture or 95 % ethyl alcohol and 5 % water with an additive for denaturing. Unfit for use as a beverage.

Hazard: Flammable, dangerous fire risk. May be toxic by ingestion.

Used as a solvent, antifreeze, brake fluid, or fuel.

55 08 90	Denatured alcohol, 500 grm	Btl.
91	" 14 kg	Can
92	" 200 ltr	Drum

Methanol CH_3OH

(Methyl Alcohol, Wood Alcohol)

Metanol CH3OH　メタノール　甲醇





Clear, colourless, mobile, highly polar liquid.

Hazard:Flammable, dangerous fire risk. Toxic by ingestion (causes blindness).

Used as an antifreeze, solvent for nitrocellulose, chemical synthesis, fuel for utility plants, etc.

55 08 95	Methanol 500 ml	Btl.
96	" 14 kg	Can
97	" 160 kg	Drum

Dimethyl Sulfoxide, $(CH_3)_2SO$

Dimetil Sulfóxido ジメチルスルホキサイド 二甲亚砜

Colourless, hygroscopic liquid.

Hazard: Readily penetrates skin and other tissues. Combustible.





Used for industrial cleaners, paint stripping, and in hydraulic fluids.

55 09 01	Dimethyl sulfoxide 500 ml	Btl.

Dolomites, $CaMg(Co_3)_2$

Dolomitas ドロマイト 大理石

A carbonate of calcium and magnesium. Non-combustible.

Used as a refractory for furnaces, in the manufacture of magnesium compounds and magnesium metals, etc.

55 09 04	Dolomite, 30 kg	Bag

Ethylene Glycol, CH_2OHCH_2OH

Etilenglicol エチレングリコール 乙二醇

Clear, colourless, syrupy liquid which lowers the freezing point of water. Odorless and soluble in water, alcohol and acetone.



Hazard: Toxic by ingestion and inhalation.

Used as a coolant and antifreeze, asphalt emulsion paint, heat transfer agent, brake fluid, solvent, or foam stabilizer.

55 09 07	Ethylene glycol 500 ml	Btl.
08	" 20 kg	Can

Ferrous Sulfate, $FeSO_4 \cdot 7H_2O$

Sulfato de Hierro 硫酸第一鉄 硫酸亚铁

Greenish or yellow-brown crystals or granules. Odorless and soluble in water. Extracted from nickel steel, or waste sulfuric acid of oxide titanium.

Mainly used for corrosion control of the seawater side of a condenser or for water and sewage treatment.

55 09 11	Ferrous sulfate 25 kg	Bag

Glycerine, $C_3H_5(OH)_3$

Glicerina グリセリン 丙三醇

Clear, colourless, odorless, syrupy liquid. Combustible and has low toxicity. Used as a solvent and as a binder for cements and mixes. Also used in special soap, lubricants, softeners, hydraulic fluid, the antifreeze mixture for emergency generators and lifeboat diesel engines.

55 09 14	Glycerine, 500 grm	Btl.
15	" 5 kg	Can
16	" 22 kg	"

Hydrochloric Acid

Ácido Hidroclórico 塩酸 盐酸

A colourless or slightly yellow, fuming, pungent liquid. **A strong, highly corrosive acid which is highly toxic by ingestion and inhalation and is a strong irritant to the eyes and skin.**



Used for the removal of boiler scale, for picking and metal cleaning, industrial acidizing, general cleaning, and as a laboratory reagent.

55 09 20	Hydrochloric acid, 500 grm	Btl.
21	" 23 kg	"
22	" 18 kg	"

Hydrochloric Acid Solution

Solución de Ácido Hidroclórico) 塩酸液 盐酸溶液 NU

Contains 18 ltr in a bottle.

55 09 24	Hydrochloric acid solution, 18 ltr.	Btl.

Hydrogen Peroxide, H_2O_2

Peróxido de Hidrógeno 過酸化水素 过氧化氢

Concentrated solutions are highly toxic and very strong irritants.





Hazard: Dangerous fire and explosion risk, strong oxidizing agent.

Use: Bleaching and deodorizing of textiles, wood, pulp, hair, fur, etc. Also used as an antiseptic or in refining and cleaning metals. Sometimes used as a substitute for chlorine in water and sewage treatment.

55 09 27	Hydrogen peroxide, 20 kg	Btl.

Magnesium Oxide, MgO

Óxido de Magnesio 酸化マグネシウム 氧化镁

White powder, slightly soluble in water, soluble in acids and ammonium salt solutions. Non combustible.



Toxic if the fumes are inhaled.

Used for refractories, especially for steel furnace linings, electrical insulation, removal of sulfur dioxide from stack gases, etc.

55 09 30	Magnesium oxide 500 grm	Btl.
31	" 15 kg	Bag

Nitric Acid

Ácido Nítrico 硝酸 硝酸

Transparent, colourless or yellowish corrosive liquid. A strong oxidizing agent that will attack almost all metals.







Hazard: Dangerous fire risk in contact with organic materials. Highly toxic by inhalation, corrosive to the skin and mucous membranes.

Use: Organic synthesis (dyes, drugs, explosives, cellulose nitrate, nitrate salts), photoengraving, etching steel.

55 09 37 38	Nitric acid 500 grm " 25 kg	Btl. "

Oxalic Acid, $HOOCCOOH \cdot 2H_2O$

Ácido Oxálico 蓚酸 草酸

Transparent, colourless crystals.



Hazard: Toxic by inhalation and ingestion, strong irritant.

Uses: General metal and equipment cleaning, purifying agent and intermediate for many compounds.

55 09 41 42	Oxalic acid, 500 grm " 25 kg	Btl. Bag

Potassium Bichromate, $K_2Cr_2O_7$

Bicromato Potásico 重クロム酸カリ 重铬酸钾

Bright, yellowish - red, transparent crystals, bitter, metallic taste.





Hazard: Toxic by ingestion and inhalation. Dangerous fire risk in contact with organic materials. Strong oxidizing agent.

Use: Analytical reagent; brass pickling compositions; electroplating; chrome glues and adhesives, depolarizer in dry cell batteries.

55 09 45	Potassium bichromate, 25 kg	Can

Potassium Chromate, K_2CrO_4

Cromato Potasico クロム酸カリウム 铬酸钾

Yellow crystals, soluble in water.

Hazard: Toxic by ingestion and inhalation.

Use: Reagent in analytical chemistry, aniline black, chromate pigments.

55 09 47 48	Potassium chromate, 500 grm " 20 kg	Btl. Can

Silica Gel

Gel de Silice シリカゲル 硅胶

A regenerate adsorbent consisting of amorphous silica. Non-combustible.

Use: Dehumidifying and dehydrating agent, air conditioning, drying of compressed air and other gases, and liquids such as refrigerants and oils containing water in suspension.

55 09 51 52	Silica gel 500 grm " 12.5 kg	Can "

Sodium Bicarbonate, $NaHCO_3$

Bicarbonato de Sodio 重炭酸ナトリウム 碳酸氢钠

White powder or crystalline lumps; cooling slightly alkaline taste; soluble in water.

Use: Manufacture of rubber, gold and platinum plating, fire extinguishers, cleaning preparations, lab reagent, antacid, etc.

55 09 55 56	Sodium bicarbonate,500 grm " 25 kg	Pkt. Bag

Sodium Borate or Borax, $Na_2B_4O_7$

Borato o Bórax de Sodio ホウ砂 硼砂

Safe and efficient, white, free flowing crystal cleaner for general cleaning, and washing painted, varnished, and enameled surfaces, kitchen cabinets, refrigerators, etc. Also used in soldering flux.

55 09 58	Sodium borate, 500 grm	Pkt.

Sodium Hypochlorite, $NaOCl \cdot 5H_2O$

Hipoclorito de Sodio 次亜塩素酸ソーダ 次氯酸钠

Unstable in air unless mixed with sodium hydroxide.







Strong oxidizing agent, usually stored and used in solution, disagreeable, sweetish odor and pale greenish colour. Soluble in cold water.

Hazard: Fire risk in contact with organic materials. Toxic by ingestion, strong irritant to tissue.

Use: Bleaching paper, pulp, textiles, etc. Water purification, fungicide, reagent, germicide.

55 09 60	Sodium hypochlorite 20 kg	Btl.

Sodium Phosphate, Tribasic, $Na_3PO_4 \cdot 12H_2O$

Fosfato de Sodio Tribasico リン酸三ナトリウム 三盐基磷酸钠

Colourless crystals, soluble in water. Non flammable.

Use: Water softeners, boiler water compounds, detergent, metal cleaner, paint removers, industrial cleaners.

55 09 63	Sodium phosphate, tribasic, 25 kg	Bag

Sodium Silicate or Water Glasses

Silicato de Sodio o Cristales
リン珪酸ソーダ・水ガラスナトリウム 硅化钠或水玻璃

Non combustible, non toxic, so called water glass, soluble glass or liquid glass. For mixing with soap, anti-fire agents, cement hardener, and water softener, etc.

55 09 66 67	Sodium silicate, 500 grm " 25 kg	Btl. Can

Sulfamic Acid, $HOSO_2NH_2$

Ácido Sulfámico スルファミン酸 氨基磺酸

White crystalline solid, non volatile, non hygroscopic. Soluble in water and odorless. **Toxic by ingestion.**

Use: Metal and ceramic cleaning, amine sulfamates, pH control, hard-water scale removal, electroplating.

55 09 70 71	Sulfamic acid 500 grm " 25 kg	Btl. Bag

Sulphuric Acid, H_2SO_4

Ácido Sulfámico 濃硫酸 硫酸



Strongly corrosive, dense, oily liquid. Very reactive, dissolves most metals; concentrated acid oxidizes, dehydrates, or sulfonates most organic compounds.

Hazard: Strong irritant to tissue. Use great caution in mixing with water because of heat evolution that causes explosive spattering. Always add the acid to the water, never the reverse.

Use: An alkylation catalyst, electroplating baths, iron and steel, lab reagent, non ferrous metallurgy.

55 09 74	Sulphuric acid	500 grm	Btl.
75	"	35 kg	"
76	"	20 kg	"

Sulphuric Acid Dilution

Solución de Ácido Sulfúrico 希硫酸 稀硫酸

Gravity 1: 1.24 acid for use in a lead type battery.

55 09 78	Sulphuric acid dilution	500 grm	Btl.
79	"	30 kg	"
80	"	20 kg	"

Toluene, $C_6H_5CH_3$

Tolueno トルエン 甲苯



Colourless liquid, benzene-like odor. Soluble in alcohol, benzene, and ether; insoluble in water.

Hazard: Flammable, dangerous fire risk, toxic by ingestion, inhalation, and skin absorption.

Use: Aviation gasoline and high octane blending stock. Also used as a solvent for paints and coating diluent, and thinner for nitrocellulose lacquers.

55 09 81	Toluene	18 ltr	Can
82	"	200 ltr	Drum

Trichloroethylene, $CHCl:CCl_2$

Tricloroetileno トリクレン 三氯乙烯



Stable, low boiling, colourless, photoreactive liquid.

Non flammable, **toxic by inhalation.**

Use: Metal degreasing, solvent dyeing, dry cleaning; refrigerant and heat - exchange liquid; fumigant; cleaning and drying electronic parts, diluent in paints and adhesives.

55 09 85	Trichloroethylene,	500 grm	Btl.
86	"	25 kg	Can

Zinc Chloride, $ZnCl_2$

Cloruro de Zinc 塩化亜鉛 氯化锌



White granular deliquescent crystals or crystalline powder. Severe irritant to skin and tissue. Used as a dehydrating and condensing agent in organic synthesis: fire proofing and preserving wood: soldering fluxes, electroplating, antiseptic and deodorant preparations.

55 09 90	Zinc chloride,	500 grm	Btl.
91	"	25 kg	Bag

Urea Water, $CO(NH_2)_2$

Agua de urea 尿素水 尿素水

Marine Urea Solution, also known as AUS40, is a 40% urea-based solution used for the purpose of reducing Nitrogen Oxides (NOx) emission from vessels' exhaust pipes.

55 09 92	Urea water, 40% solution	Ltr

Neutralizer for Ballast Water Chemical Treatment Systems

Neutralizante para sistemas de tratamiento químico de aguas de lastre
バラスト水薬剤処理用中和剤 压载水化学处 理用中和剂

Sodium Sulfite, Anhydrous - Na2SO3
Sodium Metabisulfite, Anhydrous - Na2O5
Sodium Thiosulfate Pentahydrate - Na2S2O3 5H2O
Sodium Thiosulfate, Anhydrous - Na2S2O3

Since September 2017, International Convention for the Control and Management of Ship's Ballast Water and Sediments has been issued and required neutralizer for ballast water treatment equipment. Under this treaty, all vessels are required for applicable management for ballast water due to avoid damage against marine environment. When de-ballasting it is effect to make harmless by injection of neutralizer in ballast water. Each neutralizer is usually available in 25 kgs/bag.

CODE	Description	**/Cl2 1ppm~10,000t
55 09 96	Sodium Sulfite, Anhydrous	17.8 kg
97	Sodium Metabisulfite, Anhydrous	13.4 kg
98	Sodium Thiosulfate Pentahydrate	8.7 kg
99	Sodium Thiosulfate, Anhydrous	5.5 kg

** Amount of neutralizer required to neutralize Chlorine. This is theoretical quantity by calculation and may differ from the amount actually requires.

Marine Chemicals

Productos Químicos Marinos 船用化学薬品 船用化学药品

Chemical products for marine engine maintenance, tank cleaning, fuel additives, water treatment, etc. There are many of these products; only popular items are listed below with their common name.

We have provided the marine chemicals comparison table with brand names from major chemical manufacturers over the world.

When it is necessary to use any appointed brand, please specify the manufacturer's name and brand name with the code number.

How to order: CODE
DESCRIPTION, LTR, MANUFACTURER'S NAME and BRAND (Can or Drm)

Unit Per Can or Drm.

CODE	Description	Application	Ltr/Can
55 10 01	Degreaser	General degreaser for machine & parts, and various cargo tanks	18
55 10 02			200
55 10 05	Air intercooler cleaner	Cleaning of air inter-cooler of main engine & generator	18
55 10 06			200
55 10 11	Water soluble degreaser	General purpose degreaser for machinery, parts, or hand cleaning purposes.	18
55 10 12			200
55 10 16	Alkaline cleaner	Powdered alkaline cleaner for animal or vegetable oil tanks and painted surfaces of walls or floors	18
55 10 17			200
55 10 21	Electric motor cleaner	Electric motor cleaner for electric motor, parts and appliances	18
55 10 22			200
55 10 23	Ultrasonic Cleaner	Water-based multipurpose cleaning liquid for use in ultrasonic baths and cleaning machines.	25
55 10 24			200
55 10 26	Carbon solvent for oil carbon	Carbon solvent for oil carbon, and for cleaning of strainer, piston & F.O.burner	18
55 10 27			200
55 10 31	Carbon solvent for hard carbon	Carbon solvent for hard carbon, and cleaning of strainer, piston & F.O.burner	18
55 10 36	Cleaning cooling system-Neutrality	Cleaner for main engine cooling system	18
55 10 37	Cleaning cooling system-Alkalinity		18
55 10 41	Tank cleaner for fuel oil tank	Fuel oil & cargo oil tank cleaner	18
55 10 42			200
55 10 46	Fuel oil additive for sludge dispersion & water separation	Dispersion of sludge component & water separation in fuel oil	18
55 10 47			200
55 10 51	Fuel oil additive for sludge dispersion	Prevention of sludge formation	18
55 10 52			200
55 10 56	Fuel oil additive combustion catalytic type	Prevention of high temperature corrosion, ash sticking, and soot & smoke	18
55 10 57			200
55 10 61	Fuel oil additive combustion catalytic type, concentrated	Prevention of corrosion, carbon & ash deposition, soot fire & smoke	18
55 10 62			200
55 10 63	Fuel oil additive lubricity improver	For gas oil and diesel oil	18
55 10 64	Fuel oil additive anti-mold sterilizer	For diesel oil	18
55 10 65	Fuel oil additive cold oil improver	For marine gas oil (MGO) and marine diesel oil (MDO)	18
55 10 66	Emulsion breaker	For heavy oil & fuel oil, and as sludge breaker of fuel oil tank	18
55 10 67			200
55 10 71	Demulsifying accelerator	Anti-emulsifier and emulsion breaker for recycling purifier water	18

(to be continued)

55 10 76	Oil spill clean up agent	Emulsion/dispersion type	18
55 10 77			200
55 10 81	Rust remover	For heat exchanger, evaporator, boiler, removes mill scale & red rust	18
55 10 82	Scale remover		18
55 10 88	Cement & lime remover	Diluted with water, for cargo hold cleaning	18
55 10 89	Cargo hold cleaning agent	Heavy duty alkaline cleaner for petroleum coke	18
55 10 86	Cooling water treatment	Corrosion inhibitor for the fresh water cooling system of the internal combustion engine	18
55 10 95			200
55 10 90	Disinfectant for cooling water	For contamination in the cooling water	10
55 10 91	Boiler water treatment	Boiler water treatment for low pressure service	18
55 10 92	Evaporator treatment	Prevention of scale deposition in high and low-pressure evaporators	18
55 10 93	Purifier detergent	For cleaning the purifier	18
55 10 94	Marine organism adhesion inhibitor	For preventing marine organism in sea water system	25

HOCNF & CEFAS Offshore Cleaning Chemicals

Productos químicos de limpieza en alta mar HOCNF & CEFAS

HOCNF/CEFAS 認証済みオフショア用洗浄剤

HOCNF/CEFAS 获得认证的海上清洁剂

For Offshore Cleaning Chemicals for offshore use, approved by OSPAR Guidelines for Completing **the Harmonised Offshore Chemical Notification Format (HOCNF) & The Centre for Environment, Fisheries and Aquaculture Science (CEFAS).**

Unit Per Can or Drm.

CODE	Product	Content	Description
55 15 05 06	Unitor Cleanrig CHP	200 ltr 1,000 ltr	A water-based rig cleaner specially designed to provide efficient cleaning and optimum environmental and handling properties. It contains unique environmentally adapted surfactants, pH regulating additives and corrosion inhibitors allowing removal of oil spills, sludge, oil and water based mud, dirt and grime from all surfaces included painted.
55 15 07 08	Unitor Cleanrig CHP 50%	200 ltr 1,000 ltr	
55 15 09 10	Unitor Cleanrig CHP RTU	200 ltr 1,000 ltr	
55 15 28	Unitor Scaleclean EX	25 kg	An environmental adapted and highly effective rust and carbonate remover designed for use in production equipment, boiler, evaporators, etc.

(to be continued)

Unit Per Can or Drm.

CODE	Product	Content	Description
55 15 29	Unitor Cleanphase CB	25 ltr	A degreaser for removing oil, wax, sludge and mud. It is based on a low toxic solvent and emulsifier that eaily split after settling. The product is ideal for cleaning especially tough contamination from drilling, well operations and other activities leaving hydrocarbon-based residues.
55 15 30	Unitor Electrosol Plus	25 ltr	A highly concentrated solvent based product for cleaning and degreasing electrical equipment. It provides rapid penetration, quick clean-up and does not attack insulation.
55 15 54	Unitor Scaleclean DL	25 ltr	Rust and carbonate remover containing an acid and wetting gents. It is designed for use in production equipment, boilers, evaporators, etc.
55 15 55 56	Unitor Uniclean	25 ltr 200 ltr	An advanced micro-emulsion cleaner, which combines the properties of a water and solvent based cleaners. Due to its unique properties, it ensures safe handling while in use and also reducing hazards related to covering and hosing the material to be removed. The specially selected surfactants allow maximum penetration of oil and grease while hazards are kept at a minimum. This ensures the product to safely react and remove oil, grease, dirt, sludge and grime. The special surfactants will effectively keep the removed contamination in water solution while being flushed to the drain.

Biodegradable Marine Descaler "Rydlyme Marine®"

Descamador naval biodegradable

生分解性ディスケーラー　　生物可降解除垢剂

An innovative biodegradable descaler designed for the marine industry to improve the performance of vital water systems by safely dissolving deposits, such as Water Scale/ Calcium, Rust, Lime Scale, Barnacles, Zebra Mussels, and Tiger Shells. Applications will be Boilers, Condensers, Keel Coolers, Tube Bundles, Bow Thrusters, Engine Cooling Systems, Heat Exchangers, Air Conditioning, Main and Aux Sea Water Systems and more. Rydlyme Marine can be used for any material except for some metals such as galvanized/zinc, magnesium and some aluminium. 100% biodegradable, non-toxic and non-hazardous. Unlike other chemical descalers and traditional harsh acids, this can be safely handled by personnel and you can even hold it in your bare hand without injury.



CODE	Contents	CODE	Contents
55 10 83	15 ltr / case	**55 10 85**	209 ltr / drum
84	18 ltr / pail	**87**	1,249 ltr / tote

Name of Mfr. : Apex Engineering Products Corporation

Biodegradable Degreaser

Desengrasante Biodegradable

生分解性デグリーサー　　生物分解去油污

A waterbased, quick separating degreaser. Most effective and economical and being fully biodegradable it will not harm marine life. To be effective many types of substances, such as grease, fat, oil, soot, dirt, tar, etc.



Unit Per Can

55 15 01 02	Multi Purpose, 25 ltr Multi Purpose, 205 ltr	**55 15 03 04**	Heavy Duty, 35 ltr Heavy Duty, 105 ltr

Maintenance Cleaner and Degreaser Loctite®

Limpiador y desengrasador　　洗浄・油除去剤　　清洁剂及除油剂

Developed for the toughest cleaning jobs in industrial environments. The broad product range comprises high-tech solutions for removing paint from surfaces (graffiti), cleaning hands, floors, commercial vehicles, boats, awnings, tanks, pipes and many other applications.



Unit Per Can

CODE	Type	Size	Memo.	Characteristics
55 15 13 14	7012	5 ltr 20 ltr	Best for painted surface washing	General cleaner and degreaser for heavy contaminants; cleaning of all metal mechanical parts, synthetical substances, rubber and painted surfaces; solvent-free; can be applied by spraying, dipping and manually; application concentration: 10 to 500 grm/ltr.
55 15 15 16	7013	5 ltr 20 ltr	Best for general parts washing	General cleaner for removal of all kind of contaminants; solvent-free; use undiluted, just apply a sufficient amount of product using the brush or hand shower; application concentration: ready-to-use.

(to be continued)

Unit Per Can

CODE	Type	Size	Memo.	Characteristics
55 15 17 18	7018	5 ltr 20 ltr	Best for high pressure washing applications	High pressure cleaner for removal of dirt, oil and grease from washable surfaces; solvent-free, biodegradable; to be applied using spray equipment or foam generating machine; application concentration: 5 to 500 grm/ltr.
55 15 11 19	7840	750 ml 5 ltr	–	Natural Blue; universal cleaner for removal of dirt, oil and grease from washable surfaces such as engine parts, ovens, exhaust hoods, drilling rigs; to be used manually or with cleaning equipment; solvent-free and biodegradable; pine-scented, non-flammable and non-toxic; contains no ODCs.
55 15 20 21	7860	5 ltr 20 ltr	–	Low Foam Floor Cleaner for daily cleaning of sensitive floor materials; ideal to be used in floor cleaning equipment and also suitable for manual application; solvent-free; application concentration: 25 to 100 grm/ltr.
55 15 22 23	7861	5 ltr 20 ltr	–	Heavy-duty Floor Cleaner for concrete floors; applicable with high-pressure and steam equipment; solvent-free; application concentration: 50 to 200 grm/ltr.

Name of Mfr.: Henkel

Cleaner and Degreaser Henkel BONDERITE®

Limpiador y desengrasador 洗浄・油除去剤 清洁剂及除油剂

The products selected in this table provide the right solution for practically any cleaning or degreasing task you might encounter on board.

Unit Per Can

CODE	Product Name	Size	Application	Product Details
55 15 31	BONDERITE® Grato Marine Shine Shampoo	5 kg	Alkaline deck shampoo	Shampoo for general maintenance cleaning with brightening effect. Application concentration: 2 - 5%.
55 15 32	BONDERITE® Grato Marine Acid	1 ltr	Acid cleaner for deck and flash rust removal	Removal of flash rust and acid teak deck shampoo. Application concentration: 10 - 50%.
55 15 33	BONDERITE® Grato Marine Cleaner	1 ltr	Concentrated cleaning product for difficult cleaning operations	For all deep cleaning, cleaning and renovation of all rubber and plastic parts, leather seats, life boats etc. pH neutral - safe in use. Application concentration: 10 - 100%.
55 15 34	BONDERITE® Grato Marine Glass Cleaner	1 ltr	Glass and plastic cleaner	Residue-free removal of grease, nicotine, insects, etc. Suitable for all glass and plastic surfaces. Ready to use wipe on - wipe off cleaner in 1 ltr bottle with trigger.
55 15 35	BONDERITE® Grato Marine Polish	1 kg	Cleaning and renovation polish	Ready to use polish for stainless steel and aluminium. Shining, UV and salt water resistant finish.
55 15 36 37	BONDERITE® Grato 3000	20 kg 200 kg	One for all high concentrated alkaline cleaner/ degreaser	Allround degreaser for efficient removal of grease, fats, light flash rust, etc. To be used on all kind or surfaces of machines, parts, painted surfaces or glass. Application concentration: from 1 - 30%, depending on the soiling degree.
55 15 38	BONDERITE® Grato 3100	26 kg	Light alkaline high concentrated allround cleaner/ degreaser	For general cleaning / degreasing operations on more sensitive surfaces (e.g. aluminium). To be used on all kind of surfaces from machines, parts, painted surfaces, glass, etc. Application concentration: 1 - 30%, from 15°C and beyond, depending on the soiling degree.
55 15 39	BONDERITE® Grato ACD 1166	26 kg	Acid cleaner for lime and oxide removal	For removal of mineral soilings and weak greasy pollutions. Phosphoric acid free. Application concentration: 3 - 30% at 20 - 40°C.

(to be continued)

(to be continued)

Unit Per Can

CODE	Product Name	Size	Application	Product Details
55 15 40	BONDERITE® Grato 1166	15 kg	Phosphoric acid cleaner with detergents	For removal of corrosion of all metals. Removes fats and salts. Spot cleaner after cleaning fats and fatty acids. Safe on painted surfaces and odorless. Application concentration: 1 - 30% at 20 - 80°C.
55 15 41 42	BONDERITE® A	20 kg 210 kg	Neutral soap	For general neutral cleaning of all surfaces and applications; not corrosive nor toxic; well foaming; IMO approval. Application concentration: 1 - 20% at 20 - 40°C.
55 15 43	BONDERITE® Glin Floor	10.5 kg	Mild low foaming floor cleaner	For daily cleaning of all kind of floors. Leaves protection layer. Ideal for use in floor cleaning machines. Application concentration: 5 - 10% at room temperature.
55 15 44	BONDERITE® Glin	25 kg	Mild alkaline universal degreaser	Universal, liquid cleaner for the cleaning of work shops and machines. Nicely perfumed. Ideal for manual application. High demulsifying properties. Safe solvent, phosphate and alkali free product. Application concentration: 5 - 30% at room temperature.
55 15 45	BONDERITE® Glin G 5	10×1.4 kg	Renovation paste	Ready to use special paste to remove mineral deposits and oily contamination of all surfaces. Abrasive action but without scratching the surface. To be used at room temperature.

(to be continued)

55 15 46	BONDERITE® Grato 12	31 kg	Light alkaline degreaser	Concentrate for high pressure cleaning of engines and machinery parts. High demulsifying properties. Contains rust protection agent. Application concentration: 5 - 30 % at room temperature up to 40°C.
55 15 47	BONDERITE® Grato 80	35 kg	Alkaline high pressure and steam jet cleaner	High concentrated degreaser for heavy duty operations. Usable on steel and colored metals. Contains inhibitor for use on aluminium. Application concentration: 5 - 20% at room temperature up to 80°C.
55 15 48	BONDERITE® Solvclean 106	24 kg	Emulgator free cold cleaner	Solvent based cleaner for removal of oil contaminations. Usable manually or in steam jet cleaner. Application concentration: 20 - 100%.
55 15 49	BONDERITE® X	7.5 kg	Universal cleaning powder	Fast soluble powder for all general cleaning/ degreasing tasks (e.g. floors, deck, machines, cloths, etc.); IMO approval. Application concentration: 50 - 100 grm/ltr.
55 15 50	BONDERITE® X Liquid	10 kg	Alkaline water based cleaner	Removes vegetable, mineral and animal grease and oils. Can be used on all surfaces (steel, aluminium, painted, etc.); good demulsifying properties. Application concentration: 3 - 20% from room temperature up to 80°C, depending on soil degree.

(to be continued)

Unit Per Can

CODE	Product Name	Size	Application	Product Details
55 15 51	Novaclean N	36 kg	Neutral deruster	Neutral deruster & descaler for ferrous and non ferrous metals in spray and immersion processes. Replaces acid or strong alkaline products. Application concentration: 10 - 20% at 20 - 60°C.
55 15 52	Turco VK 5	21 kg	Liquid silicate free alkaline cleaner	Heavy duty cleaner for high performance degreasing and removal of combustion residues and animal and vegetable fats. Application concentration: 1 - 20% at room temperature.
55 15 53	Turco Plaudit 3752	18 kg	Multi purpose light alkaline cleaner	Removes shop soils, road grime, greases and lube oils from concrete floors, transportation equipment, construction equipment, drilling equipment and specialized parts. Phosphate and solvent free. Application concentration: 2 - 10% at room temperature.

Green Degreaser 68

Desengrasador verde 68 biodegradable

生分解性デグリーサー　可生物降解除油剂

A non-ionic water-based highly concentrated blend of biobased cleaning compounds with anti-static effect, good tolerance to hard or soft water, good anti-redepositing capacity and deep cleaning chemistry. It is an environmentally safe cleaner, degreaser, solvent, lubricant and specialty chemical product that derived from renewable, bio-degradable resources for a broad range of industrial application.

It is effective to remove tough-to-clean substances such as oil, grease, dirt and accumulated industrial stains on heavy equipment, tools/parts and machinery. Obtained the "Green Label" from the Singapore Environment Council.

Uses and Applications;

A super active alkaline-based colloidal cleaning compound that is particularly effective in heavy-duty applications for general cleaning. It is safe on all surfaces when used as directed. As a concentrate, it is particularly economical in that it can be mixed with water to the desired strength that will adequately perform the cleaning task. It is an effective cleaner in the following categories: All purpose cleaning/degreasing for industrial cleaner, Bilge cleaner, marine cleaner and metal processing for maritime, Oil spills for oil dispersing.

CODE	Contents	CODE	Contents
55 15 61	5 ltr/can	**55 15 63**	200 ltr/drum
62	25 ltr/can		

Name of Mfr.: Marine Diesel Services Pte Ltd.

Technical Cleaning Liquids

Líquidos de limpieza técnica　特殊クリーニング液　特殊清洁液



Unit Per Pc.

CODE	Product	Content	Description
55 15 64 **65** **66**	Surface Cleaner	5 ltr 10 ltr 30 ltr	Surface Cleaner is used for cleaning and degreasing surfaces to be joined or sealed with WEICON adhesives and sealants.
55 15 71 **72** **73**	Cleaner S	5 ltr 10 ltr 30 ltr	Removes all oily and greasy soilings even gummy lubricants, without leaving residues. Cleans all metals, ceramics, glass and most plastics.
55 15 67 **68** **69**	Plastic-Cleaner	5 ltr 10 ltr 30 ltr	Plastic Cleaner cleans and degreases plastics and is ideal for pre-treating surfaces when bonding sensitive plastics, rubbers or lacquered materials.
55 15 70 **80** **81**	Brake Cleaner	5 ltr 10 ltr 30 ltr	Universal cleaner, especially for the automotive industry (brakes, clutches, gear boxes, etc.). Evaporates without leaving residues.
55 15 82 **83** **84**	Electro Contact Cleaner	5 ltr 10 ltr 30 ltr	Cleaning and degreasing of electrotechnical or mechanical parts, like e. g. electric machines, measuring instruments, balances, switches or sensors. Also ideal for all electric connections, contacts, relays and switchboard plants.
55 15 85 **86** **87**	Citrus Cleaner	5 ltr 10 ltr 30 ltr	Cleaner and degreaser on the basis of citrus essences. Removes quickly adhesive residues, oils, greases, resin, tar, lubricants, rubber residues as well as residues of lead, felt and ball pens.
55 15 74 **75** **76**	Parts and Assembly Cleaner	5 ltr 10 ltr 30 ltr	Cleaner with especially long working time, especially for coarse, oily and greasy soiling as well as for cleaning bigger areas. Due to the high flash point, it corresponds to the VbF Classification A III.
55 15 88 **89** **90**	Sealant and Adhesive Remover	5 ltr 10 ltr 30 ltr	Removes residues of hardened sealants and adhesives as well as lacquers and paints.
55 15 77 **78** **79**	Workshop-Cleaner	5 ltr 10 ltr 30 ltr	Workshop Cleaner cleans and degreases all metals, plastics, rubbers, glass, ceramics and wood. Free of solvents and phosphates. Bio-degradable.

(to be continued)

Unit Per Pc.

CODE	Product	Content	Description
55 15 91 92 93 94 95	Metal-Fluid	100 ml 500 ml 5 ltr 10 ltr 30 ltr	Highly-effective product for indoor care, protection and cleaning of mat and polished metal surfaces, e. g. Stainless steel, aluminium, chrome, nonferrous heavy metal etc.
55 15 96 97 98	Silicone	5 ltr 10 ltr 30 ltr	Ideal sliding and release agent which prevents the build-up of adhesive residues and prevents products from sticking to conveyor belts, chutes and slideways.
55 15 99 55 16 00 21	AT-44	5 ltr 10 ltr 30 ltr	Allround spray with PTFE for corrosion prevention, cleaning, lubrication, preservation and water displacement.
55 16 22 23 24	W 44 T®	5 ltr 10 ltr 30 ltr	Allround problem solver: loosens rust, displaces moisture, eliminates squeaky noises, cleans metal surfaces, protects and preserves tools.
55 16 25 26 27	Rust Loosener	5 ltr 10 ltr 30 ltr	With 6-fold function: loosens rust, displaces water, ensures contact, protects against corrosion, lubricates sliding surfaces and preserves metals.
55 16 28 29 30	Bio Welding Protection	5 ltr 10 ltr 30 ltr	Prevents adhesion of weld spatter to welding nozzles and to surfaces adjacent to the weld without affecting the welding seam itself. Biodegradable - silicone free.
55 16 31 32 33	Leak Detector	5 ltr 10 ltr 30 ltr	Non flammable compound used for fast, convenient and reliable location of even the smallest leaks approved for use in gas pipelines (DIN/ DVGW Approval NG-5170AO0666).

Name of Mfr.: Weicon GmbH & Co. KG

(to be continued)

Marine Chemical Comparison Table

CODE	Ltr	Usage & Application	Wilhelmsen (Norway) (ex NALFLEET)	Wilhelmsen (Norway) (ex UNITOR)	VECOM (The Netherlands)	DREW MARINE (U.S.A)	MARICHEM (Greece)	CHEMO (Greece)
55 10 01	18	Degreaser	-	Coldwash HD, 25 ltr Cleanbreak, 25 ltr Filtercare, 25 ltr	GP Degreaser, 25 ltr Quick Split Cleaner, 25 ltr	Oil Grease Remover, 25 ltr DREWFRESH 2000 25 ltr DREWCLEAN 3000 25 ltr	Oil & Grease Remover HD 999, 25 ltr Oil &Grease Remover, 25 ltr	Oil & Sludge Remover, 25 ltr
55 10 02	200		-	-	GP Degreaser, 200 ltr or 208 ltr	-	Oil & Grease Remover HD 999, 210 ltr Oil & Grease Remover, 210 ltr	Oil & Sludge Remover, 210 ltr
55 10 05	18	Air Inter-Cooler Cleaner	-	Air Cooler Cleaner, 25 ltr ACC Plus, 25 ltr	Air Cooler Cleaner, 25 ltr	ACC-9, 25 ltr ACC-ME, 25 ltr	Air Cooler Cleaner & Air Cooler Cleaner L.T., 25 ltr ACC NG, 25 ltr	Air Cooler Cleaner, 25 ltr Chemoclean ACC LT, 25 ltr
55 10 06	200		-	-	Air Cooler Cleaner, 200 ltr	-	Air Cooler Cleaner & Air Cooler Cleaner L.T., 210 ltr ACC NG, 210 ltr	Air Cooler Cleaner, 210 ltr Chemoclean ACC LT, 210 ltr
55 10 11	18	Water Soluble Degreaser	-	Aqua-break Px, 25 ltr Enviroclean, 25 ltr	Multicleaner, 25 ltr Ecoclean, 25 ltr GP Enviro, 25 ltr	Enviromate-2000, 25 ltr EDGE, 25 ltr	General Cleaning & Solvent, 30 ltr Alcactive Liquid, 30 ltr Mariclean DG-25, 30 ltr Liquid Soap, 30 ltr	Fresh Force Kleen, 30 ltr Enviropower HD, 25 ltr, Super Red Plus, 30 ltr, Holdbrite, 30 ltr
55 10 12	200		-	-	Multicleaner, 200 ltr or 208 ltr	-	Mariclean DG - 25, 210 ltr	Fresh Force Kleen, 210 ltr Enviropower HD, 210 ltr, Super Red Plus, 210 ltr, Holdbrite, 210 ltr
55 10 16	18	Alkaline Cleaner	RO Alkaline Cleaner, 25 ltr	Alkleen Liquid, 25 ltr Aquatuff High Foam, 25 ltr H. P. Wash, 25 ltr Ultraclean GO, 25 ltr Aquatuff, 25 ltr Alkleen Safety Liquid, 25 ltr Aquabreak PX, 25 ltr Enviroclean, 25 lLtr Multiclean, 25 ltr Fore & Aft, 25 ltr	Tankclean Alkaline, 25 ltr Waterbased Alkaline Foam, 25 ltr Steamclean HPC-NF, 25 ltr	LAC, 25 ltr EDGE 25 ltr	Alcaclean H.D., 30 ltr	Alkasolvent Liquid,30 ltr Alkasafe Cleaner, 30 ltr Alkasolvent Liquid (POT), 30 ltr Holdbrite, 30 ltr
55 10 17	200		-	Alkleen Liquid, 210 ltr Alkleen Safety Liquid, 210 ltr	Tankclean Alkaline, 200 ltr or 208 ltr Waterbased Alkaline Foam, 200 ltr or 208 ltr	LAC, 200 ltr EDGE, 200 ltr-	Alcaclean HD, 210 ltr, Alcaclean XF, 210 ltr	Alkasolvent Liquid, 210 ltr, Alkasafe Cleaner, 210 ltr Holdbrite, 210 ltr

(to be continued)

CODE	Ltr	Usage & Application		Wilhelmsen (Norway) (ex NALFLEET)	Wilhelmsen (Norway) (ex UNITOR)	VECOM (The Netherlands)	DREW MARINE (U.S.A)	MARICHEM (Greece)	CHEMO (Greece)
55 10 21	18	Electric Motor Cleaner		-	Electro-solve-E, 25 ltr	Electroclean Slow, 25 ltr Electroclean Fast, 20 ltr Electroclean CF, 25 ltr	Drew Electric 2000, 25 ltr	Electroclean A, 25 ltr Electroclean B, 25 ltr Electroclean Superfast, 25 ltr Electroclean Enviro, 25 ltr Electroclean Eco Quick, 25 ltr	Lectra Kleen, 25 ltr Electroclean 316, 25 ltr Electroclean Fast, 25 ltr Electroclean Non Flammable, 25 ltr
55 10 22	200			-	-	Electroclean CF, 200 ltr or 208 ltr Electroclean Slow, 200 ltr or 208 ltr	-	-	-
55 10 23	25	Ultrasonic Cleaner		-	Ultraclean GO, 25 Ltr	Ultrasonic Cleaner, 25 ltr	-	USC Plus, 30ltr	-
55 10 24	200			-	-	Ultrasonic Cleaner, 200 ltr	-	-	-
55 10 26	18	Carbon Solvent	For Oil Carbon	-	Carbon Remover, 25 ltr Carbonclean LT,25 ltr	Carbon Remover NC, 25 ltr Filterclean, 25 ltr	Carbon Remover, 25 ltr	Carbon Remover, 25 ltr Marichem C.R. – LT., 25 ltr	Carbon Remover Super, 25 ltr Chemoclean Carbon LT, 25 ltr
55 10 27	200			-	-	Carbon Remover NC, 200 ltr or 208 ltr	-	-	-
55 10 31	18		For Hard Carbon	-	Carbon Remover, 25 ltr	Carbon Remover NC, 25 ltr Filterclean, 25 ltr	SNC-2000, 25ltr	Carbon Remover, 25 ltr	Carbon Remover Super, 25 ltr Chemoclean Carbon LT, 25 ltr
55 10 36	18/ 200	Cleaning Cooling Systems	Neutrality	-	Commissioning Cleaner, 25 ltr	Gp Degreaser, 25 ltr Descaling Liquid Extra, 25 ltr	HDE-777, 25 ltr DREWFRESH 2000 FERROCLEAN	Oil & Grease Remover HD 999, 25 ltr Oil & Grease Remover, 25 ltr	Degreaser HD, 25 ltr Degreaser HD, 210 ltr Special Step No. 1, 25 ltr Special Step No. 1, 210 ltr
55 10 37	18/ 200		Alkalinity	-	-	Tankclean Alkaline Extra, 25 ltr	-	Alkalinity Control, 30 ltr	Alkasolvent Liquid, 30 ltr Alkasolvent Liquid, 210 ltr
55 10 41	18	Tank Cleaner	For Fuel Oil Tank	-	Seaclean Plus, 25 ltr Unipol, 25 ltr Tankleen Swift, 25 ltr	Seaclean Voyage, 25 ltr Tankclean HD Split, 25 ltr	TC No,4, 25 ltr Drew TC Sea, 25 ltr	Tank Cleaner, 25 ltr Tank Cleaner-S, 25 ltr Marichem TTC, 25 ltr Tank Cleaner A, 25 ltr	Tank & Bilge Cleaner, 25 ltr Tank Super Cleaner, 25 ltr Coal Tar Remover, 25 ltr
55 10 42	200			-	Seaclean Plus, 210 ltr Unipol, 210 ltr Tankleen Advance, 210 ltr Tankeen Bright, 190 ltr Tankleen Tar, 210 ltr	Seaclean Voyage, 200 ltr or 208 ltr Tankclean HD Split, 200 ltr	TC No,4, 200 ltr Drew TC Sea, 200 ltr	Tank Cleaner, 210 ltr Tank Cleaner-S, 210 ltr Marichem TTC, 210 ltr Tank Cleaner A, 210 ltr	Tank & Bilge Cleaner, 210 ltr Tank Super Cleaner, 210 ltr Coal Tar Remover, 210 ltr
55 10 46	18	Fuel Oil Additive	Sludge Dispersion & Water Separion	-	FuelPower Conditioner, 25 ltr	FOT Sludge Dispersant, 25 ltr	Amergy 222 Plus, 25 ltr	F.O.T., 25 ltr F.O.T. New Generation, 25 ltr	Fueltreat 880, 25 ltr Fueltreat 880 Plus, 25 ltr

CODE	Ltr	Usage & Application	Americol (The Netherlands)	MAGNUS (U.S.A.)	Rochem (U.S.A.)	Redox (Singapore)	Marine Care (The Netherlands)
55 10 01	18	Degreaser	Tank Cleaner – Oil & Grease Remover Antol 24, 10 ltr	Degreaser HD, 20 ltr	Degreasol Cold Wash	Oil & Grease Emulsifier, 25 ltr	Careclean Degreaser GP, 25 ltr Careclean Degreaser HD, 25 ltr Careclean Voyage, 25 ltr
55 10 02	200		Tank Cleaner – Oil & Grease Remover Antol 24, 200 ltr	Degreaser HD, 200 ltr	Degreasol Cold Wash	Oil & Grease Emulsifier, 209 ltr	Careclean Degreaser GP, 200 ltr Careclean Degreaser HD, 200 ltr Careclean Voyage, 200 ltr
55 10 05	18	Air Inter-Cooler Cleaner	Air Cooler Cleaner HD, 20 ltr	Air Cooler Cleaner, 20 ltr	ACC	Air Cooler Cleaner, 25 ltr	Careclean ACC, 25 ltr
55 10 06	200		Air Cooler Cleaner HD, 200 ltr	Air Cooler Cleaner, 200 ltr	ACC	Air Cooler Cleaner, 209 ltr	-
55 10 11	18	Water Soluble Degreaser	Aquabreak 10 ltr	Magnaclean EC, 20 ltr	Citrisol Alclean Safety L H.P. Cleaner	Heavy Duty Cleaner, 25 ltr	Careclean Multiclean, 25 ltr Careclean Neutral HCF, 25 ltr Careclean GP Enviro, 25 ltr
55 10 12	200	-	-	-	-	Heavy Duty Cleaner, 209 ltr	Careclean Multiclean, 200 ltr Careclean Neutral HCF, 200 ltr Careclean GP Enviro, 200 ltr

(to be continued)

CODE	Ltr	Usage & Application		**Americol** (The Netherlands)	**MAGNUS** (U.S.A.)	**Rochem** (U.S.A.)	**Redox** (Singapore)	**Marine Care** (The Netherlands)
55 10 16	18	Alkaline Cleaner		Alkaline Liquid, 10 ltr	Alkaline Cleaner, 20 ltr	Alclean Liquid	Heavy Duty Cleaner, 25 ltr	Careclean Alkaline, 25 ltr Careclean Alkaline Extra, 25 ltr
55 10 17	200			-	-	-	Heavy Duty Cleaner, 209 ltr	Careclean Alkaline, 200 ltr Careclean Alkaline Extra, 200 ltr
55 10 21	18	Electric Motor Cleaner		Electrocleaner SE, 20 ltr	Electroclean M, 20 ltr	-	Motor Cleaner, 25 ltr	Careclean ECS Safe, 25 ltr Careclean ECS Quick Dry, 25 ltr
55 10 22	200			-	Electroclean M, 200 ltr	-	-	-
55 10 23	25	Ultrasonic Cleaner		-	-	-	Ultrasonic Alkaline Cleaner, 25 ltr	-
55 10 24	200			-	-	-	Ultrasonic Alkaline Cleaner, 209 ltr	-
55 10 26	18	Carbon Solvent	For Oil Carbon	Carbon Remover – Filter Cleaner, 20 ltr	Carbon Remover, 20 ltr	Oil & Grease Emulsifier, 25 ltr	Oil & Grease Emulsifier, 25 ltr	Careclean Carbon, 25 ltr
55 10 27	200			-	Carbon Remover, 200 ltr	-	Oil & Grease Emulsifier, 209 ltr	-
55 10 31	18		For Hard Carbon	Carbon Remover – Filter Cleaner, 20 ltr	Carbon Remover, 20 ltr	Carbon & Varnish Remover, 25 ltr	Carbon & Varnish Remover, 25 ltr	-
55 10 36	18	Cleaning Cooling Systems	Neutrality	Tank Cleaner – Oil & Grease Remover Antol 24, 10 ltr Clean Break Fast Separating Antol FS, 10ltr	Pre Commission CCS, 20 ltr	Clear Break, 25 ltr	Clear Break, 25 ltr	Careclean Degreaser GP, 25 ltr Careclean Degreaser HD, 25 ltr
55 10 37	18		Alkalinity	Tank Cleaner – Oil & Grease Remover Antol 24, 10 ltr	Pre Commission BOC, 20 ltr	-	-	-
55 10 41	18	Tank Cleaner	For Fuel Oil Tank	Tank Cleaner – Oil & Grease Remover Antol 24, 10 ltr	Tank Cleaner, 20 ltr	Heavy Duty Tank Cleaner, 25 ltr	Heavy Duty Tank Cleaner, 25 ltr	Careclean Voyage, 25 ltr Careclean Degreaser HD, 25 ltr
55 10 42	200			Tank Cleaner – Oil & Grease Remover Antol 24, 200 ltr	Tank Cleaner, 200 ltr	Heavy Duty Tank Cleaner, 209 ltr	Heavy Duty Tank Cleaner, 209 ltr	Careclean Voyage, 200 ltr Careclean Degreaser HD, 200 ltr
55 10 46	18	Fuel Oil Additive	Sludge Dispersion & Water Separation	-	Fuel Oil Treatment FT, 20 ltr	Fuel Oil Treatment, 25 ltr	Fuel Oil Treatment, 25 ltr	Caretreat Sludge, 25 ltr

CODE	Ltr	Usage & Application		**NIHON YUKA** (Japan)	**NEOS** (Japan)	**YCC** (Japan)	**ICHINEN CHEMICALS** (Japan)	**KURITA** (Japan)
55 10 01	18	Degreaser		Yunisol C, 18 ltr	**55 11 01** A, 18 ltr	-	KURICLEAN 11, 18 ltr	-
55 10 02	200			Yunisol C, 200 ltr	-	-	-	-
55 10 05	18	Air Inter-Cooler Cleaner		Yunisol AC, 18 ltr	**55 11 01** A, 18ltr	-	KURICLEAN AC, 18 ltr	-
55 10 06	200			-	One-1, 200 ltr	-	-	-
55 10 11	18	Water Soluble Degreaser		Yunisol SS, 18 ltr	**55 11 04** M-One 2S, 18 kg Power Challenger R, 18 kg	**55 33 36** TCW, 18ltr	KURICLEAN 10/10P, 18 ltr	-
55 10 12	200			-	Deck Bright, 200 kg	-	-	-
55 10 16	18	Alkaline Cleaner		Yunisol SP, 15 kg	**55 11 02** CM200C Powder, 18 kg	-	-	Kuripearl, PK-842, 20 kg
55 10 17	200			-	-	-	-	-
55 10 21	18	Electric Motor Cleaner		Yunisol MC5, 5 kg	**55 11 09** Solvent 550, 18 ltr	-	KURICLEAN SUPER, 18 ltr	-
55 10 22	200			-	-	-	-	-
55 10 23	25	Ultrasonic Cleaner		Yunisol SH, 18 ltr	**55 11 02** CM200C Powder, 18 kg	-	-	-
55 10 24	200			-	Reglight D-50L, 200 kg	-	-	-
55 10 26	18	Carbon Solvent	For Oil Carbon	Yunisol H, 18 ltr Yunisol SH, 18 ltr	Solvent 13, 18 ltr Solvent 300, 18 ltr	-	KURICLEAN CR, 20 kg	-
55 10 27	200			-	-	-	-	-
55 10 31	18		For Hard Carbon	Yunisol K-48, 16 ltr Hi-Carbon, 18 ltr	**55 11 09** Solvent 550 18 ltr	-	-	Kuripearl PF-1,10 kg
55 10 36	18	Cleaning Cooling Systems	Neutrality	-	-	-	KURICLEAN PS1, 18 ltr	-
55 10 37	18		Alkalinity	-	-	-	KURICLEAN PS2, 18 ltr	-
55 10 41	18	Tank Cleaner	For Fuel Oil Tank	Yunisol C, 18 ltr	**55 11 05** FD-7, 18 ltr **55 11 01** A, 18 ltr	**55 33 28** Tank Cleaner, 18 ltr	-	Kuriearl PK-842, 20 kg
55 10 42	200			Yunisol C, 200 ltr	-	-	-	-
55 10 46	18	Fuel Oil Additive	Sludge Dispersion & Water Separion Separation	-	-	-	KURITONIC MD-C, 18 ltr	-

CODE	Ltr	Usage & Application		Wilhelmsen (Norway) (ex NALFLEET)	Wilhelmsen (Norway) (ex UNITOR)	VECOM (The Netherlands)	DREW MARINE (U.S.A)	MARICHEM (Greece)	CHEMO (Greece)
55 10 47	200	Fuel Oil Additive	Sludge Dispersion & Water Separation	-	-	FOT Sludge Dispersant, 200 ltr	Amergy-222, 200 ltr	F.O.T,, 210 ltr F.O.T. New Generation, 210 ltr	FOT-630, 210 ltr Fueltreat 880, 210 ltr
55 10 51	18		Sludge Dispersion	-	-	FOT Sludge Dispersant, 25 ltr	Amergy-222, 25 ltr	F.O.T,, 25 ltr F.O.T. New Generation, 25 ltr	FOT-630, 25 ltr Fueltreat 880, 25 ltr
55 10 52	200			-	-	FOT Sludge Dispersant, 200 ltr	Amergy-222, 200 ltr	F.O.T., 210 ltr F.O.T. New Generation, 210 ltr	FOT-630, 210 ltr Fueltreat 880, 210 ltr
55 10 56	18		Combustion Catalytic Type	-	-	FOT Combustion Catalyst, 25 ltr	Amergize, 25 ltr Amergy-1000, 25 ltr	F.O.T. 10, 25 ltr F.O.T. 10 New Generation, 25 ltr	Fueltreat 880, 25 ltr F-83, 25 ltr F-83 Plus, 25 ltr
55 10 57	200			-	-	FOT Combustion Catalyst, 200 ltr	Amergize, 200 ltr Amergy-1000, 200 ltr	F.O.T. 10, 210 ltr F.O.T. 10 New Generation, 210 ltr	Fueltreat 880, 210 ltr F-83, 210 ltr F-83 Plus, 210 ltr
55 10 61	18		Combustion Catalytic Type (Prevention of High Temperature Corrosion)	-	FuelPower Soot Remover, 25 kg	Valve Treat, 25 ltr Soot Remover Powder, 25 kg Soot Remover Liquid, 25 ltr	Soot Release, 25 kg Drewclean EST, 25 ltr LT Soot Release, 25 kg	F.O.T. C-100, 25 ltr F.O.T. C-100 New Generation, 25 ltr Soot Cleaner, 25 kg, Soot Cleaner Liquid, 30 ltr	Soot Remover Liquid, 25 ltr Soot Remover Powder, 25 kg F-83 Plus, 25 ltr
55 10 62	200			-	-	Valve Treat, 200 ltr	-	F.O.T. C-100, 210 ltr F.O.T. C-100 New Generation, 210 ltr	Soot Remover Liquid, 210 ltr F-83 Plus, 210 ltr
55 10 63	18/ 200		Lubricity Improver for Gas Oil and Diesel Oil	-	-	FOT LI 4100, 25ltr	-	FOT LS, 25 ltr, FOT ULS, 25 ltr	Fueltreat XLS, 25 ltr Fueltreat XLS,210 ltr Chemo Lubricity Improver, 25 ltr Chemo Lubricity Improver, 210 ltr
55 10 64	18		Diesel Oil Anti-mold, Sterilizer	-	-	-	-	Fuel Biocontrol, 25 ltr	-
55 10 65	18		Cold Flow Improver for Marine Gas Oil (MGO) and Marine Diesel Oil (MDO)	-	-	FOT Flow Improver, 25 ltr	-	Fuelflow PPR, 25 ltr	-
55 10 66	18	Emulsion Breaker		-	Coldwash HD, 25 ltr Cleanbreak, 25 ltr	Oil Spill Dispersant Type 1, 25 ltr	EB-70 (Japan only), 25 ltr	Fuelbreak, 25 ltr	Chemobreak, 25 ltr
55 10 67	200			-	-	Oil Spill Dispersant Type 1,200 ltr	-	Fuelbreak, 210 ltr	Chemobreak, 210 ltr
55 10 71	18/ 200	Demulsifying Accelerator		-	-	FOT Sludge Dispersant, 25 ltr	-	F.O.T., 25 ltr F.O.T. New Generation, 25 ltr	Cleanbreak Plus, 25 ltr Cleanbreak Plus, 210 ltr
55 10 76	18	Oil Spill Clean up Agent		-	Seacare OSD-2, 25 ltr	OSD Ready to Use, 25 ltr Oil Spill Dispersant Type 1, 25 ltr	OSD/LT, 25 ltr Drewclean EOSD, 25 ltr	Oil Spill Emulsifier, 25 ltr Marichem Oil Spill Dispersant, 30 ltr	Oil Spill Dispersant NF, 25 ltr Seawash No.2, 30 ltr Seawash RTU, 30 ltr
55 10 77	200			-	-	OSD Ready to Use, 200 ltr	OSD/LT, 200 ltr Drewclean EOSD, 200 ltr	Oil Spill Emulsifier, 210 ltr Marichem Oil Spill Dispersant, 210 ltr	Oil Spill Dispersant NF, 210 ltr Seawash No.2, 210 ltr
55 10 81	18	Rust Remover		-	Metal Brite, 25 ltr Metal Brite HD, 25 ltr Deckclean NP, 25 ltr	Rust Remover, 25 ltr	Rust Stain Remover, 25 ltr	Rust Remover & Rust Shield Phos, 30 ltr	Rust Blemish Remover, 30 ltr Rust Remover Plus, 30 ltr
55 10 82	18	Scale Remover		-	Descalex, 25 kg Descaling Liquid, 25 ltr Vacuum pipe cleaner, 25 ltr	Descaling Liquid Extra, 25 ltr Descaler Powder NI, 25 kg	SAF-Acid, 25 kg	Descaler Liquid 555, 30 ltr Descaler Powder, 25 kg	Scale Remover Powder, 25 kg Scale Remover Liquid, 30 ltr
55 10 88	18/ 200	Cement & Lime Remover		-	CargoDescale, 210 ltr	Veclean Acid MP, 25 ltr Cement Remover, 25 ltr Descaling Liquid Extra, 25 ltr Tankclean Alkaline Extra, 25 ltr Cement Remover, 200 ltr or 208 ltr Descaling Liquid Extra, 200 ltr or 208 ltr Tankclean Alkaline Extra, 200 ltr or 208 ltr	-	Cement Remover, 30 ltr, Cement Remover, 210 ltr Lime Cleaner, 30 ltr Lime Cleaner, 210 ltr	Cement Remover Super, 30 ltr
55 10 89	18/ 200	Cargo Hold Cleaner for Petroleum Coke		-	Cargoclean HD, 25 Ltr	Tankclean Alkaline Extra, 25 ltr Tankclean Alkaline Extra, 200 ltr or 208 ltr	-	Marichem PCS, 30 ltr, Marichem PCS, 210 ltr,	Pet Coke Remover, 30 ltr

(to be continued)

CODE	Ltr	Usage & Application	Wilhelmsen (Norway) (ex NALFLEET)	Wilhelmsen (Norway) (ex UNITOR)	VECOM (The Netherlands)	DREW MARINE (U.S.A)	MARICHEM (Greece)	CHEMO (Greece)
55 10 86	18	Cooling Water Treatment	Engine Water Treatment 9-108, 25 ltr Rocor NB Liquid, 25 ltr NALFLEET 2000, 25 ltr Cooltreat AL, 25 ltr Cooltreat ELC (Anti-Freeze), 25 ltr Brine Corrosion Inhibitor, 25 ltr	-	Cooltreat NCLT, 25 ltr Antifreeze Coolant, 25 ltr	Liquidewt, 25 ltr Dewt-NC 25 kg, Maxigold 25 ltr	D.C.W.T. Non Chromate, 30 ltr D.C.W.T. Powder, 25 kg	CWT-NT, 30 ltr CWT-Special, 30 ltr
55 10 95	200		NALFLEET 2000, 210 ltr	-	Antifreeze Coolant, 200 ltr or 208 ltr	-	-	-
55 10 90	10	Disinfectant for Cooling Water	Mar -71 Biocide 3 × 5 ltr	-	-	-	Maricil, 30 ltr	-
55 10 91	18	Boiler Water Treatment	BWT-Liquid Plus, 25 ltr Hardness Treatment 7208, 25 ltr Autotreat, 25 ltr Condensate Treatment 9-150, 25ltr Condensate Control, 25 ltr Oxygen Control, 25 ltr Oxygen Scavenger Plus, 25 ltr Oxygen Scavenger 9-002, 25 ltr Oxytreat, 25 ltr Alkalinity Control, 25 ltr Boiler Coagulant, 25 ltr	-	Boiler Treat One Shot, 25 ltr Hardness Control Liquid, 25 ltr Alkalinity Control, 25 ltr Condensate Control, 25 ltr Hydrazide, 25 ltr Liquid Coagulant, 25 ltr Boiler Treat Combi, 25 ltr Condensate Treat, 25 ltr	AGK-100, 25 ltr Prewplex AT, 25 ltr Drewplex OX, 25 ltr Amerzine, 25 ltr Adjunct-B, 25 kg GC, 25 ltr SLCC-A, 25 ltr Liquid Coagulant, 25 ltr	B.W.T. New Formula, 30 ltr BWT Powder, 25 kg Alkalinity Control, 30 ltr Phosphate, 25 kg Oxycontrol, 30 ltr Boiler Sludge Conditioner, 30 ltr Marichem CCI, 30 ltr Optitreat, 30 ltr, Marzine Plus, 30 ltr, Oxyblock D, 30 ltr	BWT-200, 30 ltr Chemophos, 30 ltr Chemalk, 30 ltr Condensamin, 30 ltr Hydrazine, 30 ltr Liquid Coagulant, 30 ltr Catalyzed Liquid Sulphite, 30 ltr Chemoplex AT,30 ltr Chemoplex OX,30 ltr
55 10 92	18	Evaporator Treatment	Maxi-Vap Plus, 25 ltr Vaptreat, 25 ltr MultiVap, 25 ltr Evaporator Defoamer, 4x5 Ltr	-	Evaporator Treat, 25 ltr Antifoam S-30, 20L	Ameroyal, 25 ltr	Evaporator Treatment, 30 ltr	Evaporator Treat, 30 ltr Chemovap Super, 30 ltr
55 10 93	18	Purifier Detergent	-	Disclean, 25 Ltr	Separator Disc Cleaner, 25 ltr	-	Purifier Disc Cleaner, 30 lit	-
55 10 94	18	Marine Organism Adhesion Inhibitor	Bioguard Plus, 25 ltr	-	Ecosperse, 25 ltr	-	Clog Control, 30 ltr	-

CODE	Ltr	Usage & Application		Americol (The Netherlands)	MAGNUS (U.S.A.)	Rochem (U.S.A.)	Redox (Singapore)	Marine Care (The Netherlands)
55 10 47	200	Fuel Oil Additive	Sludge Dispersion & Water Separation	-	-	-	Fuel Oil Treatment, 209 ltr	Caretreat Sludge, 200 ltr
55 10 51	18		Sludge Dispersion	-	FOT SD, 20 ltr	-	Fuel Oil Treatment, 25 ltr	Caretreat Sludge, 25 ltr
55 10 52	200			-	FOT SD, 200 ltr	-	Fuel Oil Treatment, 209 ltr	Caretreat Sludge, 200 ltr
55 10 56	18		Combustion Catalytic Type	-	FT Combustion Catalyst, 20 ltr	-	Combustion Improver, 25 ltr	Caretreat Combustion, 25 ltr
55 10 57	200			-	Combustion Catalyst, 200 ltr	-	Combustion Improver, 209 ltr	Caretreat Combustion, 200 ltr
55 10 61	18		Combustion Catalytic Type (Prevention of High Tempera-ture Corrosion)	-	Vanex FT Soot Remover LQ, 20 ltr	-	Soot Cleaner, 25 ltr Soot Cleaner Powder, 25 kg	Caretreat Economizer, 25 ltr
55 10 62	200			-	Vanex FT Soot Remover LQ, 200 ltr	-	Soot Cleaner, 209 ltr	-
55 10 63	18/		Lubricity Improver for Gas Oil and Diesel Oil	-	-	-	Lubricity Improver Complete, 25 ltr	-
55 10 64	18		Diesel Oil Anti-mold, Sterilizer	-	-	-	-	-
55 10 65	18		Cold Flow Improver for Marine Gas Oil (MGO) and Marine Diesel Oil (MDO)	-	-	-	-	-
55 10 66	18	Emulsion Breaker		-	MagnaBreak, 20 ltr	-	Oil & Grease Emulsfier, 25 ltr	Careclean Quick Split, 25 ltr
55 10 67	200			-	MagnaBreak, 200 ltr	-	Oil & Grease Emulsfier, 209 ltr	-
55 10 71	18	Demulsifying Accelerator		-	MagnaDemul, 20 ltr	-	Fuel Oil Treatment, 25 ltr	-

(to be continued)

CODE	Ltr	Usage & Application	Americol (The Netherlands)	MAGNUS (U.S.A.)	Rochem (U.S.A.)	Redox (Singapore)	Marine Care (The Netherlands)
55 10 76	18	Oil Spill Clean up Agent	OSR-SB, 20 ltr	Oil Spill Disperser, 20 ltr Oil Spill Disperser LT, 20 ltr	OSR LT	Oil Spill Dispersant, 25 ltr	Careclean OSD (Enviro), 25 ltr
55 10 77	200		-	Oil Spill Disperser, 200 ltr	OSR LT	Oil Spill Dispersant, 209 ltr	Careclean OSD (Enviro),200 ltr
55 10 81	18	Rust Remover	Metalbrite & Descale Liquid Amefix, 10 ltr	Rust Scale Remover, 20 ltr	Descaling Powder Metalbrite	Rust Remover, 25 ltr	Careclean Rust,25 ltr
55 10 82	18	Scale Remover	Amecid, 10ltr	Safe Descaler PA, 20 kg Safe Descaler LQ, 20 ltr	-	Scale & Oxide Remover, 25 ltr SAF Acid Powder, 25 kg	Careclean F Descalex P, 25 kg
55 10 88	18	Cement & Lime Remover	-	-	-	-	-
55 10 89	18	Cargo Hold Cleaner for Petroleum Coke	-	-	-	-	-
55 10 86	18	Cooling Water Treatment	-	NCL Engine Water Treatment, 20 ltr	-	Cooling Water Treatment, 25 ltr	Caretreat 2 Diesel, 25 ltr
55 10 95	200		-	-	-	Cooling Water Treatment, 209 ltr	-
55 10 90	10	Disinfectant for Cooling Water	-	-	-	-	-
55 10 91	18	Boiler Water Treatment	-	LPBWT-Liquid, 20 ltr Hardness Control, 20 kg Alkalinity Control, 20 ltr Oxytreat Control, 20 ltr Condensate CC, 20 ltr Liquid Coagulant, 20 ltr	-	Boiler Water Treatment, 25 ltr	Caretreat 3 Boiler, 25 ltr Caretreat 4 Condensate, 25 ltr
55 10 92	18	Evaporator Treatment	-	Evaporator treat, 20 ltr	-	Evaporator Treatment, 25 ltr	Caretreat 1 Evaporator,25 ltr
55 10 93	18	Purifier Detergent	-	-	-	-	-
55 10 94	18	Marine Organism Adhesion Inhibitor	-	-	-	-	-

CODE	Ltr	Usage & Application		NIHON YUKA (Japan)	NEOS (Japan)	YCC (Japan)	ICHINEN CHEMICALS (Japan)	KURITA (Japan)
55 10 47	200	Fuel Oil Additive	Sludge Dispersion & Water Separation	-	-	-	KURITONIC MD-C, 200 ltr	-
55 10 51	18		Sludge Dispersion	For HSFO: Yunic 555D, 18 ltr For VLSFO: Yunic 800 Eco, 18 ltr	-	-	TAICRUSH VL-20, 18 ltr TAICRUSH A-38, 18 ltr	-
55 10 52	200			For HSFO:Yunic 555D, 200 ltr For VLSFO: Yunic 800 Eco, 200 ltr	-	-	TAICRUSH VL-20, 200 ltr TAICRUSH A-38, 200 ltr	-
55 10 56	18		Combustion Catalytic Type	Econofree A, 18 ltr	-	-	TAICRUSH LC, 18 ltr	-
55 10 57	200			Econofree A, 200 ltr	-	-	TAICRUSH LC, 200 ltr	-
55 10 61	18		Combustion Catalytic Type (Prevention of High Temperature Corrosion)	Yunic 600S-II, 18ltr	-	-	KURITONIC HICON 3C, 18 ltr	-
55 10 62	200			Yunic 600S-II, 200 ltr	-	-	KURITONIC HICON 3C, 200 ltr	-
55 10 63	18/200		Lubricity Improver for Gas Oil and Diesel Oil	Yunic 750LS-F, 18 ltr, 200 ltr	-	-	LUB-UP HS, 18 ltr	-
55 10 64	18/200		Diesel Oil Anti-mold, Sterilizer	Destol F-II, 18ltr, 200 ltr	-	-	KURITONIC A-5, 18 ltr	-
55 10 65	18/200		Cold flow Improver for Marine Gas Oil (MGO) and Marine Diesel Oil (MDO)	Wax Breaker, 18ltr, 200 ltr	-	-	CARRYOL KA-241, 16 kg	-
55 10 66	18	Emulsion Breaker		-	-	-	KURITONIC EB, 18 ltr	-
55 10 67	200			-	-	-	KURITONIC EB, 200 ltr KURITONIC TCA, 200 ltr	-
55 10 71	18	Demulsifying Accelerator		-	-	-		-

(to be continued)

CODE	Ltr	Usage & Application	NIHON YUKA (Japan)	NEOS (Japan)	YCC (Japan)	ICHINEN CHEMICALS (Japan)	KURITA (Japan)
55 10 76	18	Oil Spill Clean up Agent	Yunisol FL(100), 18ltr Yunisol Self-Mixing S-7, 18 ltr	**55 11 25** AB3000N, 18 ltr Self-Mixing S-7,18 ltr D-1128, 18 ltr	**55 33 32** Blue Clean, 18 ltr	MALECLEAN 505EX, 18 ltr	-
55 10 77	200		Yunisol FL(100), 200 ltr Yunisol Self-Mixing S-7, 200 ltr	**55 11 26** AB3000N, 200 ltr	Blue Clean, 200 ltr	-	-
55 10 81	18	Rust Remover	Yunisol P, 18 ltr	**55 11 28** CM-305C, 20 kg PC-400, 25 kg PC-200, 25 kg	**55 33 23** Metal Clean, 18 ltr	-	Kuriparl S-232, 20 kg
55 10 82	18/200	Scale Remover	Yunisol X, 18 ltr Yunisol SR, 18 ltr, 200 ltr	**55 11 29** CM305C, 20 kg	-	KURICLEAN PS-3, 18 ltr TAISLIME C-10, 20 kg	Kuridine SP, 20 kg
55 10 88	18	Cement & Lime Remover	-	-	-	-	-
55 10 89	18	Cargo Hold Cleaner For Petroleum Coke	-	-	-	KLINHOLD SR, 20 kg	-
55 10 86	18	Cooling Water Treatment	Yuniprot PC-250L, 22 kg	**55 11 32** PN-106S, 10 ltr	-	HI-MOL AM-5, 10 kg HI-MOL L-10, 20 kg	Polycrin I-175, 20 kg Polycrin A-491, 10 kg
55 10 95	200		-	-	-	-	-
55 10 90	10	Disinfectant for Cooling Water	Germicidal Agent for YUNIPROT, 1ltr	-	-	TAISLIME MT, 10 kg	-
55 10 91	18	Boiler Water Treatment	Yunicon RS-5, 20 kg Yunicon RS-40H, 20 kg	-	-	-	Kuriborn 304, 10 kg Kalgen 300s, 12 kg Kalgen 400s, 10 kg Hikalgen 360s, 10 kg Oxynon A702/H171, 18 kg Kurinpower WZ-406, 12 kg
55 10 92	18	Evaporator Treatment	Yunipoly EV-100, 20 ltr	-	-	TAISLIME SP-10, 20 kg	Kurifloat M-305, 20 kg
55 10 93	18	Purifier Detergent	LO Purifier Disc clean, 18 ltr FO Purifier Disc clean, 16 ltr	-	-	KURICLEAN DC-100, 18 ltr (Neutral type) KURICLEAN DCR, 18 ltr (Acid type)	-
55 10 94	18	Marine Organism Adhesion Inhibitor	Yunishell (Chemical & System)	-	-	-	-

Ferryl Marine Chemicals

Productos quimicos navales Ferryl
フェリル船用化学薬品　菲利（Ferryl）海洋化工

A range of high-quality maintenance chemicals designed for marine use. For cabin, deck and engine departments.



Unit Per Drm/Btl./Can

CODE	Product No./Unit	Application
45 04 23	Ferrycid Rustremover 25 ltr/drum	Efficient removal of light and heavy rust on steel, cleaning of (wooden) decks, rust stain removal on painted surfaces, removal of limescale and cement.
45 04 24	Ferryl Cleaning Fluid Oil & Grease Remover 25 ltr/drum	Water-soluble, emulsifying, solvent-based degreaser. Removes light and heavy deposits of oil and grease on decks, engine parts, oil preheaters, tools.

(to be continued)

45 04 26 **32**	Ferryl Fermaid Alkaline Cleaning Liquid 25 ltr/drum 1 ltr/bottle	Alkaline cleaning liquid concentrate for general cleaning and light degreasing of decks, containers / chambers, refrigerators, fishing vessels.
45 04 28 **27**	Ferryl Electroclean 450 ml/spray can 25 ltr/drum	Safe cleaning liquid with a high flash point and quick evaporation for cleaning of electrical equipment and machine parts.
45 04 29	Ferryl Cabin Clean General Cleaning Liquid 25 ltr/drum	Cleaning liquid concentrate for general cleaning of cabins, mess rooms, bathrooms, sanitary installations.
45 04 30 **31**	Ferryl Airrefreshment Bad Odour Neutraliser 500 ml/spray bottle 25 ltr/drum	Chemically neutralises bacteria in the air, removing bad odour, leaving fresh scent. For cabins, bathrooms, cargo holds, freezers, fishing vessels.

Name of Mfr. : Ferryl Sales Limited.

Hold Cleaning Solutions

Productos para limpiaza de bodegas de barco
カーゴホールドクリーニング製品　货舱清洁产品

Hold Barrier (Prior to loading)

For best protection of the cargo hold bulkheads. It is a unique blend of natural ingredients and film stability improvers, which

can be easily applied by ship's crew prior to loading. It effectively prevents residue adhesion, stains and footprints of cargoes adhering to the surfaces of cargo holds and/or causing corrosion and are difficult to clean.

Benefits;

- More effective than limewash and much easier to remove.
- Protects metal against corrosive cargo and paint against cargo penetration.
- Prevents the deterioration of cargo hold condition.
- Not harmful to cargoes, coatings and the environment.

Unit Per Can

CODE	Description	Weight per Can	Remarks
55 16 01	Hold Barrier (#507001)	210 ltr	-
55 16 02	Hold Barrier XR (#507002)	210 ltr	Extra resistant formulation for extra demanding cargoes.
55 16 03	Hold Barrier Concentrate (#507004)	210 ltr	Concentrated form of Hold Barrier and Hold Barrier XR.

Name of Mfr.: Chemo Marine Chemicals

Hold Cleaning Solutions (After discharging)

Cost effective, non-flammable, water based, heavy duty cleaners containing special surfactants, detergents and builders, for effectively removing all types of cargo stains and residues, after cargo discharge, while minimizing coating discolouration.

Application Table

Cargo	Product Name	Cleaning Procedure
Coal	Holdbrite XF	Remove all residues from the cargo hold. Pre-wash the cargo hold with sea or fresh water and let it dry. Apply the product. Use suitable spraying equipment and dosages varying from 5 to 20% in fresh water, depending on the contamination. Allow solution to penetrate soil for 10-60 minutes and then wash off thoroughly with high pressure water, preferably hot. Always wash off before chemicals dry on the surface. Products may be used undiluted for hand cleaning.
Pet coke	Pet Coke Remover	
Sulphur	Holdbrite XF	
Concentrates/ Specific ore residues	Holdbrite XF	
Miscellaneous feedstock	Holdbrite XF	
Cement/Cement clinkers	Cement Remover Super	Remove all residues from the cargo hold. Pre-wash the cargo hold with sea or fresh water and let it dry. Apply the product. Use suitable spraying equipment and dosages varying from 10 to 50% in fresh water, depending on the contamination. Allow solution to penetrate soil for 10-30 minutes and then wash off thoroughly with high pressure water, preferably cold. Always wash off before chemicals dry on the surface.
Baxite/Iron ore/ Iron ore pellets	Bauxite Remover	
Limestone/ Rust stains	Lime Out	

Unit Per Can

CODE	Product's Name	Weight per Can	Remarks
55 16 11	Holdbrite XF #501202	25 ltr	Heavy duty alkaline cleaner with extra foaming effect.
12		210 ltr	
55 16 13	Pet Coke Remover #502012	25 ltr	Effective liquid product for pet coke removal.
14		210 ltr	
55 16 15	Cement Remover Super #502405	25 ltr	Powerful cement cleaner.
16		210 ltr	
55 16 17	Chemo Bauxide Remover #502415	25 ltr	Liquid acid for the effective removal of bauxite residues.
18		210 ltr	
55 16 19	Lime Out #502417	25 ltr	Effective removal of limestone.
20		210 ltr	

Name of Mfr.: Chemo Marine Chemicals

Air Fresh Liquids for Cargo Hold

Líquidos ambientadores para la bodega de carga

カーゴホールド用消臭液　货舱空气清新剂

Water-based liquid to mask unpleasant smells in cargo hold, tanks and domestic areas. The liquid is based on perfumed oils in water and used if the smell of the previous cargo (fish oil or turpentine etc.) is perceptible after tank cleaning. It is recommended that the cause of the smell is determined before applying the product. If bad cleaning causes the smell, the tank should be cleaned again, because application of the product into an unclean tank may cause a surveyor to reject.

Safe to use on most common metals and coatings.



Directions for use:

Spray in a 10% dilution with water. Allow the product to evaporate for a reasonable period. It is also possible to dose 0.1–1% of the product to the last rinsing water after cleaning the tank. After treatment thoroughly ventilate the tank before entering.

55 16 35	Air Fresh Liquid for Cargo Hold, 5 ltr	Can
55 16 36	Air Fresh Liquid for Cargo Hold, 25 ltr	Can

Conversion Table

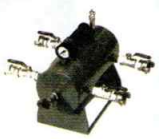
Mass (Weight)

	g	kg	t	lb	oz
g	1	1×10^{-3}	1×10^{-6}	2.204×10^{-3}	0.0352
kg	1×10^{3}	1	1×10^{-3}	2.204	35.27
t	1×10^{6}	1×10^{3}	1	2204	35270
lb	453.6	0.4536	4.536×10^{-4}	1	16
oz	28.35	0.02835	2.835×10^{-5}	1/16	1

Volume

	cm^3 (cc or ml)	m^3	l	in^3	qt	pt	fl-oz	ft^3	gal
cm^3 (cc or ml)	1	0.000001	0.001	0.061	0.00088	0.0018	0.035	-	0.00022
m^3	1,000,000	1	1,000	61,024	880	1,760	35,195	35.314	220
l	1,000	0.001	1	61.024	0.880	1.760	35.195	0.035	0.220
in^3	16.387	0.000016	0.016	1	0.014	0.029	0.577	0.00058	0.0036
qt	1,136.52	0.0011	1.137	69.355	1	2	40	0.033	0.25
pt	568	0.00057	0.568	34.677	0.5	1	20	0.017	0.125
fl-oz	28.413	0.000028	0.028	1.734	0.025	0.05	1	0.0008	0.00625
Ft^3	28,316	0.0283	28.316	1,728	29.922	59.844	958	1	7,481
gal	4,546	0.0045	4.546	277	4	8	160	0.134	1

59
Pneumatic & Electrical Tools

Pneumatic Hand Tools  P. 59-1 ~ 10	Deck Scalers  P. 59-11 ~ 23	Hand Scalers  P. 59-23 ~ 36	Pneumatic Saws  P. 59-36 ~ 38
Pneumatic Winches  P. 59-38 ~ 39	Neoprene Rubber Buckets  P. 59-39	Air Motors  P. 59-39 ~ 41	Air Winches  P. 59-41 ~ 42
Sand Blasters  P. 59-42	Tank Cleaning Machines  P. 59-42 ~ 47	Vacuum Cleaners  P. 59-47 ~ 49	High Pressure Cleaners  P. 59-49 ~ 52
Hold Cleaning Guns  P. 59-52 ~ 54	Air Line Filters  P. 59-54 ~ 55	Air Distributors  P. 59-55	Electric Hand Tools  P. 59-56 ~ 66
Chain Hoists  P. 59-67 ~ 68	Ventilations/ Fans  P. 59-68 ~ 74	Pumps/Ejectors  P. 59-74 ~ 88	

1. Pneumatic Hand Tools

Pneumatic Impact Wrenches

Llaves de Impacto Neumáticas　インパクトレンチ　气动扳手

Pneumatic power impact wrenches deliver extremely high power to fasten and loosen bolts or nuts for quick assembling and disassembling jobs.

The square drive size and capacity at which different types of handles are provided differ from manufacturer to manufacturer as shown in the pneumatic tools comparison table on page 59-9. Choose the most suitable model for the 13 mm to 76 mm sized bolt capacity. The specifications listed here are for your reference. If you wish to order impact wrenches from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-9.

Recommended air pressure is 0.59 MPa (6 kgf/cm²). Air hose nipple is furnished, but sockets and air hoses are sold separately.



Pistol Handle



Grip Handle



Side Handle

How to order: CODE

Impact wrench, pneumatic, SQUARE DRIVE, NOMINAL BOLT DIAM, TYPE of HANDLE, MODEL

Unit Per Set

CODE	Square Drive		Nom. Bolt Diam	Free Speed R.P.M.	Air Inlet PT	Air Hose Size	Net Weight
	mm	Inch	mm				kg
59 01 01	12.7	1/2	13.0	6,500	1/4	9.5	2.8
02	15.9	5/8	16.0	8,800	1/4	9.5	3.7
05	19.0	3/4	22.0	4,000	3/8	12.7	7.9
06	25.4	1	32.0	3,500	1/2	12.7	11.7
07	31.8	1-1/4	38.0	3,200	1/2	12.7	15.10
59 01 08	38.1	1-1/2	56.0	3,500	1	19.0	36.0
09	44.45	1-3/4	76.0	1,400	1	19.0	56.0

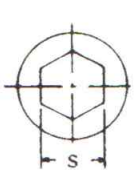
Note: Air hose nipple is furnished, but sockets and air hoses are an extra order.

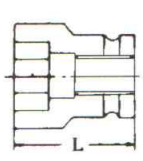
Sockets for Impact Wrench

Vasos para Llae de Impacto インパクトレンチ用ソケット　套筒头子

Heavy duty six point square drive sockets for use with the impact wrench. Various sizes with different square drives are available.







How to order : CODE

Socket for impact wrench, SQUARE DRIVE, SOCKET SIZE

Unit Per Pc.

CODE	Socket Size (S) (Opening) mm	Overall (L) Length mm	For Bolt Size	
			mm	Inch
9.5 mm (3/8") SQ. Drive				
59 02 01	6	25	M3.5	
02	7	25	M4	
03	8	25	M5	
04	9	25	M5	
05	10	27	M6	W3/16
59 02 06	11	27	M7	
07	13	27	M8	
08	14	27	M8	
09	17	27	M10	W3/8
10	19	30	M12	W7/16
59 02 11	21	35		W1/2
12	22	35	M14	
12.7 mm (1/2") SQ. Drive				
59 02 13	10	38	M6	W3/16
14	11	38	M7	
15	12	38		W1/4
16	13	38	M8	
17	14	38	M8	
59 02 18	17	40	M10	W3/8
19	19	40	M12	W7/16
20	21	40		W1/2
21	22	40	M14	
22	23	40	M14	
59 02 23	24	40	M16	
24	26	42		W5/8
25	27	42	M18	
26	29	50	M18	
27	30	50	M20	
59 02 28	32	50	M22	W3/4
19.0 mm (3/4") SQ. Drive				
59 02 29	17	48	M10	W3/8
30	19	48	M12	W7/16
31	21	48		W1/2
32	22	48	M14	
33	23	50	M14	
59 02 34	24	50	M16	
35	26	50		W5/8
36	27	52	M18	
37	29	52	M18	
38	30	52	M20	
59 02 39	32	52	M22	W3/4
40	35	55		W7/8
41	36	55	M24	
42	38	55	M24	
43	41	55	M27	W1
59 02 44	46	70	M30	W1-1/8
45	50	75	M33	W1-1/4
25.4 mm (1") SQ. Drive				
59 02 46	17	57	M10	W3/8
47	19	57	M12	W7/16
48	21	57		W1/2
49	22	57	M14	
50	23	57		
59 02 51	24	57	M16	
52	26	57		W5/8
53	27	57	M18	
54	29	57	M18	
55	30	57	M20	
59 02 56	32	57	M22	W3/4
57	35	62		W7/8
58	36	62	M24	
59	38	68	M24	
60	41	68	M27	W1
59 02 61	46	75	M30	W1-1/8
62	50	75	M33	W1-1/4
63	55	80	M36	
64	58	80		W1-1/2
65	60	85	M39	
59 02 66	63	85		W1-5/8

(to be continued)

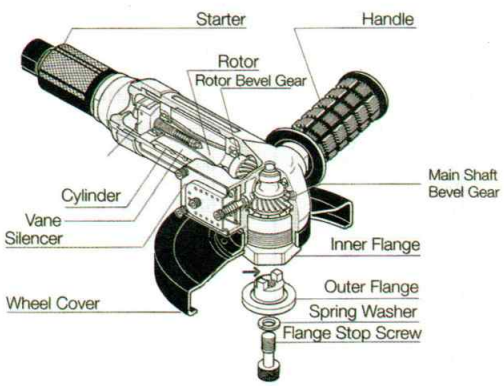
Unit Per Pc.

CODE	Socket Size (S) (Opening) mm	Overall (L) Length mm	For Bolt Size	
			mm	Inch
38.1 mm (1-1/2") SQ. Drive				
59 02 67	46	94	M30	W1-1/8
68	50	100	M33	W1-1/4
69	54	100		W1-3/8
70	55	100	M36	
71	58	105		W1-1/2
59 02 72	60	105	M39	
73	63	110		W1-1/8
74	65	110	M42	
75	67	110		W1-3/4
76	70	110	M45	
59 02 77	71	115		W1-7/8
78	75	115	M48	
79	77	115		W2
80	80	120	M52	
81	85	120	M56	W2-1/4
59 02 82	90	125	M60	
83	95	140	M64	W2-1/2
84	100	140	M68	
85	105	145	M72	
86	110	147	M76	W3
59 02 87	115	150	M80	

* Please write for if required size is not listed.

Pneumatic Angle Grinders

Amoladora Angular Neumática
アングルディスクグラインダー　气动角磨机



A pneumatic angle (vertical) grinder has a speed rating suitable for sanding, rust removal, rough grinding and cutting applications.

A wide variety of models from various manufacturers is available. The specifications listed here are for your reference. If you wish to order Angle Grinders from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-9.

Recommended air pressure is 0.59 MPa (6 kgf / cm²). Air hose nipple and tools for wheel mounting are furnished as standard accessories. However, grinding wheels, sanding discs and wire brushes are extra.


59 03 05


590301


390350


590302

How to order: CODE

Angle grinder, pneumatic,
WHEEL SIZE (O.D. x THICKNESS x I.D.), MODEL

Unit Per Set

CODE	Wheel Size O.D. x T x I.D. mm	Free Speed R.P.M.	Air Inlet PT	Air Hose mm	Weight kg
59 03 05	58 x 3 x 9.6	19,000	1/4	9.0	0.6
01	100 x 6 x 15	13,000	3/8	9.0	1.6
04	115 x 6 x 22	13,000	3/8	9.0	1.6
50	125 x 6 x 22	12,000	3/8	9.0	2.2
02	180 x 6 x 22	7,600	3/8	13.0	2.5
03	230 x 7 x 22	5,900	3/8	12.7	4.0

Rubber Pads for Pneumatic Grinder

Plato de Goma Desbarbadora
ディスクグラインダー用ラバーパッド　气动角膜机备用橡皮垫



It is necessary to furnish the original type of rubber pad as the sizes of rubber pads differ from manufacturer to manufacturer. Please specify the manufacturer and model of the angle grinder you are currently using when ordering.

How to order: CODE

Rubber pad for pneumatic angle grinder, WHEEL DIAM, APPLICABLE MODEL

Unit Per Pc.

CODE	For Wheel Dia	CODE	For Wheel Dia
59 03 56	58 mm	**59 03 60**	125 mm
16	100 mm	**17**	180 mm
40	115 mm	**21**	230 mm

Angle De-Scalers

Descamador para ángulos
アングルディスケーラー　小型磨轮

A series of hand held mechanical scaling machines based on the patented rotating chain link system. It is ideal for spot scaling and more than ten times faster than a normal needle gun. Easy to operate, vibration-free and designed for operator comfort.

Pneumatic Type


033-3000

Unit Per Set

CODE	**59 03 23**
Model	Rustibus 033-3000
Working Width	30 mm
Air Consumption	230 ltr/min. (625 l/min full load)
Air Pressure	6 bar / 90 psi
Result	St3++/SSPC-SP11
Dimensions	L 450 × H 200 × W 145 mm
Weight	3.4 kg
Name of Mfr.	Rustibus®

Electrical Type



034-4000



032-2000

Unit Per Set

CODE	59 03 44	59 03 28
Model	034-4000	032-2000
Working Width	30 mm	
Power Source	AC 110-120V 60 Hz 10A	AC 220-240V 50/60 Hz 7.3A
Result	St3+++ (SSPC-SP11+++)	
Dimensions	L580 × H300 × W165 mm	L450 × H220 × W130 mm
Weight	5.7 kg	4.5 kg
Name of Mfr.	Rustibus®	

Replacement Chain Drums for Rustibus Angle De-Scalers



Disposable Chain Drum



Twisted Knot Wire Brush

For Pneumatic Model 033-3000

Unit Per Pc.

CODE	Items	Part No.
59 03 22	R33 chain drum, pack of 3	033-3356
25	R33 wire brush	033-3202
74	R33 Air motor	033-3001
75	R33 Screen	033-3010

For Electrical Models 034-4000 & 032-2000

Unit Per Pc

Description	For model 034-4000		For model 032-2000	
	CODE	Part No	CODE	Part No
Disposable chain drum pack of 3	**59 03 76**	034-4356	**59 03 37**	032-2356
Twisted knot wire brush	**59 03 77**	034-4202	**59 03 39**	032-2202
Motor	**59 03 78**	034-4001	**59 03 80**	032-2001
Screen	**59 03 79**	034-4010	**59 03 81**	032-2010

Magno Rollers

for Rustibus® Angle De-Scaler

Rodillos Magno para Descamador para ángulos
マグノローラー　甲板除锈剂备用滚轮

Magno Rollers are a magnetised wheelbase for the Rustibus 30 series. They use a powerful magnet to support the entire Rustibus hand tool which makes them perfect for use on angled steel surfaces. It will enhance safety and operator comfort, and it will reduce operator strain in any working position.



Attached with Angle De-Scaler



033-6300 for R33 Magno roller



034-6400 forR34 Magno Roller



032-6200 for R32 Magno roller

Unit Per Set

CODE	59 03 24	59 03 55	59 03 30
Model	033-6300	034-6400	032-6200
For Magno Roller	R33	R34	R32
Weight kg (lbs)	0.9 (2)	0.82 (1.8)	0.9 (2)

Name of Mfr.: Rustibus®

Explosion-proof Angle De-Scalers

Descamador para ángulos antiexplosiones
防爆型アングルデッキスケーラー
防爆型斜角式甲板除锈机



Specially designed and produced for use on tankers, gas carriers, oil tankers, FPSOs, rigs and platforms, or in on shore oil and gas refineries. In fact anywhere that you need to do maintenance on steel, in a potentially explosive atmosphere. After thorough and intensive testing, the machines received the final stamp of approval by DNV (Det Norske Veritas). Certified by DNV to meet EX/ATEX 94/9/EC directive.

Unit Per Set

CODE	59 03 35
Model	X33 AIR (033-X3000)
Working Track mm (")	25 (1)
Air Consumption L/min (CFM)	625 (22)
Working Pressure bar (psi)	6 (87)
rpm	2,500 (Free speed)
Result	ST3 +++ (SSPC-SP11 +++)
Size mm (")	L 450 (17.5) × 200 (8) × 145 (5.5)
Weight kgs (lbs)	3.7 (8)

Name of Mfr.: Rustibus®

For spares see other Hand De-Scaler Models.

Pneumatic Die Grinders

Amoladora de Dado Neumáticos
エア・ダイ・グラインダー　气动小型磨轮



Compact and easy to handle air tool designed for precision grinding, reshaping of machine parts, grinding small castings, removing welding

slags and sharpening and finishing wood, glass and plastics.

Recommended air pressure is 0.59 MPa (6 kgf/cm²) and the item is furnished with a hose nipple and tools for wheel mounting. The specifications listed here are for your reference. If you wish to order die grinders from a specific manufacturer, please order from the comparison table listing major international manufacturers and model numbers on page 59-9.

How to order: CODE

Die grinder, pneumatic, COLLET CHUCK SIZE, MODEL

Unit Per Set

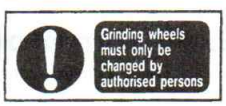
CODE	Collet Chuck Size mm	Free Speed R.P.M.	Air Inlet PT	Air Hose mm	Weight kg
59 03 26	6.0	25,000	1/4	9.5	0.53

Pneumatic Straight Grinders

Amoladora Recta Neumática
ストレート・エア・グラインダー　　气动直式磨轮

A pneumatic high speed straight (horizontal) grinder. Compact, lightweight, and easy to operate. Speed governors are built-in to control the spindle speed. Recommended air pressure is 0.59 MPa (6 kgf/cm²). Furnished with air hose nipple and tools for wheel mounting. Grinding wheels are sold separately.





The specifications listed here are for your reference. If you wish to order straight grinders from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-9~10.

How to order: CODE

Straight grinder, pneumatic, WHEEL SIZE (O.D. x THICKNESS x I.D.), MODEL

Unit Per Set

CODE	Wheel Size O.D. x T x I.D. mm	Free Speed R.P.M.	Air Inlet PT	Air Hose mm	Weight kg
59 03 31	65 x 13 x 9.5	14,600	1/4	9.5	1.4
32	125 x 19 x 12.7	7,600	3/8	12.7	2.8
33	150 x 25 x 15.7	6,300	3/8	12.7	3.7
34	76 x 13 x 9.5	11,000	3/8	10.0	1.9

Pneumatic Hand De-Scalers

Descamador neumático manual
エアハンドディスケーラー　　气动手持式除垢器

Easy to handle, light weight surface preparation tool with a lot of power. This versatile piece of equipment utilizes a variety of abrasives from wire brushes, coating removal discs to erasers for removal of adhesive products.



Unit Per Set

CODE	59 03 43
Model	Rustibus® Mini Profiler 025-3000
Working Width	25 mm
Air Consumption	113 ltr/min
Air Pressure	6.3 bar / 90 psi
Result	St3++/SSPC-SP11
Dimensions	L275 x H150 x W80 mm
Weight	1.5 kg

Name of Mfr.: Rustibus®

Accessories for Pneumatic Hand De-scaler



Hub Assembly



Steel Bent Belt



Wheel Assembly

Unit Per Pc.

CODE	Items	Part No.
59 03 45	R25 Hub assembly 23 mm	025-0401
49	R25 Steel bent belt, course	025-0423
54	R25 Coating removal wheel assembly	025-0410

Pneumatic Derusting Brushes

Cepillo Neumático para Desherrumbar
エアー式錆落としブラシ　　气动除锈刷

For removing rust; used in machine building, mould making and container construction, in steel construction and ship building as well as in foundries.



Model MAG-9000®

Quality
A sturdy, durable, slim and compact tool for derusting works, even in places that are difficult to reach.

Safety
Optimized speed for brushing applications.

Efficiency
Fatigue-free working thanks to excellent weight-power ratio and the motor's vibration-free support. The standardized chuck (available as M14 collet chuck) accepts all standard brushes. Fast and efficient brush maintenance thanks to compact built-in units.

Unit Per Set

CODE	59 20 71
Model	MAG-9000®
Power	600 W
Speed	9,000 min⁻¹
Chuck	M14 x 2 mm
Operating Pressure	6.3 bar
Air Consumption	13.3 ltr/sec
Air Connection	G 3/8"
Weight	1.4 kg
Standard Accessories	Tool with chuck M14, quick-coupling nipple, hose nipple and assembly wrenches

Name of Mfr. : Holger Clasen GmbH & Co. KG

Accessories for Derusting Brush MAG-9000®



Wire Cup Brush, Plaited 80 mm dia



Wire Cup Brush, Plaited 60 mm dia



Wire Cup Brush, Crimped 80 mm dia



Conical Wheel Brush, Plaited 100 mm dia



Protective Cover

Unit Per Pc.

CODE	Item	Description	Name
	Wire Cup Brush		
59 20 72	Crimped	80 mm dia for light rust	BT 80-M14
73	Plaited	80 mm dia for heavy rust	BT 80-K-M14
74	Crimped, stainless steel	80 mm dia for light rust	BT 80-VA-M14
79	Crimped	60 mm dia for light rust	BT 60-M14
75	Plaited	60 mm dia for heavy rust	BT 60-K-M14
80	Crimped, stainless steel	60 mm dia for light rust	BT 60-VA-M14
	Conical Wheel Brush		
59 20 76	Plaited	100 mm dia for heavy rust in indentations	BT 100 F-M14
77	Plaited, stainless steel		BT 100 F-VA -M14
	Protective Cover		
59 20 78	For protection against removed material that is flying around when using conical wheel brushes		TB08772/115

Model GG 30/54 & GG30/65



The compact design makes rust removal easy, even in places that are difficult to reach. Fatigue-free working thanks to excellent weight-power ratio and the motor's vibration-free support. The standardised chuck (available as 0.5 - 7 mm dia collet chuck) accepts all standard brushes. Fast and efficient brush maintenance thanks to compact built-in units.

Unit Per Set

CODE	**59 20 81**	**59 20 91**
Model	GG 30/54	GG30/65
Power	300 W	300 W
Speed	5,400 min^{-1}	6,500 min^{-1}
Chuck	0.5 – 7 mm	0.5 - 7 mm
Operating Pressure	6.3 bar	6.3 bar
Air Consumption	9.0 ltr/sec	9.0 ltr/sec
Air Connection	G 1/4"	G 1/4"
Weight	0.5 kg	0.5 kg
Standard Accessories	6 mm dia standard chuck, Quick- coupling nipple, Assembly wrenches, Hanging device and second handle	6 mm dia standard chuck, Quick-coupling nipple, Assembly wrenches, Hanging device and second handle

Name of Mfr. : Holger Clasen GmbH & Co. KG

Accessories for Derusting Brush GG 30/54 & GG30/65



Wire Brush with 6 mm Shank

Unit Per Pc.

CODE	Ferrule Dia	Wire Size Dia	Name
59 20 82	20 mm	0.15 mm	BP-30302
83	19 mm	0.30 mm	BP-30304
84	19 mm	0.35 mm	BP-30305
59 20 85	23 mm	0.15 mm	BP-30308
86	22 mm	0.25 mm	BP-30310
87	22 mm	0.30 mm	BP-30311
88	23 mm	0.50 mm	BP-30312
59 20 89	30 mm	0.15 mm	BP-30314
90	30 mm	0.26 mm	BP-30316

Model GG26/270 & GG28/370



GG26/270



GG28/370

The compact design makes rust removal easy, even in places that are difficult to reach. Fatigue-free working thanks to excellent weight-power ratio and the motor's vibration-free support. Fast and efficient brush maintenance thanks to compact built-in units.

Unit Per Set

CODE	**59 20 92**	**59 20 93**
Model	GG26/270	GG28/370
Power	260 W	280 W
Speed	27,000 min^{-1}	37,500 min^{-1}
Chuck	6 mm	6 mm
Operating Pressure	6.3 bar	6.3 bar
Air Consumption	6.6 ltr/sec	5.8 ltr/sec
Air Connection	G 1/4"	G 1/4"
Weight	0.6 kg	0.5 kg
Standard Accessories	6 mm dia collet chuck, inlet and exhaust air hose, adapter, quick coupling nipple, assembly wrenches and locking pin	6 mm dia collet chuck, inlet and exhaust air hose, adapter, quick coupling nipple, assembly wrenches

Accessories for Straight Grinder GG 26/270 & GG28/370



Grinding Pin



Tungsten Pin

Unit Per Pc.

CODE	Description	Dimension	Model Number
59 20 94	Diamond grinding pins, cylindrical shape	4 x 20 mm	101 99 055
95		6 x 20 mm	101 99 056
96		8 x 20 mm	101 99 057
59 20 97	Grinding pin set	10 different types, grade O, coarse grain	101 99 150
59 20 98	Tungsten carbide burr with long shaft, drill bit tip 135°	6 x 19 mm	101 99 026
59 20 99	Tungsten carbide burr set	5 different types, cut 3 PLUS	101 99 040

Pneumatic Hand Drills

Taladros Neumáticos　小型エアドリル　气动手钻

For use on light and medium duty drilling. Power is controlled by a built-in air regulator located on the pistol or grip handle, for adjusting to different drilling surfaces. The types of handle differ from manufacturer to manufacturer. Recommended air pressure is 0.59 MPa (6 kgf/cm²).

Key chuck and air hose nipple are equipped as standard accessories. The specifications listed here are for your reference. If you wish to order hand drills from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-10.



Pistol Handle



Grip Handle

How to order: CODE

Hand drill, pneumatic, DRILLING CAPACITY mm, TYPE of HANDLE, MODEL

Unit Per Set

CODE	Drilling Capacity mm	Collet Chuck Size mm	Free Speed R.P.M.	Air Inlet PT	Air Hose mm	Weight kg
59 03 41	6.5	6.5	2,900	1/4	9.5	0.75
42	9.5	10.0	1,400	3/8	9.0	1.4
46	8.0	8.0	1,500	1/4	9.5	1.2
47	13.0	13.0	700	3/4	9.5	2.3
48	16.0	16.0	400	1/4	9.5	2.9

Pneumatic Heavy Duty Rotary Drills

Taladros Neumáticos Industrial
中型・大型エアドリル　风动重载荷旋转钻机

Powerful rotary drills have a very smooth operation for accurate drilling, reaming, tapping and tube rolling. Side handled type will be supplied in standard. The air hose nipple is equipped as a standard accessary.



Side Handle

Recommended air pressure is 0.59 MPa (6 kgf/cm²). The specifications listed here are for your reference. If you wish to order heavy duty rotary drills from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-10.

How to order: CODE

Rotary drill, pneumatic, heavy duty, DRILLING CAPACITY mm

Unit Per Set

CODE	Drilling Capacity mm	Collet Chuck Size mm	Free Speed R.P.M.	Air Inlet PT	Air Hose mm	Weight kg
59 03 51	22.0	M.T. #2	600	3/8	12.7	5.8
52	32.0	M.T. #3	380	1/2	12.7	14.0
53	50.0	M.T. #4	160	1/2	19.0	18.7

Note: M.T. denotes Morse Taper.

Pneumatic Radial Chamfering Tools

Herramienta biseladora radial neumática
エアー式面取り機　气动倒角机



For radius chamfering on the scallop parts or holes of bridge members, or on steel materials used in seawater ballast tanks and double-side skin bulk carrier production. Dual cutting head with 4 radius surfaces per tip and a quick-change base. Meets or exceeds PSPC* requirements on surface preparation of steel materials prior to coating.

*PSPC stands for Performance Standard for Protective Coatings regulated by International Maritime Organization.

Unit Per Set

CODE	**59 03 57**
Model	CBR-03
Free Speed	12,000 min⁻¹ (rpm)
Chamfering Capacity	3 mm radius
Minimum Workpiece Thickness	6 mm
Air Pressure	0.6 (6) MPa (kgf/cm²)
Air Consumption (No-load)	0.65 m³/min
Inlet Size	Rc 1/4
Weight	2 kg
Accessories included	2 pieces of Indexable insert 12.7 R3 (Installed), 2 pieces of Indexable insert set screw (Installed), Indexable insert set screw, Spanner T-15D, Handle

Name of Mfr.: Nitto Koki Co., Ltd.

Pneumatic Multi-Tools

Herramienta múltiple neumática
エア・マルチツール　气动多功能工具



A pneumatic multi tools enable for use as grinding, sanding, drilling, milling, and brushing with one tool. Handy, light weight and can be used in small areas for small repairs.

Unit Per Set

CODE	**59 03 58**
Air Pressure	6.3 bar
Disc Size Diameter	100 x 16 mm
RPM	5,000 – 1,500 rpm/min.
Power	1.0 HP
Shaft	3/8" x 24 UNF
Air Consumption	3.6 CFM
Drilling Capacity	6.0 mm
Flap Disc	100 mm
Brush	100 mm x 3/8" x 24 UNF
Burr/Grinding Stones	Max. 25 mm
Length	234 mm
Weight	1.1 kg

Pneumatic Chipping Hammers

Cinceladores tipo Pistola (Neumático)
エアチッピングハンマー　气动敲锈榔头



Powerful hammers for billet chipping, general chipping and the removal of calking/weld flux, paint and rust in limited space. There are two kinds of shank types, round or hexagon, are available. When ordering, please specify which shank model is required.

Required air pressure is 0.59 MPa (6 kgf/cm²). The specifications listed here are for your reference. If you wish to order chipping hammers from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-10.

How to order: CODE

Chipping hammer, pneumatic, BLOW PER MINUTE, TYPE of SHANK, MODEL

Unit Per Set

CODE	Type of shank	Blow per Minute	Piston Dia mm	Air Inlet PT	Air Hose mm	Weight kg
59 03 61	Round	2,600	19.0	3/8	9.5	1.7
59 03 62	Hexagon	2,300	18.0	1/4	9.5	2.2

Chisels for Pneumatic Chipping Hammer

Utiles para Martillos Cinfeladores
エアチッピングハンマー用ハガネ　气动敲锈榔头备用凿子

These chisels differ from manufacturer to manufacturer. When ordering, it is necessary to provide information about the manufacturer and model of the chipping hammer you are currently using.



Moil Point

Unit Per Pc.

CODE	Description	Shank
59 03 66	Flat chisel	Round
67	Moil point chisel	Round
59 03 72	Flat chisel	Hexagon
73	Moil point chisel	Hexagon

Pneumatic Scaling Hammers

Piquetas Neumaticas (Desincrustadores)
スケーリングハンマー　风动敲凿锤

Suitable for the removal of old paint and rust. The specifications listed here are for your reference. If you wish to order scaling hammers from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-10.

Recommended air pressure is 0.59 MPa (6 kgf/cm²). The air hose nipple is furnished as a standard accessory. Due to slight differences in available models, please specify the manufacturer's name and model number when ordering spare hammers.



59 03 82　　59 03 83

How to order : CODE

Scaling hammer, pneumatic, NUMBER of PISTONS, MODEL

Unit Per Set

CODE	Number of Piston	Piston Dia mm	Stroke mm	Free Speed R.P.M.	Air Inlet PT	Air Hose mm	Weight kg
59 03 82	1	30.0	15	8,000	3/8	9.5	2.1
83	3	22.0	10	7,000	3/8	12.7	3.2

Spare Hammer Heads

for Pneumatic Scaling Hammer

Pistones de Repuesto para Piquetas
スケーリングハンマー用ハンマーヘッド
风动敲凿锤用备用锤头



These hammer heads differ from manufacturer to manufacturer. When ordering, it is necessary to provide information about the manufacturer and model of the scaling hammer you are currently using.

Unit Per Pc.

CODE	Number of Piston	CODE	Number of Piston
59 03 87	1	**59 03 88**	3

Scaling Hammers

SF Single and Triple Head

Martillos escaladores, SF Cabezal simple y triple
スケーリングハンマー , SF シングル＆トリプルヘッド
缩放锤 SF 单头和三头

Highly effective for quick removal of heavy scale and coatings. The single head tools are perfect for smaller and "hard" to reach areas, being lightweight and easy to handle it's perfect for reaching behind structures and up against bulkheads. Options include ATEX approved, "non-spark" Beryllium Copper heads and Low vibration models, compliant with the strictest Health & Safety guidelines.



SF-1



Hammer Head

Single Head

Unit Per Set

CODE	59 02 88	59 02 89	59 02 90	59 03 84
Model	SF1			VLSF1
Part No.	151.5100	196.5110	151.5180	196.5095
Head	Cruciform taper fit Tungsten Carbide head	Taper fit Beryllium Copper head, ATEX approved.	Cruciform single piece Steel	Cruciform taper fit, Low Vibration Model.
B.P.M.	3,000			
Air Consumption (Lps/cfm)	3.3/7			4.25/9
Noise Level (db(A))	88.1			90.9
Vibration Level (Aeqm/s2)	6.8			4.4
Length mm	485			500
Working Height mm	152.5			
Weight kg	2.5			

Name of Mfr. : Trelawny SPT Ltd.

Triple Heads

Unit Per Set

CODE	59 02 91	59 03 59	59 03 64
Model	SF3		
Part No.	153.5300	153.5310	153.5380
Head	Cruciform taper fit Tungsten Carbide head	Taper fit Beryllium Copper head. ATEX Approved	Cruciform single piece Steel
B.P.M.	3,000 × 3		
Air Consumption (Lps/cfm)	5.2/11		
Noise Level (db(A))	92.7		
Vibration Level (Aeqm/s2)	13.4		
Length mm	485		
Working Height mm	152.5		
Weight kg	3.7		

Name of Mfr. : Trelawny SPT Ltd.

Spare Heads

for Trelawny Scaling Hammer

Cabeza de repuesto para martillo Trelawny Scaling Hammer
スケーリングハンマー用 スペアヘッド
备用锤头 用于 Trelawny Scaling Hammer

Unit Per Pc.

CODE	59 03 85	59 03 89	59 03 65
Item	Tungsten carbide	Beryllium copper, non-spark	Single piece steel piston
Part No.	426.5351	606.5303	612.5305

Note : SF1 and SF3 spares are compatible with SF11 deck scaler.
Name of Mfr. : Trelawny SPT Ltd.

Scaling Piston Hammers

7 Piston Hammer

Martillos de émbolo a escala, Martillo de pistón 7
スケーリング・ピストン・ハンマー , 7 ピストンハンマー
缩放活塞锤 7 活塞锤

Multipurpose tools that allow to create a natural and smooth roughening effect on all surfaces, quickly removes laitance, projections, encrustation, scale deposits, colour, smoothes roughening and much more. Applicable for processing concrete, stone and granite surfaces and intended for works on horizontal surfaces.



7 Piston Hammer



Spare Piston

Specifications

Model	DK7H
Air consumption	1,120 l/min, 39.0 cfm
Max. permitted air pressure	7 bar (100 psi)
Vibration value on handle	8.3 m/s²
Sound pressure level	≤98.7 dB (A)
Acoustic power level	≤108.2 dB (A)
Connection thread	G1"
Dimensions	950 × 350 × 950 mm
Weight	47 kg

Name of Mfr.: Von Arx EOOD.

CODE	Description	Model	Unit
59 03 95	Scaling piston hammer, pneumatic, 7 piston	DK7	Set
59 03 96	Spare piston for 7 piston scaling hammer		Set

Comparison Table of Pneumatic Tools

Tabla de Comparación de Herramientas Neumáticas
エアー工具主要モデル国際比較表　气动工具比较表

Products from a few manufacturers are listed below and the next two pages for your reference. If there is any question as to what model is most suitable, please ask for further information or brochures from the local manufacturer when ordering.

In the table below, the products for each manufacturer are listed vertically according to the (square drive size, wheel diameter, drill capacity, number of pistons, etc) which are listed in the left hand column.

When ordering: Impact wrenches

1. Select the square drive size required : 12.7 mm
2. Select a manufacturer from one of the columns to the right : Atlascopco
3. List the representative code for that size : 59 01 01
4. List the model number of the tool from that manufacturer : LMS 28HR – 13

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Impact Wrenches

CODE	Square Drive	Atrascopco (Sweden)	INGERSOLL-RAND (U.S.A.)	ICO (Italy)	Holger Clasen (Germany)	CLECO (U.S.A.)	YOKOTA (Japan)	YUTANI (Japan)	URYU (Japan)	NPK (Japan)	OTHERS	FUJI (Japan)
59 01 01	12.7 mm (1/2")	LMS 28HR-13 (8434128000) (Pistol) 9,500 r.p.m.	2903 P1 (Pistol) 6,000 r.p.m.	A2 (Pistol) 10-16 mm	-	WP 421 D (Pistol) 7,000 r.p.m.	YW-14PRK (Pistol) 6,000 r.p.m	13WH2 (Pistol) 4,800 r.p.m	UW-13SK (Pistol) 6,500 r.p.m.	NW-14H (Pistol) 5,500 r.p.m	-	FW-14PH-2 (Pistol) 7,500 r.p.m
59 01 02	15.9 mm (5/8")	-	2908 P1 (Pistol) 6,000 r.p.m.	-	-	WP 421 D-5/8 (Pistol) 7,000 r.p.m.	-	16WPA (Pistol) 5,200 r.p.m.	-	-	-	FW-14PH-3 (Pistol) 7,500 r.p.m.
59 01 05	19.0 mm (3/4")	LMS 58HR-20 (8434158001) (Pistol) 5,500 r.p.m.	2920 B1 (Grip) 5,000 r.p.m.	A3 (Pistol) 12-22 mm	-	WP 2049-3/4 (Pistol) 6,200 r.p.m.	YW-26S (Grip) 5,500 r.p.m.	22WB (Grip) 3,800 r.p.m.	UW-22S (Grip) 4,000 r.p.m.	NW-22A (Grip) 4,500 r.p.m.	-	FW-250P-2 (Pistol) 5,000 r.p.m.
59 01 06	25.4 mm (1")	LMS 68HR-25 (8434168001) (Pistol) 5,000 r.p.m.	2920 B3 (Grip) 5,000 r.p.m.	A4 (Grip) 16-28 mm	-	WP 2059-1 (Pistol) 4,000 r.p.m.	YW-32C (Grip) 4,200 r.p.m	32WH (Grip) 3,600 r.p.m	UW-32SLA (Grip) 3,500 r.p.m	NW-32 LA (Grip) 4,000 r.p.m.	-	FW-320P-1 (Pistol) 4,800 r.p.m.
59 01 07	31.8mm (1-1/4")	-	-	A5 20-36 mm	-	-	-	45WA (28.6 mm) (Side) 2,800 r.p.m.	UW-401 (Grip) 2,600 r.p.m.	-	-	FW-420-2 (Grip) 4,500 r.p.m.
59 01 08	38.1 mm (1-1/2")	-	5980 A1 (Side) 830 r.p.m.	A6-0 (Side) 27-45 mm	-	W-2119 (Grip) 3,300 r.p.m.	YW-50C (Side) 3,000 r.p.m.	50WHA2 (Side) 2,500 r.p.m	UW-550 (Side) 3,500 r.p.m.	NWH-500 (Side) 3,500 r.p.m.	-	FW-50-7 (Side) 4,000 r.p.m.
59 01 09	44.45 mm (1-3/4")	-	-	A6-1 30-80 mm	-	-	-	75WB (Side) 2,400 r.p.m	UW-75S (Side) 1,400 r.p.m.	NWH-750 (Side) 2,200 r.p.m.	-	FW-75-7 (Side) 3,000 r.p.m.

Angle Grinders

CODE	Wheel Diam.	Atrascopco (Sweden)	INGERSOLL-RAND (U.S.A.)	Trelawny SPT Ltd. (U.K.)	ICO (Italy)	Holger Clasen (Germany)	CLECO (U.S.A.)	YOKOTA (Japan)	YUTANI (Japan)	URYU (Japan)	NPK (Japan)	NITTO KOHKI (Japan)	FUJI (Japan)
59 03 05	58 mm	-	-	-	-	GW21A/190-1 19,000 r.p.m	-	-	-	-	-	-	-
59 03 01	100 mm	LSV29 ST12-100 (8423012745) (100 mm) 12,000 r.p.m.	TA 120 RP64 12,000 r.p.m.	170.4050 12,000 r.p.m.	3602-00-E-4 12,000 r.p.m.	DW104-1 13,000 r.p.m.	116GLF 115RAW 11,500 r.p.m.	G4-SA 13,000 r.p.m.	YGS-4GS-2 13,600 r.p.m.	USG-40S 13,300 r.p.m.	NAG-400A 13,600 r.p.m	**(59 03 06)** MG-40 (MAGW-40) 13,000 r.p.m	FA-30-3 13,500 r.p.m.
59 03 04	115 mm	LSV29 ST12-115 (8423012746) (115 mm) 12,000 r.p.m.	-	-	-	DW104/115-1 13,000 r.p.m.	-	-	-	-	-	-	-
59 03 50	125 mm	LSV29 ST12-125 (8423012747) (125 mm) 12,000 r.p.m.	-	170.4054 10,000 r.p.m.	-	DW110D/110-1 11,000 r.p.m.	-	-	-	-	-	-	-
59 03 02	180 mm	LSV48 SA085-18 (8423013206) 8,500 rpm	77A 75P 107M 7,500 r.p.m.	170.4071 7,500 r.p.m.	3602-00-E-7 7,000 r.p.m.	DW108-1 7,600 r.p.m.	15GL-60RA 6,000 r.p.m.	G7-SA 7,500 r.p.m.	YGS-7GS-3 7,600 r.p.m.	USG-7S 7,400 r.p.m.	NAG-70A 7,600 r.p.m.	**(59 03 08)** MYG-70 7,600 r.p.m.	FA-6C-1 7,600 r.p.m.
59 03 03	230 mm	LSS66 S060-23 (8423266009) 6,000 r.p.m.	88V 60P 109M 6,000 r.p.m.	-	3600-00-E 9 6,000 r.p.m.	-	1945 VSL 4,500 r.p.m.	7VC 6500F 6,500 r.p.m.	-	UVG-2300 SL59 5,900 r.p.m.	NVG-230SLW 5,900 r.p.m.	-	FV-9BH-1M 5,900 r.p.m.

Die Grinders

CODE	Chuck Size	Atrascopco (Sweden)	INGERSOLL-RAND (U.S.A.)	ICO (Italy)	Holger Clasen (Germany)	CLECO (U.S.A.)	YOKOTA (Japan)	YUTANI (Japan)	URYU (Japan)	NPK (Japan)	NITTO KOHKI (Japan)	FUJI (Japan)
59 03 26	6 mm	LSF29 S250 (8423012711) 25,000 r.p.m.	TD 250RG4M 25,000 r.p.m.	-	GG30/220K 22,000 r.p.m.	116GLF-250 25,000r.p.m.	MG-0A 25,000r.p.m	HG-38NB-2 22,000r.p.m	UG-25NA 23,500 r.p.m.	RG-383A-06 RG-383A-20 (6mm) (1/4") 25,000 r.p.m.	**(59 04 31)** L-25B 27,000 r.p.m.	FG-26H-1 FG-26H-1F 24,000 r.p.m

Straight Grinders

CODE	Wheel Diam.	Atrascopco (Sweden)	INGERSOLL-RAND (U.S.A.)	ICO (Italy)	Holger Clasen (Germany)	CLECO (U.S.A.)	YOKOTA (Japan)	YUTANI (Japan)	URYU (Japan)	NPK (Japan)	OTHERS	FUJI (Japan)
59 03 31	65 mm	-	-	-	-	-	GS-2 14,000 r.p.m.	HG-65GS 14,600 r.p.m.	UG-65S 14,300 r.p.m.	NHG-65DLW 14,600 r.p.m.	-	FG-3H-1 14,600 r.p.m.
59 03 32	125 mm	LSR 64 S072-13 (8423164030) 7,200 r.p.m.	-	-	-	-	-	HG-120GS-2 7,600 r.p.m.	UG-125H 7,600 r.p.m.	NHG-125LW 7,500 r.p.m.	-	FG-5H-1 7,600 r.p.m

Straight Grinders

CODE	Wheel Diam.	Atrascopco (Sweden)	INGERSOLL-RAND (U.S.A.)	ICO (Italy)	Holger Clasen (Germany)	CLECO (U.S.A.)	YOKOTA (Japan)	YUTANI (Japan)	URYU (Japan)	NPK (Japan)	OTHERS	FUJI (Japan)
59 03 33	150 mm	LSR 64 S060-15 (8423164022) 6,000 r.p.m.	88HL 60H 106 6,000 r.p.m.	200-0 5,000 r.p.m.	-	560 BSL 5/8 6,000 r.p.m.	-	HG-150GS-2 6,300 r.p.m.	UG-150H 6,300 r.p.m.	NHG-150LW 6,200 r.p.m	-	FG-6H-1 6,300 r.p.m.
59 03 34	76 mm	-	TXD 180RH63 18,000 r.p.m.	-	-	15NGEL 180-WC 18,000 r.p.m.	-	HG-75GS 12,700 r.p.m	-	-	-	FG-3H-2 12,700 r.p.m.

Hand Drills

CODE	Drill Capacity	Atrascopco (Sweden)	INGERSOLL-RAND (U.S.A.)	ICO (Italy)	Holger Clasen (Germany)	CLECO (U.S.A.)	YOKOTA (Japan)	YUTANI (Japan)	URYU (Japan)	NPK (Japan)	NITTO KOHKI (Japan)	FUJI (Japan)
59 03 41	6.5 mm	LBB 16 EPX-033 (6.5 mm) (8421010832) (Pistol) 3,300 r.p.m.	3 AJ1 (6.0 mm) (Pistol) 3,800 r.p.m.	-	DG30/290P (Pistol) 2,900 r.p.m	111DO-40B (Pistol) 4,000 r.p.m.	YRD-6N (Pistol) 2,800 r.p.m.	YBD-6 (6.3 mm) (Pistol) 3,600 r.p.m.	UD-50-45 (Pistol) 5,000 r.p.m.	NRD-6PB (Pistol) 2,400 r.p.m	ADR-65 (Pistol) 2,900 r.p.m.	FRD-6PH-3 (Pistol) 2,800 r.p.m.
59 03 42	9.5 mm	LBB 36 H026 (10 mm) (8421040833) (Pistol) 2,600 r.p.m.	5 AN3 (10.0 mm) (Pistol) 1,000 r.p.m.	AR-X10 (10.0 mm) (Pistol) 2,000 r.p.m.	DG30/100P (Pistol) 1,000 r.p.m.	111DO-14B (Pistol) 1,400 r.p.m.	YRD-8N (Pistol) 1,850 r.p.m.	YBD-10 (10.0 mm) (Pistol) 1,000 r.p.m.	UD-80-12 (Pistol) 1,500 r.p.m.	NRD-10P (10.0 mm) (Pistol) 2,000 r.p.m.	ADR-100 (Pistol) 2,000 r.p.m.	FRD-8PX-2 (Pistol) 1,300 r.p.m.
59 03 46	8 mm	LBB26 EXP-045 (8421050012) (Pistol) 4,500 r.p.m.	780 (Pistol) 350 r.p.m.	-	DG30/170P (Pistol) 1,700 r.p.m.	111DO-28B (Pistol) 2,800 r.p.m.	-	YBD-8B (Pistol) 1,500 r.p.m.	UD-60-15 (Pistol) 1,600 r.p.m.	-	-	FRD-8PX-1 (Pistol) 2,600 r.p.m.
59 03 47	13 mm	LBB 36 H007 (8421040807) (Pistol) 700 r.p.m.	7806 (Pistol) 950 r.p.m.	AR-X13 (Pistol) 1,500 r.p.m.	DG40/80P (Pistol) 750 r.p.m.	15DP-8B (Pistol) 800 r.p.m.	YRD-13N (Pistol) 700 r.p.m	RD-13 (Grip) 1,200 r.p.m.	UD-80-07 (Pistol) 830 r.p.m.	NRD-12PA (Pistol) 1,500 r.p.m	-	FRD-8PX-3 (Pistol) 900 r.p.m.
59 03 48	16 mm	LBB 45H017 (8421050132) (Pistol) 1,700 r.p.m.	-	AR-X16 (Pistol) 900 r.p.m.	-	-	-	RD-16R (Side) 900 r.p.m.	UD-80-04 (Pistol) 460 r.p.m.	NRD-16R (Side) 900 r.p.m.	-	FRD-16Z-1 (Grip) 800 r.p.m.
59 03 51	22 mm	-	22 MA2 (Side) 350 r.p.m.	AR-X22 (Side) 600 r.p.m.	-	-	-	RD-23RL (Side) 570 r.p.m.	URD-22R (Side) 600 r.p.m.	NRD-22RLW (Side) 600 r.p.m	-	FRD-23R-21 (Side) 480 r.p.m.
59 03 52	32 mm	-	33 SKA (Side) 300 r.p.m.	-	-	-	-	RD-32R (Side) 450 r.p.m.	URD-32LR (Side) 380 r.p.m.	NRD-32LRLW (Side) 270 r.p.m	-	FRD-32R-11 (Side) 380 r.p.m.
59 03 53	50 mm	-	44 SMA (51.0 mm) (Side) 155 r.p.m.	-	-	-	-	-	URD-500R (Side) 160 r.p.m.	-	-	FRD-50R-11 (Side) 150 r.p.m.

Remark: (Pistol), (Grip) and (Side) are types of handles.

Chipping Hammers

CODE	Type of Shank	Atrascopco (Sweden)	INGERSOLL-RAND (U.S.A.)	Trelawny SPT Ltd. (U.K.)	ICO (Italy)	Holger Clasen (Germany)	CLECO (U.S.A.)	YOKOTA (Japan)	YUTANI (Japan)	URYU (Japan)	NPK (Japan)	NITTO KOHKI (Japan)	FUJI (Japan)
59 03 61	Round	-	K2LA 2SA Bore 22 mm 3,600 b.p.m.	-	850-0 P.D. 24 mm 2,000 b.p.m.	ACH-16 6,000 b.p.m.	CH-22 Bore 28.6 mm 2,000 b.p.m.	BRH-6 P.D. 20 mm 3,500 b.p.m.	PC-1S(R) P.D. 28.5 mm 3,000 b.p.m.	AA-00(R) P.D. 20 mm 2,700 b.p.m.	AA-00SP(R) P.D. 18 mm 3,800 b.p.m.	A-300 P.D. 19 mm 2,600 b.p.m.	FRH-6A-2 P.D. 20 mm 3,000 b.p.m.
59 03 62	Hexagon	RRC22F-01 (8425020222) P.D.15 mm 3,700 b.p.m.	K2LA 1SA Bore 22 mm 3,600 b.p.m.	160.6009 4,400 b.p.m.	-	MHA 2 3,000 b.p.m.	-	-	PC-1S(H) P.D. 28.5 mm 3,000 b.p.m.	AA-00(H) P.D. 20 mm 2,700 b.p.m.	AA-00SP(H) P.D. 18 mm 3,800 b.p.m.	-	FRH-6A-1 P.D. 20 mm 3,000 b.p.m.

Remark: P. D. = Piston Diameter, B. P. M. = Blow per Minute.

Scaling Hammers

CODE	No. of Piston	Atrascopco (Sweden)	INGERSOLL-RAND (U.S.A.)	ICO (Italy)	Holger Clasen (Germany)	CLECO (U.S.A.)	Trelawny SPT Ltd. (U.K.)	YOKOTA (Japan)	YUTANI (Japan)	URYU (Japan)	NPK (Japan)	FUJI (Japan)
59 03 82	1	-	-	800-0 5,700 b.p.m.	S 21 3,900 b.p.m.	-	SF-1 3,000 b.p.m.	YK-2 8,000 b.p.m.	SCH-2 4,000 b.p.m.	-	S-2A 3,500 b.p.m.	FS-2A 8,000 b.p.m.
59 03 83	3	-	3161 C1 3,800 b.p.m.	797-0 7,000 b.p.m.	S 31 3,200 b.p.m.	SC-3A 5,200 b.p.m.	SF-3 3,000 b.p.m.	-	-	-	MS-30 7,000 b.p.m	-

Remark: B. P. M. is Blow per Minute.

2. Deck Scalers

Deck Scalers

Desincrustadores para Cubierta デッキスケーラー 甲板除锈机

For use in removing scales and surface paint from the ships deck. The scaler has a handle, allowing the operator to stand during use, relieving fatigue and protecting the eyes from dust and chipped metal or scale. Various types of scaling operation machines are available.

Required air pressure is 0.59 MPa (6 kgf/cm²).



Reciprocating Piston System



Rotary Scaling System

Pneumatic Powered

How to order: CODE

Deck scaler, pneumatic, SCALING SYSTEM, MODEL

Unit Per Set

CODE	59 04 01
Model	KC-100
Scaling System	Reciprocating Piston System
Numbers of Piston Head	11 pcs
Piston Diam	22 mm
R. P. M.	4,000 Blow/min
Scaling Width	300 mm
Weight	65 kg

Name of Mfr.: Kobe Cleaner

Unit Per Set

CODE	59 04 06	59 04 07
Scaling System	Rotary Scaling System	
Numbers of Scaling Head	84 pcs Striking chipping leaves	44 pcs Striking wheels
R. P. M.	3,000	2,000
Scaling Width	280 mm	280 mm
Weight	120 kg	136 kg

Engine Powered

How to order: CODE

Deck scaler, engine powered, rotary scaling head system, MODEL

Unit Per Set

CODE	59 04 03	59 04 08
Scaling System	Rotary Scaling System	
Numbers of Head and Shape	30 cutter blades	44 pcs striking wheels
Engine	4-cycle gasoline engine	
R. P. M.	3,400	2,000
Scaling Width	120 mm	280 mm
Weight	98 kg	173 kg

Electric Powered

How to order: CODE

Deck scaler, electric powered, rotary scaling system, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

CODE	59 04 09	59 04 10
Model	KC-120	FR200
Scaling System	Rotary Scaling System	
Numbers of head and shape	84 pcs Striking blades or 25 pcs wire wheel brush	76 pcs pentagonl cutters
Electrical Motor	AC 220 V or 440 V 3 phase 3 HP (2.2 kW)	AC 400 V, 50/60 Hz 3 HP (2.2 k\w)
R. P. M.	3,470	-
Scaling Width	300 mm	200 mm
Weight	120 kg	62.8 kg
Name of Mfr.	Kobe Cleaner	Von Arx EOOD

Replacement Heads for Deck Scaler

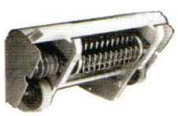
These replacement heads for deck scalers differ from manufacturer to manufacturer. When ordering, it is necessary to provide information about the manufacturer and model of the deck scaler you are currently using.



Piston Head



Cutter Blade Assembly



Cutter Drum Assembly

CODE	Item	Model	Unit
	For Pneumatic Powered		
59 04 11	Piston head	KC-100	Pc.
16	Cutter blade assembly	-	Set
19	Cutter drum assembly	-	Set
	For Engine Powered		
59 04 13	Cutter blade assembly	-	Set
19	Cutter drum assembly	-	Set
	For Electric Powered		
59 04 17	Cutter blade assembly	KC-120	Set
18	Wire wheel brush unit	KC-120	Set
19	Cutter drum assembly	FR200	Set

Deck Scalers

Trelawny Scaleforce, Eleven Multi-Head Scaler

Desincrustadores para Cubierta デッキスケーラー 甲板除锈机

Large area corrosion control for all duties on-board ship and off-shore platforms. De-scaling/de-rusting, removal of paint and marine growth on all steel work. Removal of floor coatings paint/epoxy etc.



Features and benefits

- Unique Vibro-lo vibration damping system.
- Wear resistant Tungsten carbide-tipped cutter-heads (59 03 98).
- Non spark Beryllium Copper head available (59 03 99).
- Quick change replaceable scaling heads.
- Dust shroud fitted as standard.
- Spares compatible with Trelawny SF1 & SF3 handheld models.

Unit Per Set

CODE	59 04 05	59 04 00
Model	SF-11	
Part No.	159.5910	159.5930
Machine	Fitted with tungsten carbide cruciform head	Fitted with non-spark beryllium copper non-spark head
Cutting Width	250 mm	
BPM	3,000 × 11	
Air Consumption	33 ltr/sec (70 cfm)	
Noise Level	103.1 LpA dB(A) 113.1 LwA dB(A)	LwA 113.1 dB(A)
Vibration (AEQ)	5.76 m/s^2	
Length	1,295 mm (51.2")	
Head Dimensions	Width 285 mm Height 150 mm (6") Depth 150 mm (6")	
Weight	36 kg (79.4 lbs)	

Remark: LpA dB(A) – Sound Power Level
LwA dB(A) – Sound Pressure Level
Name of Mfr.: Trelawny SPT Ltd.

Replacement Heads for Trelawny Deck Scaler SF-11

Unit Per Pc.

CODE	59 03 98	59 03 99
Material	Tungsten carbide	Beryllium copper
Pt/No.	426.5351	606.5303

Note: Beryllium copper head is Non-spark.
Name of Mfr.: Trelawny SPT Ltd.

Large Area Deck De-scalers

Trelawny TFP 200 Multi-Planer

Desincrustadores de cubiertas de gran superficie
大面積デッキデスケーラー　大面积甲板除鳞机

Scaling Width: 200 mm

Perfect for removing coatings and corrosion from ship decks, hatch covers and tank tops. Adjustable depth control and drum options allow for different surface finishes.


Air


Electric

Air Powered

Unit Per Set

CODE	59 22 31
Model	TFP200
Part No.	320.2412T
Working Width	195 mm (7.7")
Distance from Wall	45 mm (1.8")
Cutter Head Speed	1,528 rpm
Noise Level	94.1 LpA dB(A) 107.1 LwA dB(A)
Vibration (AEQ)	10.3 m/s^2
Size W × D × H	350 × 800 × 1,000 mm (13.8" × 31.5" × 39.4")
Weight	45 kg (99 lbs)

Remark: LpA dB(A) – Sound Power Level
LwA dB(A) – Sound Pressure Level
Name of Mfr.: Trelawny SPT Ltd.

Electric Powered

Unit Per Set

CODE	59 22 35	59 22 36	59 22 37
Model	TFP200		
Part No.	320.2416T	320.2404T	320.2406T
Voltage	110 V	220-240 V	380-440V
Phase & Hz	1 ph 60 Hz	1 ph 50/60 Hz	3 ph 60 Hz
Working Width	195 mm (7.7")		
Distance from Wall	45 mm (1.8")		
Cutter Head Speed	1,650 rpm		
Noise Level	89.9 LpA dB (A) 102.9 LwA dB (A)		
Vibration (AEQ)	10.3 m/s^2		
Size W×D×H	350 × 900 × 900 mm		
Weight	68 kg (149.9 lbs)		

Remark: LpA dB(A) – Sound Power Level
LwA dB(A) – Sound Pressure Level
Name of Mfr.: Trelawny SPT Ltd.

Replacement Heads

for Large Area Deck De-Scaler TFP200

Cabezas de Repuesto para Desincrustador
デッキスケーラー用交換ヘッド
甲板除锈机备用头子

← Heavier Scaling　　Lighter Burnishing →


Tipped Cutter　Star Cutter　Beam Cutter　Twisted Knot Wire Brush　Crimped Wire Brush

Applications

Tipped cutter	Hard wearing tungsten tips for removing heavily corroded areas.
Star cutter	Removal of light corrosion and heavy coating build up.
Beam cutter	Removal of light rust, leaving less stress point lines.
Twisted knot wire brush	Heavy surface rust and light paint removal.
Crimped wire brush	For burnishing and light rust removal.

Unit Per Pc.

CODE	Item	Part No.
59 22 41	Tungsten carbide cutter - (× 80 required)	320.5500
42	Star cutter - (× 208 required)	320.3658
43	Beam cutter - (× 264 required)	320.5120
44	Crimped wire brush	320.9610
45	Twisted knot wire brush	320.9620
50	Spacer (× 88 required) - For TCT Drum	320.4140

Name of Mfr.: Trelawny SPT Ltd.

Replacement Drum Head Assemblies

Unit Per Pc.

CODE	Item	Part No.
59 22 32	Tungsten carbide tipped cutter drum head	320.1020ST
33	Star cutter drum head	320.1020SS
38	Beam cutter drum head	320.1020SB
39	Crimped wire brush head	320.9610
40	Twisted knot wire brush head	320.9620

Heavy Duty Drums and Cutter Shafts for TFP200



Heavy Duty Drum



Cutter Shaft

Unit Per Pc.

CODE	With Shaft Diameter	Pt/No.	CODE	Diameter	Pt/No.
Heavy Duty Drum			Cutter Shaft		
59 22 47	12 mm	320.002H	**59 22 49**	12 mm	320.0020

Scaling Machines

Rustibus® Model 2000

Máquina Decapadora Rustibus®　スケーリングマシン　刮除機

Designed to de-scale and power brush decks on ships and rigs without time consuming and costly ways. The use and fast replacement of specially prepared and patented chain links is the key to this quick and efficient surface treatment. To remove and gather dust, scales and debris, it can be connected to an ejector.



Electric (Standard)



Electric (Low)



Diesel



Pnuematic (Standard)



Pneumatic (Low)

Electric (Standard)

Please specify on ordering, which model is required.
Standard model or LOW Model.

Unit Per Set

CODE	**59 12 05**	**59 12 06**
Model	Rustibus® 2000 (200-1000)	
Working Track	200 mm	
Voltage	AC 220 V	AC 440 V
Phase	3	
Power	21/12.2 amps	
RPM	1,425/1,720	
Power Frequency	50/60 Hz	
Dimensions	L 1,320 × H 900 × W 420 mm	
Weight	90 kg	
Name of Mfr.	Rustibus®	

Diesel

Unit Per Set

CODE	**59 12 07**
Model	Rustibus® 2000 (200-2000)
Working Track	200 mm
Power	7.0 hp
RPM	0 - 1,800
Diesel Consumption	2 ltr/hr
Motor	Yanmar L70 AE-S
Dimensions	L 1,320 × H 900 × W 420 mm
Weight	90 kg
Name of Mfr.	Rustibus®

Pneumatic (Standard)

Please specify on ordering, which model is required.
Standard model or LOW Model.

Unit Per Set

CODE	**59 12 08**
Model	Rustibus® 2000 (200-3000)
Working Track	200 mm
Air Consumption	6 m^3/min.
BPM	200
Work Pressure	6 – 8 ATO
Hose	1"
Dimensions	L 1,320 × H 900 × W 420 mm
Weight	90 kg
Name of Mfr.	Rustibus®

Replacement Heads

for Rustibus® 2000 Scaling Machine

Cabezales de repuesto para desincrustadora Rustibus® 2000
スケーリングマシン用交換用ヘッド
替换头　用于 Rustibus® 2000 除垢机



Disposable Chain Drum

Unit Per Pc.

CODE	Item	Part No.
59 12 09	Disposable chain drum	200-0156

Scaling Machines

Rustibus® Model 2000ECO

Escaladoras, Rustibus® Modelo 2000ECO
スケーリングマシン Rustibus® 2000ECO
刻度机 Rustibus® 2000ECO 型



Designed to de-scale and power brush decks on ships and rigs without time consuming and costly ways. The use and fast replacement of specially prepared and Patented chain link method is the key to this quick and efficient surface treatment. To remove and gather dust, scales and debris, this top end model collects the waste as you use it. It can also be connected to an ejector.

Electric (Standard)

Unit Per Set

CODE	59 19 13	59 19 14
Model	Rustibus® 2000ECO (200-ECO-1000)	
Working Track	200 mm	
Voltage	AC 220 V	AC 440 V
Phase	3	
Power	21/12.2 amps	
RPM	1,425/1,720	
Power Frequency	50/60 Hz	
Dimensions	L 1,320 × H 900 × W 420 mm	
Weight	90 kg	
Name of Mfr.	Rustibus®	

Scaling Machines

Rustibus® Model 1200 Electric

Escaladoras, Rustibus® Modelo 1200 Eléctrica
電動スケーリングマシン Rustibus® 1200
缩放机 Rustibus® 1200 型电动



Developed for de-scaling smaller areas and spot scaling surfaces. This scaling machine uses a disposable chain drum system with specially prepared chain links that deliver 80,000 blows per minute and this is the key to its quick and efficient method of surface preparation. Capacity : 12 m²/120 ft² per hour.

Unit Per Set

CODE	59 12 10	59 12 11	59 12 12
Model	Rustibus® 1200		
Working Track	120 mm		
Voltage	AC 220 V		AC 440 V
Phase	1	3	3
Power	3.5/2 amps		
RPM	1,410/1,715		
Power Frequency	50/60 Hz		
Dimensions	L 950 × H 900 × W 280 mm		
Weight	18 kg		
Name of Mfr.	Rustibus®		

Scaling Machines

Rustibus® Model 400

Escaladoras, Rustibus® Modelo 400
スケーリングマシン Rustibus® 400　　缩放机 Rustibus® 400 型

Developed for de-scaling along edges, smaller areas and spot scaling surfaces. The use and fast replacement of specially prepared chain links is the key to this quick and efficient surface treatment. This machine uses a disposable chain drum system with specially prepared chain links that deliver 28,000 of blows per minute and this is the key to its quick and efficient method of surface preparation.



Electric



Pneumatic

Electric

Unit Per Set

CODE	59 12 13	59 12 14	59 12 19
Model	Rustibus® 400		
Working Track	40 mm		
Voltage	AC 220 V		AC 440 V
Phase	1	3	3
Power	3.5/2 amps		
RPM	1,410/1,715		
Power Frequency	50/60 Hz		
Dimensions	L 950 × H 900 × W 280 mm		
Weight	18 kg		
Name of Mfr.	Rustibus®		

Remark: AC110V type is available if required.

Pneumatic

Unit Per Set

CODE	59 12 20
Model	Rustibus® 400
Working Track	40 mm
Air Consumption	2,400 ltr/min.
Work Pressure	6 – 8 ATO
Hose	1/2"
Dimensions	L 950 × H 900 × W 240 mm
Weight	24 kg
Name of Mfr.	Rustibus®

Chain Drums & Wire Brushes for Scaling Machine Rustibus® 400

Tambores de cadena y cepillos de alambre para caladora
スケーリングマシン用チェーンドラム＆ワイヤーブラシ
用于除垢机的链条滚筒和钢丝刷

A disposable chain drum (patented) for one-time-use for Rustibus 400 scaling machine. It doesn't require any spares replacement.



Chain Drum



Wire Brush



Heavy Duty Wire Brush

59 12 34	Chain drum for scaling machine, Rustibus® 400, part no.040-0356, pack of 3 pcs.	Pc.
59 18 01	Wire Brush for scaling machine, Rustibus® 400 part no.040-0158	Pc.
59 19 17	Heavy Duty Wire Brush for scaling machine, Rustibus® 400, part no.040-0151	Pc.

Scaling Machines

Rustibus® Model 1200 Air

Desincrustadoras, Rustibus® Modelo 1200 Aire
スケーリングマシン Rustibus® 1200 エアー
除鳞机 Rustibus® 1200 型气动



For de-scaling medium/large surfaces such as main deck, hatch covers, tank tops, etc. It can easily be transported around the vessel. The only consumable part is the patched disposable chain drum

which are made for one-time-use only and do not require any spares replacement. Simply use them until they are destroyed and then replace the entire drum with a new one. One chain drum set normally lasts for approx. 200 – 225 m^2, all depending on the use and surface conditions.

Unit Per Set

CODE	59 12 33
Model	Rustibus® 1200 Air
Capacity/Hour	18 m^2/194 ft^2
Working Track	120 mm (5")
Drum RPM	1,850
Blow/min.	80,000
Air Consumption	3.6 m^3/min. (127 CFM)
Work Pressure	6 – 8 bar (87 – 116 psi)
Hose	19 mm (3/4")
Power	4 hp/2.98 kw
Motor RPM	1,900
Size	L 950 × W 470 × H 900 mm
Weight	47 kg
Accessories	Lubricator and filter are supplied
Mfr's Name	Rustibus®

Remark: All Rustibus® Products are patented.

Chain Drums for Scaling Machine

Rustibus® 1200

Tambores de cadena para caladora
スケーリングマシン用チェーンドラム　除鳞机链条滚筒

A disposable chain drum for one-time-use for Rustibus 1200 scaling machine. It doesn't require any spares replacement.



Chain Drum



Wire Brush



Heavy Duty Wire Brush

59 12 37	Chain drum (patented) for scaling machine, Rustibus® 1200, part no.120-0156	Pc.
59 18 03	Wire Brush for scaling machine, Rustibus® 1200 part no.120-0158	Pc.
59 18 04	Heavy Duty Wire Brush for scaling machine, Rustibus® 1200, part no.120-0151	Pc.

Scaling Machines

Chain Impact Type Rustbit 500

Máquina Decapadora Tipo Impacto de Cadena
チェーンインパクト式スケーリングマシン
风动敲凿锤用备用锤头

The chain type electric motor driven deck scaling machine provides effective and quick rust removal performance with only one person. It can cover approx. 10m^2/hour on flat areas (hatch, deck, etc). Three-linked chains made of tempered steel strike against decks & remove rusts, scales and old paints.



Unit Per Set

CODE	59 12 35	59 12 36
Model	Rustbit 500	
Working Capacity	10 m^2/hour	
Electric Motor Driven	AC 220 V	AC 440 V
	0.75 kw, 3 ph, 60 Hz	
RPM	1,250	
Dimensions (L x W x H)	1,400 × 390 × 1,050 mm	
Net Weight	47 kg	
Name of Mfr.	BC Taechang Industrial Corporation	

Spare Parts for Chain Impact Scaling Machine Model Rustbit 500

Parts No.	Description	Parts No.	Description
DS500-0	Chain drum, Complete ass'y	WB700-0	Wire brush, Complete ass'y
DS500-1	Chain (25 pcs/set)	WB700-1	Brush (3 pcs/set)
DS500-2	Plate (5 pcs/set)	WB700-2	Boss
DS500-3	Bolt & nut (10 pcs/set)	WB700-3	Cover
DS500-4	Boss	WB700-4	Bolt & nut (4 pcs/set)
DS500-5	Collar (25 pcs/set)	WB700-5	Cover bolt

Scaling Machines

Aurand

Escaladoras, Aurand スケーリングマシン　缩放设备 奥兰

Featuring a 4-3/4" rotating head and heavy duty electric motor or gasoline drive. Designed with sturdy 42 inch handles and large rubber tires for easy maneuverability and stand-up operation. For cleaning any hard accumulation from concrete floors and walkways or for stripping painted lines from blacktop or concrete pavement. Also useful for removing the eggshell surface from new concrete to insure proper paint adhesion.



W1E



W1G

Unit Per Set

CODE	59 12 38	59 12 39	59 12 40
Model	W1E		W1G
Cleaning Area	4-3/4" Wide		
Power Source	AC 115V 60Hz Single phase motor totally enclosed	AC 230V 60Hz Single phase motor totally enclosed	Gasoline Motor 5 HP, 4 cycle unit, 3,500 rpm
Horse Power	2 HP		5 HP
Remarks	Ball bearings lubricated with moisture resistant grease.		1) Ball bearing hand-pull starter. 2) Two quart fuel tank Uses regular gasoline
Weight	97 lbs	115 lbs	92 lbs
Size	Height: 42" to top of handles Width: 12" to outside of wheels,15" to outside of motor & guard Length: 48"		Height: 42" to top of handles Width: 12" to outside wheels, 15" to outside of cutter housing & guard Length: 48"

Name of Mfr.: Aurand Manufacturing & Equipment Co., Inc.

Explosion-proof Deck Scalers

Rustibus® EX Series

Desincrustadores para cubiertas antiexplosiones
防爆型デッキスケーラー
防爆型甲板除锈机

Specially designed and produced for use on tankers, gas carriers, oil tankers, FPSOs, rigs and platforms, or in on shore oil and gas refineries. In fact anywhere that you need to do maintenance on steel, in a potentially explosive atmosphere. After thorough and intensive testing, the machines received the final stamp of approval by DNV (Det Norske Veritas). Certified by DNV to meet EX/ATEX 94/9/EC directive.


X400 AIR


X1200 AIR


X2000 AIR


X2000 AIR LOW

Unit Per Set

CODE	59 12 47	59 12 48	59 12 49	59 12 50
Model	X400 AIR (040-X3000)	X1200 AIR (120-X3000)	X2000 AIR (200-X3000)	X2000 AIR LOW (200-X9000)
Working Track mm (")	40 (1.6)	120 (5)	200 (8)	
Capacity hour m^2 (ft^2)	6 (64)	18 (194)	83 (183)	30 (320)
Blow/min.	28,000	80,000	200,000	
Air Consumption m^3/min (CFM)	2.4 (85)	3.5 (127)	6 (212)	
Working Pressure bar (psi)	7 (101)	7 (101)	6.5 (94)	
Hose mm (")	13 (1/2)	19 (3/4)	25 (1)	
Power hp (kW)	2.5 (1.86)	4 (3)	8 (6)	
rpm	1,900	1,900	1,850	
Result	ST3 +++ (SSPC-SP11 +++)			
Size mm (")	L: 950 (37) H:900 (35) W:240 (9)	L: 950 (37) H:900 (35) W:470 (18)	L: 2,190 (85) H: 430 (17) W: 420 (16)	
Weight kg (lbs)	24 (53)	45 (100)	83 (183)	100 (220)

Name of Mfr.: Rustibus®

Spare Parts for Rustibus® Deck Scaler

These spare parts can be applied to the scalers with same model numbers whatever the power source are different, or with/no explosion-proof type.

Unit Per Pc.

For Model 400 Series		For Model 1200 Series	
59 18 01	**59 18 02**	**59 18 03**	**59 18 04**
			
Standard Wire Brush (040-0158)	Heavy Duty Wire Brush (040-0202)	Standard Wire Brush (120-0158)	Heavy Duty Wire Brush (120-0151)

For Model 2000 Series

59 18 05	59 18 06	59 18 07
		
Chain Drum Assembly (200-0151)	Wire Brush Assembly (200-0155)	Wire Brush for R2000 (200-0158)
59 18 08	**59 18 09**	**59 18 10**
		
R2000 17 mm & 20 mm Bearing Kit (200-0187)		Shaft for Chain Drum (200-2300)

Name of Mfr.: Rustibus®

Electric Multi-Purpose Surface Machines

Máquina eléctrica multiusos para superficies
電動コーナースケーリングマシン
防爆型甲板除锈机



Fitted with heavy duty grinder, direct-on-line starter and safety lever switch. They are designed in easy manoeuvre, lightweight, reduce long hours fatigue by squatting and the safety switch for cutting off power supply in case of emergency. Can use for grinding, cutting, removing light and heavy rusts, surface profile and polishing. They are good for corners, hard to reach areas and uneven surface as tools are fitted in front. It can use Velcro sanding disc pad with different grits.

Standard Accessories (1 each)

		
Twisted Cup Brush Double Row	Crimped Bevel Brush	Knotted Bevel Brush
		
Cutting Grinding Disc	Sanding Disc Grit #36	Velcro Backing Pad

Unit Per Set

CODE	59 22 81
Model	CEG-230
Disc Size	5" – 7"
Voltage	220-240 V
Phase/Frequency	Single/50/60 Hz
Power/Amperes	2,200 W/11A
Speed	6,500 r/min
Max	80 m/s
Size	78 × 42 × 96 cm
Weight	31 kg

Name of Mfr.: Cobolt – KM Kinley

Spare Accessories for Electric Multi-purpose Surface Machine

CODE	Description	Unit
59 22 82	Cup brush, twisted, double row, 5"	Pc.
83	Brush, crimped bevel, 5"	"
84	Brush, knotted bevel, 5"	"
85	Cutting/grinding disc, 7"	"
86	Sanding disc Grit #36, 7"	"
59 22 87	Velcro backing pad, 7"	Pc.

Name of Mfr.: Cobolt – KM Kinley

Water Operated Surface Machines

Máquina de agua a presión para superficies
水圧式スケーリングマシン　水圧式刮除机



Operated by deck line water pressure where there is no electricity and air available on deck. Available scaling width in 200 mm and 300 mm. Fitted with 2" Nakajima type water hose coupling for water inlet and outlet. Please advise type of water hose coupling and size in use if you need other type or size of coupling.

Unit Per Set

CODE	**59 24 01**	**59 24 02**
Model	COW-200	COW-300
Scaling Width	200 mm	300 mm
Water Inlet/Outlet	Nakajima Type 2"	
Max. Water Supply	70 m^3/hr at 10.5 bar	
Size	85 × 40 × 92 cm	85 × 52 × 92 cm
Weight	62 kg	70 kg
Standard Accessories	Hammer cutters assembly	

Name of Mfr.: Cobolt – KM Kinley

Spare Assemblies

for Water Operated Surface Machine

Conjuntos de repuesto para máquina de superficie accionada por agua
水上サーフェスマシン用スペアアセンブリ
备用组件　用于水上操作平面机

Spare Assemblies


Beam Cutters Assembly


Star Cutters Assembly


Hammer Cutters Assembly


Tungsten Carbide Cutters Assembly


HD Star Cutters Assembly


Crimped Wire Wheel Assembly


Twisted Wire Wheel Assembly

CODE	Description		Unit
59 24 03	Beam cutters assembly,	200 mm	Pc.
04	"	300 mm	"
59 24 05	Star cutters assembly,	200 mm	Pc.
06	"	300 mm	"
59 24 07	Hammer cutters assembly,	200 mm	Pc.
08	"	300 mm	"
59 24 09	Tungsten carbide cutters assembly,	200 mm	Pc.
10	"	300 mm	"
59 24 11	HD star cutters assembly,	200 mm	Pc.
12	"	300 mm	"
59 24 13	Crimped wire wheel assembly,	200 mm	Pc.
14	"	300 mm	"
59 24 15	Twisted wire wheel assembly,	200 mm	Pc.
16	"	300 mm	"

Name of Mfr.: Cobolt – KM Kinley

Rust Removal and Surface Cleaning Machines

Mammut IV

Máquinas limpiadoras de herrumbre y de superficies
デッキスケーラー　甲板除锈机

Rust removal machines for removing rust, paint or slag on big-sized surfaces in corrosion protection, ship building, machine building and shipyards.

Delivery includes:

Tool with milling wheel roller MR260, 10m cable without plug (or compressed air connection and pneumatic maintenance unit), assembly tool set.




Electric


Pneumatic

Quality

Perfect for removing heavy rust, rust on plates and light rust. Sturdy support rollers ensure perfect and quiet working conditions.

Safety

Two-hand operation ensures a controlled, steady working position. Durable spray protection prevents removed material from flying around.

Efficiency

Quickly removes rust from large surface areas with little effort. Working up to the edge with the optional available edge grinder RR45.

Electric Model

Unit Per Set

CODE	59 24 51	59 24 52	59 24 53
Model	MAMMUT IV 115 V	MAMMUT IV 230 V	MAMMUT IV 400 V
Voltage	AC 115V Single Phase	AC 230V Single Phase	AC 400 3 Phase
Frequency	50/60 Hz		
Speed min^{-1}	1,500		
Power	1.5 kW		

Name of Mfr.: Holger Clasen GmbH & Co. KG

Pneumatic Model

Unit Per Set

CODE	59 24 54
Model	Mammut IV DL
Operating Pressure	6 bar
Speed min^{-1}	2,000
Power	1.5 k\w

Name of Mfr.: Holger Clasen GmbH & Co. KG

Accessories for Rust Removal and Surface Cleaning Machine



MR 260 Milling Wheel Roller



ML 260 Impact Hammer Roller



MEB 120 Brush Roller



MEBK 120 Brush Roller



Edge Grinder & Edge Grinder w/Protective Cover



Spare Parts Case

Unit Per Pc.

CODE	Item	Name	Description
59 24 55	Milling wheel roller	MR 260	With 42 milling wheels, 260 mm working width / For heavy rust and paint coats.
56	Impact hammer roller	ML 260	With 63 curved impact hammers / For medium-thick rust and paint.
59 24 57	Brush roller	MEB 120	Crimped wire Φ150 mm, 250 mm working width, for light rust plaited wire, Φ150 mm, 250 mm working width, strong brushing effect, for heavy rust films or paint coats.
58	Brush roller	MEBK 120	
59 24 59	Edge grinder	RR 45	For working vertical surfaces (e.g., bulwarks and superstructures) / Extends working width by approx. 100 mm / With 15 milling wheels RR 45 edge grinder, with extra protection cover.
60	Edge grinder with protective cover	KWZG + Schutz	
59 24 61	Spare part case	Mammut-ETK-FR	Spare part case with wear and spare parts for 3 sets milling wheel roller MR260.

Electric Power Edgers

Canteadora Eléctrica
電動エッジャー　电动刨边机



Lightweight portable edger for edging in tight area due to advantage of swivelling handle bar and detachable auxiliary grip. Suitable for preparing of small surfaces, surface treatment in narrow trenches, and working on stairs and balconies.

Unit Per Set

CODE	59 22 02
Model	VA 10 L
Electric Power	AC 230V 50 Hz
Working Width	100 mm
Distance to Wall	20 mm
Wattage/HP	2.2 kW
Sound Pressure Level	<79.3 dB (A)
Production/h	600-650 f^2/h, 20-25 m^2/h
Standard Accessories	Drum with pentagonal cutters
Dimensions	330 × 360 × 1,320 mm
Weight	24 kg

Name of Mfr.: Von Arx EOOD

Tools for Electric Power Edger VA10L



59 22 03



59 22 09



59 22 10



59 22 11



59 22 12



59 22 13



59 22 14



59 22 15



59 22 16

Unit Per Pc.

CODE	Name	Size	PT/No.
59 22 03	Drum Complete	110×113 mm, W:100 mm	Specify
04	Drum only	110×113 mm, W:100 mm, 1.3 kg	the type
59 22 09	Brush, steel wire	Fine, 2,093 grm	700981
10	Brush, steel wire	Coarse, 2,654 grm	700982
59 22 11	Cutter, hexagonal	44 × 15 × 6 mm	701928
12	Cutter, pentagonal	42 × 16 × 6 mm	701027
13	Cutter, milling	40 × 15 × 11 mm	701031
14	Cutter, milling	40 × 15 × 22 mm	701030
15	Cutter, beam	42 × 15 × 2 mm	701028
16	Cutter, VHM-milling	40 × 15 × 11 mm	707529

Name of Mfr.: Von Arx EOOD

Electric Scaling Machines

Desincrustadores/Piqueta Eléctrica
電動スケールマシン　电动除锈机

A rugged but lightweight electric scaling machine for continuous heavy duty use. An ideal unit for derusting and descaling jobs. Portable, fitted with wheels. Furnishable for use with a 110 volt or 220 volt AC power supply.



Specificatiions

Model	H.P.	kW	No Load Speed R.P.M.	Weight kg	Name of Mfr.
KC-50	3/4	0.55	3,700	48	Kobe Cleaner

How to order: CODE

Scaling machine, electric, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

CODE	Voltage	CODE	Voltage
59 12 17	AC 100V	**59 12 18**	AC 220V

De-Scaling Machines

Original Trident Neptune Machine from Trelawny - Electric or Air Model

Máquinas desescaladoras　スケーリング・マシン　除垢仪

Features and Benefits

- 25% lighter than other models
- Compact – easy to use

Machines supplied with electric motor on skid base with 3 mtr cable to overload protection on motor. OR machines supplied with air motor on swivel base.

All machines supplied with

- 3,000 rpm electric motor, skid mounted,
- 3 metres cable
- Flexible shaft, 3 mm (9") x 16 mm (5/8") diameter
- Heavy duty leaf scaling head
- 6-cutter scaling head
- 6" diameter power brush
- Spanner set
- Hand guard



Electric



Air

Electric Powered

Unit Per Set

CODE	**59 12 41**	**59 12 42**
Voltage	AC 110V	AC 220V
H.P.	3/4	
Kw	0.55	
No Load Speed	3,000 R.P.M.	
Weight	31 kg	

Name of Mfr. : Trelawny SPT Ltd.

Air Powered

Unit Per Set

CODE	Max. Air Consumption	No Load Speed	Weight
59 12 81	1.87 m³/min.	3,000 R.P.M.	30 kg

Name of Mfr.: Trelawny SPT Ltd.

Accessories for Trident Neptune Scaling Machine



Hand Guard



Flexible Shaft

CODE	Description	Unit
59 12 98	Hand guard, durable rubber	Pc.
99	Flexible shaft	"

Name of Mfr. : Trelawny SPT Ltd.

Accessories for Trelawny Scaling Machine

Heavy Duty Scaling Head

CODE	**59 12 75**	**59 12 76**	**59 12 77**
Name	Heavy Duty Scaling Head	Side Plates (Set of 2)	Centre Bolt
Part No.	340.550	340.551/2	340.552
Unit	Set	Pc.	Pc.
Images			

CODE	**59 12 78**	**59 12 79**	**59 12 80**
Name	Spring Washer (Set of 50)	Chipping Leaf	Cutter Pin
Part No.	340.584/50	340.437	340.553
Unit	Pc.	Pc. (x 12 required)	Pc. (x 3 required)
Images			

6 Cutter Scaling Head

CODE	**59 12 86**	**59 12 87**	**59 12 88**
Name	Six Cutter Scaling Head	Side Plates (Set of 2)	Centre Bolt
Part No.	340.581	340.575/2	340.581/A
Unit	Set	Pc.	Pc.
Images			

CODE	**59 12 89**	**59 12 90**
Name	Cutter Wheel	Cutter Pin
Part No.	340.332	340.583
Unit	Pc. (x 6 required)	Pc. (x 6 required)
Images		

Wire Brushes

CODE	59 12 91	59 12 93
Name	6" Twisted Knot Brush	6" Power Brush
Part No.	340.163	340.160
Unit	Pc.	Pc.
Images		

CODE	59 12 95	59 12 97
Name	Twisted Knot Cup Brush	Crimped Wire Cup Brush
Part No.	340.167	340.166
Unit	Pc.	Pc.
Images		

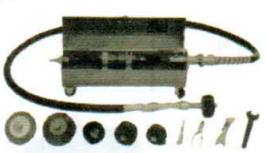
Brush Centre Bolts

CODE	59 12 92	59 12 94	59 12 96
Name	Centre Bolt for 6" Twisted Knot Brush	Centre Bolt for 6" Power Brush	Centre Bolt for Crimped or Twisted Cup Brush
Part No.	340.559	340.558	340.557
Unit	Pc.	Pc.	Pc.
Images			

Pneumatic Scaling Machines

Desincrustadoras/Pigueta Neumática
エアスケーリングマシン　空气除鳞机

A light and easy to handle, but rigidly constructed tool for efficient heavy duty scaling. Required air pressure is 0.59 MPa (6 kgf/cm²).



Unit Per Set

CODE	Model	Max. Air Consumption m³/min.	No Load Speed R.P.M.	Weight Kg	Name of Mfr.
59 12 51	KC-60	0.8	5,000	40	Kobe Cleaner

Accessories for Scaling Machine

These accessories differ from manufacturer to manufacturer. When ordering, it is necessary to provide information about the manufacturer and model of scaling machine you are currently using.

How to order: 59 12 -
NAME of PART, for SCALING MACHINE MODEL

For KC-50 Electric Scaling Machine or KC-60 Pneumatic Scaling Machine

Unit Per Pc.

CODE	59 12 55	59 12 56	59 12 57	59 12 58
Part No. Name	No.1 HD Tool	No.1-1 Cutter	No.1-2 Disc Pin	No.1-3 Center Bolt & Nut
Illustration		 18 Pcs/Set	 6 Pcs/Set	
Application	Heavy Rusting	For HD Tool	For HD Tool	For HD Tool

CODE	59 12 59	59 12 60	59 12 61	59 12 62
Part No. Name	No.1-4 Disc	No.2 LG Brush	No.2-1 LG Blade	No.2-2 Disc Pin
Illustration	 2 Pcs/Set		 72 Pcs/Set	 6 Pcs/Set
Application	For HD Tool	Light Rusting	For LG Brush	For LG Brush

CODE	59 12 63	59 12 64	59 12 65	59 12 66
Part No. Name	No.2-3 Center Bolt & Nut	No.2-4 Disc	No.3 Cup Brush	No.4 Hammer Head
Illustration		 2 Pcs/Set		
Application	For LG Brush	For LG Brush	Light Rusting	Wide Rusting

CODE	59 12 67	59 12 68	59 12 69	59 12 70
Part No. Name	No.4-1 Hammer Blade	No.4-2 Disc Pin	No.4-3 Center Bolt & Nut	No.4-4 Disc
Illustration	 12 Pcs/Set	 3 Pcs/Set		 2 Pcs/Set
Application	For Hammer Head	For Hammer Head	For Hammer Head	For Hammer Head

CODE	59 12 71	59 12 72	59 12 73	59 12 74
Part No. Name	No.4-5 Collar	No.4-6 Washer	No.5 Wire Wheel Brush	No.6 Grind Stone
Illustration		 15 Pcs/Set		
Application	For Hammer Head	For Hammer Head	Finishing	Grinding

Flexible Shafts and Flexible Tubes

for Scaling Machine

Latiguillos para Piqueta
スケーリングマシン用フレキシブルシャフト・チューブ
除锈机的挠性轴及管

When ordering, please specify the manufacturer's name and the model number of scaling machine.



Flexible Shaft & Tube



Flexible Shaft Only

How to order: 59 - 12 - 53 (for Shaft & Tube)
59 - 12 - 54 (for Shaft only)
for scaling mahine, MODEL

Handheld Deck Scalers

Aurand

Herramienta Preparativa para Despegar
ハンドデッキスケーラー　　刮除工具

For removing paint, rust and adhesives from iron, steel, brick, concrete and asphalt. A cutting teeth bite right through tough accumulations on any hard surface, and quickly peels off buildup paint, rust and scale. Adjustable depth shoe that the operator sets to limit the impact of the cutters. This not only protects the surface being cleaned but also insures uniform cleaning action and prevent excessive wear on the cutters.

Cast aluminium housings that offer the user a tough, durable tool that is still lightweight and easy to handle. Separate handle, safety guard, cutter bundles, motor housing, and front head assembly to make repair or replacement easier and less expensive.

Pneumatic Model:
Feature rotary type air motors, free from toggles, pistons or reciprocating parts to eliminate vibration. Tool operate on 70 to 100 p.s.i. air pressure.

Electrical Model:
Available in 115 and 230 volt models with AC/DC universal motors. 15 feet of three-conductor cable included.

Pneumatic



KP-5



MP-6

Unit Per Pc.

CODE	Model	Cleaning Area	Hose Power	Weight lbs
59 22 61	KP5	5" wide	3/4	6
62	KP5-E	8" wide	3/4	9
63	MP6	8" wide	2-1/2	17
64	MP6-E	12" wide	2-1/2	23

Name of Mfr.: Aurand Manufacturing & Equipment Co.
Remark: Model MP6-E is furnished with a 48" detachable aluminium handle.

Electrical



K7



M5

Unit Per Pc.

CODE	Model	Cleaning Area	Hose Power	Weight lbs
		AC 115V		
59 22 71	K7-1	5" wide	1/4	9
72	K7-1E	8" wide	1/4	11
73	M5-1	8" wide	1/2	21
74	M5-1E	12" wide	1/2	27
		AC 230V		
59 22 75	K7-2	5" wide	1/4	9
76	K7-2E	8" wide	1/4	11
77	M5-2	8" wide	1/2	21
78	M5-2E	12" wide	1/2	27

Name of Mfr.: Aurand Manufacturing & Equipment Co.
Remark: Model M5-1E and M5-2E are furnished with a 48" detachable aluminium handle.

Rust Removal and Surface Cleaning Machines

Record

Máquinas limpiadoras de herrumbre y de superficies
デッキスケーラー　甲板除锈机



Rust removal machines for medium size surfaces, removing rust films and rust on plates, cleaning concrete and stone, removing slag and paint. There are two types of hand piece available, 5/8" external thread type and M14 external thread type. Please specify the type of hand piece on ordering.

Delivery includes: Motor with flexible shaft, connection, motor base, carrying handle, shaft protective case, switch, grease for flexible shaft, assembly tool, and 3 mtr cable (without plug).

Quality

The splash-proof, sturdy special motor is especially suited for rough operating conditions. Sturdy support spirals prevent the ends of the flexible shaft from bending. The open carrying handle with a rotary circuit breaker and cable or a TG coupling in the compressed air version allows the user to move around more freely.

Safety

The flexible shaft with a core diameter of 15 mm is designed for high speeds. The motor base prevents the tool from unintended tipping. It comes with four attachment holes for increased safety. The standard delivery package includes a light-weight protective case made of cast aluminium.

Efficiency

Alternative connections are available for various attachments so that the user can use the right tool required for a specific application. Hand pieces are available as 5/8" external thread and M14.

Electric Model

Unit Per Set

CODE	59 24 71	59 24 72	59 24 73
Model	Record "C" 115-5/8	Record "C" 230-5/8	Record "C" 400-5/8
Voltage	AC 115V Single Phase	AC 230V Single Phase	AC 400V 3 Phase
Hand Piece	5/8" external thread		
Frequency	50/60 Hz		
Speed min^{-1}	2,750		
Power	0.75 kW		

Name of Mfr.: Holger Clasen GmbH & Co. KG

Unit Per Set

CODE	59 24 67	59 24 68	59 24 69
Model	Record "C" 115-M14	Record "C" 230-M14	Record "C" 400-M14
Voltage	AC 115V Single Phase	AC 230V Single Phase	AC 400V 3 Phase
Hand piece	M14 external thread		
Frequency	50/60 Hz		
Speed min^{-1}	2,750		
Power	0.75 kW		

Name of Mfr.: Holger Clasen GmbH & Co. KG

Pneumatic Model

Unit Per Set

CODE	59 24 74	59 24 70
Model	Record "DL" 5/8	Record "DL" M14
Hand Piede	5/8" external thread	M14 external thread
Operating Pressure	6 bar	
Speed min^{-1}	2,500	
Power	3.5 kW	

Name of Mfr.: Holger Clasen GmbH & Co. KG

Accessories for Rust Removal and Surface Cleaning Machine



PNAG 15 Complete Flexible Shaft



RR 45 Milling Tool



RR 30 Milling Tool



RL 7/15 Impact Tool



RL 7/9 Impact Tool



EB 150 Round Brush



EBK 150 Round Brush



EBT 100 Cup Brush



EBTK 100 Cup Brush



RW Tool Holder

Unit Per Pc.

CODE	Item	Item No.	Description
59 24 75	Complete flexible shaft	RNAG 15 / 5/8" / C	3,000 mm long, 15 mm core dia / Durable support spirals on both ends / Insulating coupling built-in on motor side / Hand piece with a 5/8" external thread or M14
76	Complete flexible shaft	RNAG 15 / M14 / C	
59 24 77	Milling tool	RR 45 / 5/8"	With 15 milling wheels / Used to remove heavy rust gently
78	Milling tool	RR 45 / M14	
59 24 79	Milling tool	RR 30 / 5/8"	With 10 milling wheels / Used to remove heavy rust gently, small version
80	Milling tool	RR 30 / M14	
59 24 81	Impact tool	RL 7/15 / 5/8"	With 15 curved impact hammers / Used to remove medium-thick rust
82	Impact tool	RL 7/15 / M14	
59 24 83	Impact tool	RL 7/9 / 5/8"	With 9 curved impact hammers / Used to remove medium-thick rust, small version
84	Impact tool	RL 7/9 / M14	
59 24 85	Round brush	EB 150	Special crimped wire, 150 mm dia.
59 24 86	Round brush	EBK 150	Extra strong, plaited for strong brushing effect, 150 mm dia.
59 24 87	Cup brush	EBT 100	Special crimped wire, 100 mm dia
59 24 88	Cup brush	EBTK 100	Plaited for strong brushing effect, 100 mm dia.
59 24 90	Tool holder chuck	RW M14 / 45	For attaching brushes
59 24 91	Tool holder chuck	RW 5/8" / 45	For attaching brushes
59 24 92	Protective cover	RSU	Made of cast aluminium (included in the delivery)
59 24 93	Wrench set	RS	For assembling and disassembling the flexible shaft
59 24 94	Grease for flexible shaft	RF	Cartridge 0.5 kg
59 24 95	Tool set	WZGS-R-5/8"	1 × RR 45 (5/8"), 1 × RL 7/15 (5/8"), 1 × EB 150 (5/8"), 1 x RW (5/8")
59 24 98	Tool set	WZGS-R-M14	1 x RR 45 (M14), 1 x RL 7/15 (M14), 1 x EB 150 (M14), 1 x RW (M14)
59 24 96	Spare part case	Record- ETK-5/8"	1 x RR45 (5/8"), 1 x RL 7/15 (5/8"), 1 x EB150 (5/8"), 1 x EBK150 (5/8"), Tools holder and wear parts for milling and impact tools
59 24 97	Spare part case	Record-ETK-M14	1 x RR45 (M14), 1 x RL 7/15 (M14), 1 x EB150 (M14), 1 x EBK150 (M14), Tools holder and wear parts for milling and impact tools

Portable Laser Rust Remover

Eliminador láser portátil de óxido
ポータブル・レーザー錆除去機　便携式激光除锈器



A high-tech, new generation of handheld laser rust remover for descaling work. It is easy to install, auto-focusing, easy to operate without chemical reagents, media, dust and water. It is compact, fast speed, high precision, good in stability, and high in surface cleanliness for descaling, which can remove resin, oil, dirt, rust spots, plating, paint on the surface of metal objects of various shapes, as well as the adhesion on the surface of stone sculptures and the residue of rubber molds.
Especially suitable for the daily rust removal requirement on board.

Unit Per Set

CODE	59 24 99
Model	LR1064
Laser source type	Pulsed laser
Laser power	50 - 100 Watt
Cooling way	Air Cooling
Laser wavelength	1,064 nm
Power supply	AC 220 V
Maximum kVA	400 W
Working temperature	5 - 40°C
Fiber length	3 mtr
Dimensions (mm)	390 × 180 × 280
Weight of complete set	15 kg
Weight of handheld laser head	1 kg

3. Hand Scalers

Pneumatic Auto Files

Limas Neumáticas　自動ヤスリ　风动自动锉刀



An ultra-small, lightweight auto file. For use on filing, grinding, polishing and other jobs on steel, glass, brass, aluminium, wood and other materials without vibration or noise.

Required air pressure is 0.6 MPa (6 kgf/cm^2).

Unit Per Set

CODE	59 04 21
Model	SH-100A
Stroke Length	9 mm
Stroke Speed	3,700 min^{-1}
Length	177 mm
Weight	1.1 kg
Name of Mfr	Nitto Kohki Co., Ltd

Spare Files for Pneumatic Auto File

These spare files differ from manufacturer to manufacturer. When ordering, it is necessary to provide information about the manufacturer and model of the auto file you are currently using.

Unit Per Pc.

CODE	Type	No.	Appearance
59 04 22	Flat File	SF-13	
59 04 23	Rat Tail File	SF-10	
59 04 24	Triangular Taper File	SF-11	
59 04 25	Half Round File	SF-12	
59 04 26	Rubber Pad Ass'y		
59 03 97	Supporter Ass'y		

Pneumatic Long Handle Scrapers

Cincelarores Neumáticas de Mango Largo
長柄エアスクレーパー　氣力式除锈机刀

Long reach air driven auto scraper for derusting, etc. Required air pressure is 0.6 MPa (6 kgf/cm^2). One 38 mm width bit (No. 2005) is attached as a standard accessory.



S-500　No 2004　No 2003

Unit Per Set

CODE	Model	Blow/min.	Overall length	Weight kg
59 04 41	S-250	2,500	630 mm	4.1
42	S-500		890	4.7
43	S-1000		1,470	6.1

Name of Mfr.: Nitto Kohki Co., Ltd.

Spare Chisels for Long Handle Scraper

Unit Per Pc.

CODE	Shape	Blade Width	No.
59 04 46	Flat	38 mm	2002
47	"	60	2001
48	Concave	60	2004
49	Blank	ø16	2003
59 25 31	Bend	38	2005

Long Reach Scalers

Trelawny

Desincrustadores con Largo Alcance
ロングリーチスケーラー　远距离除锈机

Powerful pneumatic long-reach scalers for the removal of paint and corrosion. Perfect for use in hard to access areas and overhead applications. Supplied without chisel or scraper - the customer can choose from the selection listed. Fast interchangeability between chisels/scrapers/needle attachments. Aluminium light weight version makes overhead work effortless.

Steel Body

Unit Per Set

CODE	59 04 51	59 04 52	59 04 53	59 04 54
Model	LR2	LR4	LR5	LR6
Part No.	136.3200	136.3400	136.3500	136.3600
BPM	2,200			
Air Consumption	2.1 ltr/sec (4.5 cfm)			
Noise Level LpA dB (A) LwA dB (A)	 81.3 94.3	 80.5 93.5	 103 116	 84.3 -
Vibration (AEQ)	10.5 m/s²	9.1 m/s²	13.6 m/s²	10.3 m/s²
Length	740 mm (29")	1,100 mm (43")	1,400 mm (55")	1,710 mm (67")
Weight	4.6 kg (8.2 lbs)	5.2 kg (11.51 lbs)	5.8 kg (12.9 lbs)	6.3 kg (13.9 lbs)

Name of Mfr. : Trelawny SPT Ltd.

Light Weight - Aluminium Body

Unit Per Set

CODE	59 04 50	59 04 59	59 04 60
Model	LR4	LR5	LR6
Part No.	136.3498	136.3598	136.3698
BPM	2,200		
Air Consumption	2.1 ltr/sec (4.5 cfm)		
Noise Level LpA dB (A) LwA dB (A)	 85.8 98.8	 81.2 -	 84.2 -
Vibration (AEQ)	21.4 m/s²	20 m/s²	
Length	1,100 mm (43")	1,400 mm (55")	1,710 mm (67")
Weight	3.0 kg (6.61 lbs)	3.4 kg (7.5 lbs)	3.8 kg (8.4 lbs)

Name of Mfr. : Trelawny SPT Ltd.

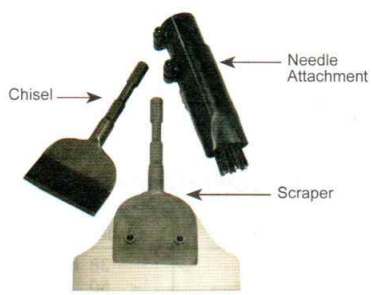
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Pneumatic & Electrical Tools

Spare Chisels/Scrapers/Needle Attachments

for Long Reach Scaler

Cinceles y Raspadores de Repuesto para Desincrustadores Largo Alcance
ロングリーチスケーラー用チゼル / スクレーパー / 針ホルダー
远距离除锈机的备用凿子和刮刀



Unit Per Pc.

Chisels			Scrapers		
For removal of heavy corrosion and paint			Scraping loose rust and paint/ removing coverings/spillages/ material build ups		
CODE	Blade Width	Part No.	CODE	Blade Width	Part No.
59 25 21	25 mm (1")	705.1101	**59 25 25**	102 mm (4") Bevelled	431.3904
59 04 55	50 mm (2")	705.1106	**59 25 26**	203 mm (8") Bevelled	431.3908
59 04 56	100 mm (4")	705.1102	**59 25 27**	305 mm (12") Bevelled	431.3912
Non-spark aluminium bronze			**Needle attachment**		
59 04 30	100 mm (4")	705.1112	**59 04 85**	-	415.3532

Name of Mfr. : Trelawny SPT Ltd.

Pneumatic Jet Chisels

Martilletas de Aguja, JET　ジェットタガネ　风动喷射凿子

For chiseling or smoothing welds, castings and other materials. Never skip a blow, cleans and descales all jobs fast. Jet chisel needles adjust to the contour of any surface automatically.

The chisel can reach into corners, curvatures, and uneven surfaces, making it a tool no shop should be without. Thanks to the unprecedented original air operated needle return mechanism, no springs to break, no irregular power and the advantage of low air consumption. A normal short hose and quick coupler are attached as standard accessories.


JC-16

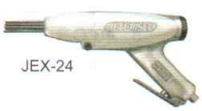

JEX-66 (JEX-28)


JT-20


AJC-16


JT-16


JEX-2800A


JEX-24

Application

JC-16: For light duty	JEX-66: For heavy duty (JEX-28)
JT-16: Small and lightweight	AJC-16: Slim and light weight
JT-20: For general duty	JEX-2800A: Powerful and low vibration. Built-in shock absorbing system minimizes operator fatigue. No special tools are required for needle replacement.
JEX-24: For all purposes	

Unit Per Set

CODE	Model	O.A. Length mm	Needles mm	Air		WT. kg
				Inlet	Consumption m^3/min	
59 04 61	JC-16	158	2ø x 29 pcs.	3/8"	0.15	1.4
59 25 11	JT-16	172	3ø x 6 pcs.	3/8"	0.16	0.8
59 04 62	JT-20	245	2ø x 29 pcs. 3ø x 12 pcs.	3/8"	0.2	2.4
59 04 63	JEX-24	237	2ø x 53 pcs. 3ø x 23 pcs.	3/8"	0.27	2.7
59 04 64	JEX-66 (JEX-28)	264	2ø x 66 pcs. 3ø x 28 pcs. 4ø x 14 pcs.	3/8"	0.35	3.5
59 04 65	AJC-16	190	2ø x 7 pcs. 3ø x 3 pcs.	3/8"	0.07	0.98
59 04 70	JEX-2800A	247	2ø x 66 pcs. 3ø x 28 pcs. 4ø x 14 pcs.	3/8"	0.43	3.10

Name of Mfr.: Nitto Kohki Co., Ltd.
Remark: JEX-66 is Japanese domestic model name of JEX-28.

Spare Needles for Jet Chisel

Agujas de Repuesto para Martilleta JEX
ジェットタガネ用針　喷射凿子的备用针



Unit Per Box

CODE	Needle Diam x Lgth mm	Per box	CODE	Needle Diam x Lgth mm	Per box
Material: Steel			Material: Stainless Steel		
59 04 66	2ø x 150	100	**59 25 12**	2ø x 180	30
67	2ø x 180	100			
93	2ø x 300	50			
94	2ø x 500	50			
59 04 68	3ø x 180	100	**59 25 13**	3ø x 180	30
95	3ø x 300	50			
96	3ø x 500	50			
97	3ø x 800	50			
59 04 69	4ø x 180	50			
98	4ø x 300	50			
99	4ø x 500	50			

Spare Needle Supporters for Jet Chisel

Soportes de Aguja para Martilleta JEX
ジェットタガネ用ニードルサポーター
气动喷射机用铲刀支架

Unit Per Pc.

CODE	P/N	Size	Model
59 04 71	TP00290	2 mm	JC-16
59 25 14	TQ15316		JT-16
59 04 72	TP00338		JT-20
73	TP02244		JEX-24
74	TP01499		JEX-66 (JEX-28) / JEX-2800A
79	TQ05210		AJC-16
59 25 15	TQ15315	3 mm	JT-16
59 04 75	TP00337		JT-20
76	TP02245		JEX-24
77	TP01461		JEX-66 (JEX-28)/ JEX-2800A
80	TQ04554		AJC-16
59 04 78	TP01462	4 mm	JEX-66 (JEX-28)/ JEX-2800A

Spare Throttle Anvils for Jet Chisel

Anillos de acelerador de repuesto para cincel de chorro
ジェットタガネ用スロットルアンビル
喷射凿子的备用节气门铁砧

Unit Per Pc.

CODE	P/N	Model
59 05 20	TP00289	JC-16
32	TP00336	JT-20
39	TP02243	JEX-24
40	TP00399	JEX-66 (JEX-28) / JEX-2800A
50	TQ04562	AJC-16

Spare Pistons for Jet Chisel

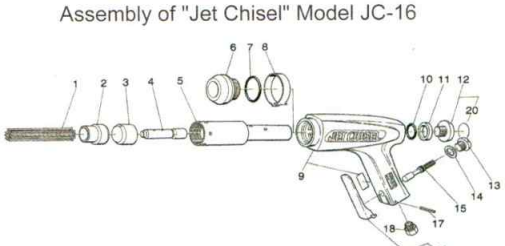
Pistones de repuesto para Jet Chisel
ジェットタガネ用ピストン　喷射凿子的备用活塞

Unit Per Pc.

CODE	P/N	Model
59 05 68	TP00288	JC-16
69	TP00332	JT-20
70	TP02242	JEX-24
72	TP00395	JEX-66 (JEX-28) / JEX-2800A
59 06 00	TQ03427	AJC-16

Parts List for Jet Chisel JC-16

Assembly of "Jet Chisel" Model JC-16

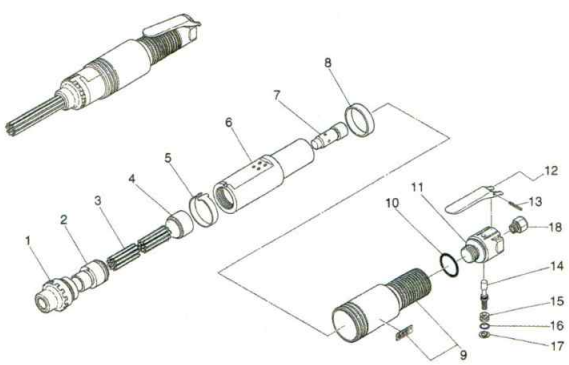


No.	Parts No.	Parts Name	Quantity
1	59 04 66	Needle ø 2 x 150 mm	29
2	59 04 71	Needle supporter ø 2 mm (TP00290)	1
3	59 05 20	Throttle anvil (TP00289)	1
4	59 05 68	Piston (TP00288)	1
5	TP00287	Cylinder	1
6	TP00292	Lock ring	1
7	TP11987	O ring KS-24	1
8	TP00295	Safety band (Lock band)	1
9	TB08709	Housing sub ass'y	1
10	TP11986	O ring KS-19	1
11	TP03336	Rear washer	1
12	TA93271	Rear bolt ass'y	1
13	TP00389	Valve cap	1
14	TP00388	Valve packing	1
15	TA90037	Throttle valve ass'y	1
16	TP00328	Throttle lever	1
17	TQ00563	Spring pin 3 x 20	1
18	TQ02349	Reducer bushing M16 x Rc 3/8"	1
acc	TQ02350	Bushing R 3/8" x NPT 3/8"	1
acc	TQ03262	Hose nipple R 3/8" x 3/8"	1

Remark: acc denotes accessory.

Parts List for Jet Chisel JT-20

Assembly of "Jet Chisel" Model JT-20

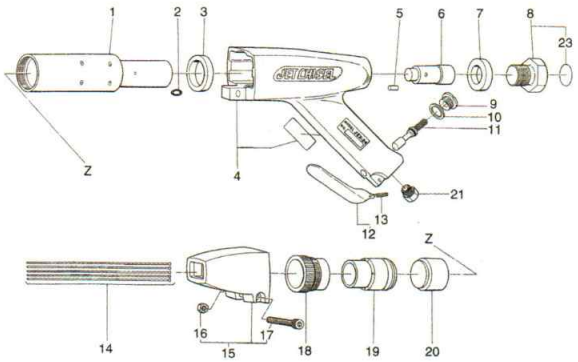


No.	Parts No.	Parts Name	Quantity
1	TP14689	Lock ring	1
2	59 04 75	Needle supporter ø 3 mm (TP00337)	1
3	59 04 68	Needle ø 3 x 180 mm	12
4	59 05 32	Throttle anvil (TP00336)	1
5	TP14593	Safety band (Lock band)	1
6	TA99176	Cylinder ass'y	1
7	59 05 69	Piston (TP00332)	1
8	TQ14320	Stopper	1
9	TB08850	Cover ass'y	1
10	LP12795	O ring G-30	1
11	TP15230	Valve body	1
12	TP00328	Throttle lever	1
13	TP00327	Spring pin 3 x 25	1
14	TA98983	Throttle valve ass'y	1
15	TP14601	Spring seat (Valve cap)	1
16	TP14604	O ring S-10	1
17	TP03695	Retaining ring C-12	1
18	TQ02349	Reducer bushing M16 x Rc 3/8"	1
acc	TQ02350	Bushing R 3/8" x NPT 3/8"	1
acc	TQ03262	Hose nipple R 3/8" x 3/8"	1

Remark: acc denotes accessory.

Parts List for Jet Chisel JEX-24

Assembly of "Jet Chisel" Model JEX-24

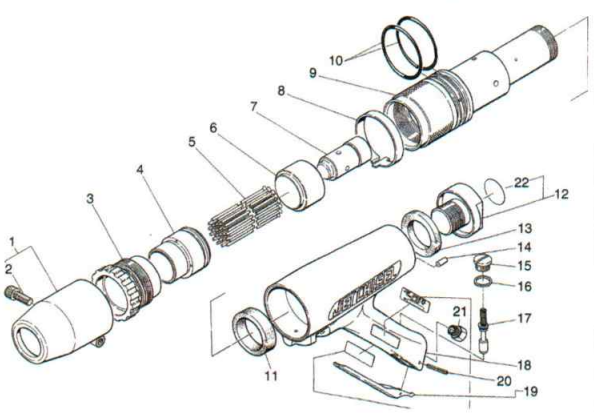


No.	Parts No.	Parts Name	Quantity
1	TP02241	Cylinder	1
2	TP11992	O ring KS-9	1
3	TP02250	Front washer	1
4	TB08714	Housing sub ass'y	1
5	TP01478	Cylinder lock pin	1
6	59 05 70	Piston (TP02242)	1
7	TP02249	Rear washer	1
8	TB08715	Rear bolt ass'y	1
9	TP00389	Valve cap	1
10	TP00388	Valve packing	1
11	TA90037	Throttle valve ass'y	1
12	TP01557	Throttle lever	1
13	TQ00563	Spring pin 3 x 20	1
14	59 04 68	Needle ø 3 x 180 mm	23
15	TA93189	Needle guide ass'y	1
16	(TQ01484)	Small hex. nut M8	1
17	(TP16284)	Hex socket head bolt 8 x 45	1
18	TP02246	Lock ring	1
19	59 04 76	Needle supporter ø 3 mm (TP02245)	1
20	59 05 39	Throttle anvil (TP02243)	1
21	TQ02349	Reducer bushing M16 x Rc 3/8"	1
acc	TP00170	Hex wrench key 6	1
acc	TQ02350	Bushing R 3/8" x NPT 3/8"	1
acc	TQ03262	Hose nipple R 3/8" x 3/8"	1

Remark: No.15 includes No.16 and 17.
acc denotes accessory.

Parts List for Jet Chisel JEX-66 (JEX-28)

Assembly of "Jet Chisel" Model JEX-28

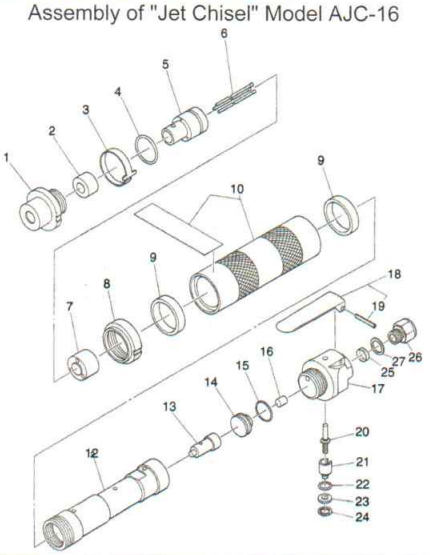


No.	Parts No.	Parts Name	Quantity
1	TA93365	Round needle guide ass'y	1
2	(TP00045)	Hex. socket head bolt 8 x 25	1
3	TP01464	Lock ring	1
4	59 04 77	Needle supporter ø 3 mm (TP01461)	1
5	59 04 68	Needle ø 3 x 180 mm	28
6	59 05 40	Throttle anvil (TP00399)	1
7	59 05 72	Piston (TP00395)	1
8	TP01466	Lock band	1
9	TP01463	Cylinder	1
10	TP11993	O ring	1
11	TP01474	Front washer	1
12	TB08717	Rear bolt ass'y	1
13	TP01475	Rear washer	1
14	TP01478	Cylinder lock pin	1
15	TP00389	Valve cap	1
16	TP00388	Valve packing	1
17	TA90037	Throttle valve ass'y	1
18	TB08716	Housing sub ass'y	1
19	TP01557	Throttle lever	1
20	TQ00563	Spring pin 3 x 20	1
21	TQ02349	Reducer bushing M16 x Rc 3/8"	1
acc	TP00170	Hex. wrench key 6	1
acc	59 04 69	Needle ø 4 x 180 mm	14
acc	59 04 78	Needle supporter ø 4 mm (TP01462)	1
acc	TQ02350	Bushing R 3/8" x NPT 3/8"	1
acc	TQ03262	Hose nipple R 3/8" x 3/8"	1

Remark: No.15 includes No. 2.
acc denotes accessory.

Parts List for Jet Chisel AJC-16

Assembly of "Jet Chisel" Model AJC-16



No.	Parts No.	Parts Name	Quantity
1	TQ04558	Lock ring	1
2	TQ04559	Muffler	1
3	TQ03429	Lock band	1
4	CP01453	O ring P-22A	1
5	59 04 80	Needle supporter ø 3 mm (TQ04554)	1
6	59 04 68	Needle ø 3 x 180 mm	3
7	59 05 50	Throttle anvil (TQ04562)	1
8	TQ04557	Lock nut	1
9	TQ04556	Urethane washer 30 x 34 x 6	2
10	TB08708	Cover ass'y	1
12	TQ04563	Cylinder	1
13	59 06 00	Piston (TQ03427)	1
14	TQ04553	End plate	1
15	TP13275	O ring P-16	1
16	TQ04564	Cushion	1

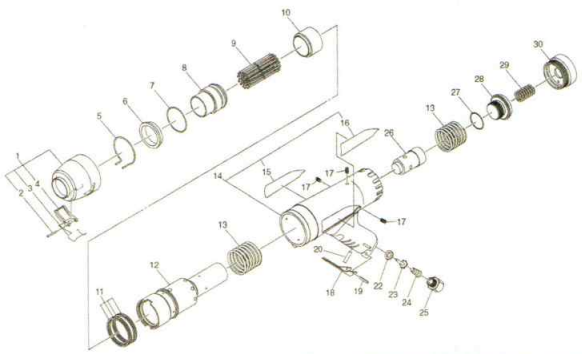
(to be continued)

No.	Parts No.	Parts Name	Quantity
17	TQ04966	Valve body	1
18	TB03788	Lever ass'y	1
19	(TP00460)	Spring pin 3 x 22 AW	1
20	TA93070	Valve stem ass'y	1
21	TP06325	Adjust valve	1
22	TP11997	O ring KS-7	1
23	TP06326	Spacer 6 x 12 x 1.2	1
24	TP03695	Internal retaining ring C-12	1
25	TQ04929	Filter	1
26	TQ02349	Reducer bushing M16 x Rc 3/8"	1
27	TQ05564	Washer 16.2 x 21 x 1	1
acc	TQ02350	Bushing R 3/8" x NPT 3/8"	1
acc	TQ03262	Hose nipple R 3/8" x 3/8"	1

Remark: No.18 includes No. 19.
acc denotes accessory.

Parts List for Jet Chisel JEX-2800A

Assembly of "Jet Chisel" Model JEX-2800A



No.	Parts No.	Parts Name	Quantity
1	TB05957	Needle guide ass'y	1
2	(TP13893)	Spring pin 3 × 22	1
3	(TQ10583)	Clamp spring	1
4	(TQ10555)	Clamp lever	1
5	TQ10246	Snap ring	1
6	TQ10247	Lock ring	1
7	TQ10562	O ring	1
8	59 04 77	Needle supporter ø 3 mm (TP01461)	1
9	59 04 68	Needle ø 3 × 180 mm	28
10	59 05 40	Throttle anvil (TP00399)	1
11	TQ10241	Back up ring	4
12	TQ10240	Cylinder	1
13	TQ10239	Spring 3.5 × 44 × 38	2
14	TB08624	Housing ass'y A	1
17	TP08684	Hex. socket screw 4 × 8	3
18	TP01557	Throttle lever	1
19	TP01802	Spring pin 3 × 28	1
20	TQ10450	Parallel pin 5 × 35	1
22	TQ04671	Seal sheet 9 × 13.9 × 2	1
23	TQ04664	Valve	1
24	TQ04665	Conical spring	1
25	TQ10236	Reducer bushing M16 × Rc 3/8"	1
26	59 05 72	Piston (TP00395)	1
27	CP21603	O ring	1
28	TQ11251	Rear bolt	1
29	TQ10238	Spring 2.6 × 14.3 × 24	1
30	TQ11250	Rear cap	1
acc	TQ02350	Bushing R 3/8" x NPT 3/8"	1
acc	TQ03262	Hose nipple R 3/8" × 3/8"	1
acc	59 04 69	Needle ø 4 × 180 mm	14
acc	59 04 78	Needle supporter ø 4 mm (TP01462)	1

Remark: No.1 includes No. 2, 3 and 4.
acc denotes accessory.

Conversion Table of Force

N	kgf	lbf
1	0.1020	0.2248
9.807	1	2.205
9.448	0.4536	1
0.1383	0.01410	0.03108

Conversion Table of Pressure

MPa	kgf/cm²	lbf/in² (PSI)
1	10.20	145.0
0.09807	1	14.22
0.006895	0.07031	1
0.1013	1.033	14.70
0.1333	1.360	19.34
0.003386	0.03453	0.4912
0.009806	0.1	1.422
0.022989	0.03048	0.4335

Anti-Vibration Plug Hose

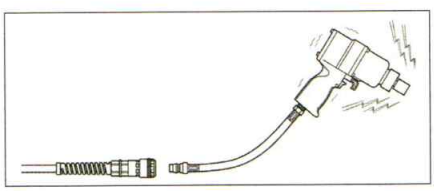
Manguera de Conexión Anti-Vibrante
耐振プラグホース　附接頭防震動軟管

Plug set with rubber hose for vibrating and impact pneumatic tools.



Stabilizes coupling life and prevents wear caused by vibration by absorbing strong shocks from vibration tools and prevents unnoticed flow restriction due to couplings wear from vibration.

Overall length is 310 mm.



Unit Per Pc.

CODE	Model	Size		Working Pressure MPa (kgf/cm²)
		Thread End	Plug End	
59 05 26	SHA-3-2R	R1/4 Male	30PH	1.5 (15)
27	SHA-3-3R	R3/8 Male		

Name of Mfr.: Nitto Kohki Co.,Ltd.

Applicable socket type : 20 series : 20SH, 20SM, 20SF
30 series : 30SH, 30SM, 30SF
40 series : 40SH, 40SM, 40SF

Pneumatic Needle Scalers

Trelawny

Martilletas de Aguja Neumática
エア・ニードル・スケーラー　风动针束除锈机

Also known as Needle Guns and De-rusting/De-scaling pistols for removing rust, corrosion and heavy scale from all metal surfaces - needles adjust to surface contours to descale all irregular surfaces. All tools can be converted into chisel scalers for maximum versatility - two tools in one.



2B 2BPG 3BPG

Application

2B : For light duty 2BPG : For intermediate duty	3BPG : For general duty

Unit Per Set

CODE	59 04 81	59 04 82	59 04 83
Model	2B	2BPG	3BPG
Part No.	121.2000	123.2100	133.3100
Type	Inline	Pistol grip	
BPM	3,000	3,000	2,200
Air Consumption (lps/sec)	2.6 (5.5 cfm)	2.6 (5.5 cfm)	3.8 (8 cfm)
Noise Level LpA dB (A) LwA dB (A)	100.3 113.3	100.3 113.3	101.5 114.5
Vibration (AEQ)	9.3 m/s²	12.3 m/s²	18.9 m/s²
Air Inlet Size	BSP 1/4" or NPT 1/4"		
Length	375 mm (14.7")	315 mm (12.4")	342 mm (13.5")
Weight	2.6 kg (5.8 lbs)	2.6 kg (5.7 lbs)	3.7 kg (8.2 lbs)
Needles	51 × 2 mm 19 x 3 mm	51 × 2 mm 19 × 3 mm	65 × 2 mm 28 × 3 mm

Remark : LpA dB(A) – Sound Power Level
LwA dB(A) – Sound Pressure Level
Name of Mfr. : Trelawny SPT Ltd

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Pneumatic & Electrical Tools

Parts List for Trelawny Pneumatic Needle Scaler

Model: 2B

No.	Part No.	Description	Quantity
1	615.3021	Cap Valve	1
2	809.0139	O'Ring 10.8 x 1.78 Valve Cap	1
3	712.3022	Spring Valve Universal	1
4	618.3022	Valve Stem	1
5	809.0089	O'Ring Square Section V/Seat	1
6	423.2021	Valve S/A 2B	1
7	716.3000	Throttle Lever Universal	1
8	813.0108	Spring Pin 1/8" x 1" Long	1
9	612.2001	Piston 2B & 2BPG	1
13	411.2002	2B Cylinder c/w Sleeve Ass'y	1
17	809.5179	O'Ring 36.3 x 1.78 2B	1
24	610.2001	Anvil 2B & 2BPG Scaler	1
25	601.2003	Needle Holder 3mm 2B	1
27	712.2001	Spring Return 2B Scaler	1
28	416.2032	Tube Intermediate 2B	1
29	417.2032	Tube Straight Front 2B	1
30	806.0830	Cap Head Screw - M8x30	1

Model : 2BPG

No.	Part No.	Description	Quantity
1	615.3021	Cap Valve	1
2	809.0139	O'Ring 10.8 x 1.78 Valve Cap	1
3	712.3022	Spring Valve Universal	1
4	618.3022	Valve Stem	1
5	809.0089	O'Ring Square Section V/Seat	1
6	423.3021	Valve S/A 3B/4B & all PG range	1
7	716.3000	Throttle Lever Universal	1
8	813.0108	Spring Pin 1/8" x 1" Long	1
9	612.2001	Piston 2B & 2BPG	1
10	613.2101	Cylinder 2BPG	1
11	809.0249	O'Ring 28.3 x 1.78 1B/2BPG	1
12	809.0269	O'Ring 31.5 x 1.78 2BPG/3B	1
14	425.2100	Cover S/A 2BPG	1
18	717.3101	Grip Rubber 2BPG & 3BPG	1
24	610.2001	Anvil 2B & 2BPG Scaler	1
25	601.2003	Needle Holder 3 mm 2B	1
27	712.2001	Spring Return 2B Scaler	1
28	416.2032	Tube Intermediate 2B	1
29	417.2032	Tube Straight Front 2B	1
30	806.0830	Cap Head Screw - M8x30	1

Model : 3BPG

No.	Part No.	Description	Quantity
1	615.3021	Cap Valve	1
2	809.0139	O'Ring 10.8 x 1.78 Valve Cap	1
3	712.3022	Spring Valve Universal	1
4	618.3022	Valve Stem	1
5	809.0089	O'Ring Square Section V/Seat	1
6	423.3021	Valve S/A 3B/4B & all PG range	1
7	716.3000	Throttle Lever Universal	1
8	813.0108	Spring Pin 1/8" x 1" Long	1
9	612.3001	Piston 3B	1
10	613.3101	Cylinder 3BPG & 3BLR	1
11	809.0289	O'Ring 34.6 x 1.78 3BPG/3BLR	1
12	809.0299	O'Ring 37.8 x 1.78 3BPG/3BLR	1
14	425.3100	Cover S/A 3BPG	1
18	717.3101	Grip Rubber 2BPG & 3BPG	1
24	610.3001	Anvil 3B & 3BPG Scaler	1
25	601.3003	Needle Holder 3 mm 3B	1
27	712.3001	Spring Return 3B Scaler	1
28	416.3132	Tube Intermediate 3BPG	1
29	417.3032	Tube Straight Front 3B	1
30	806.0830	Cap Head Screw - M8x30	1

(to be continued)

Low-Vibration Needle Scalers

Raspadores de aguja de baja vibración
低振動ニードルスケーラー 低振动针式刻度机

The heavy duty scaler for toughest applications, ideal for removing the hardest marine growth and corrosion.



VL223 VL203 VL303

Unit Per Set

CODE	59 05 18	59 05 00	59 05 10
Model	VL223	VL203	VL303
Part No.	196.2103	196.2003	196.3003
Type	In-line	Pistol Grip	
BPM	2,400	2,400	3,000
Air Consumption (lps/sec)	1.89 (4 cfm)	1.89 (4 cfm)	4.0 (8.5 cfm)
Noise Level LpA dB (A) LwA dB (A)	LwA 90.7	LwA 90.7	95.0 109.5
Vibration (AEQ)	2.56 m/s²	2.75 m/s²	2.3 m/s²
Air Inelt Size	BSP 1/4" or NPT 1/4"		
Length	370 mm (14.5")	340 mm (13.4")	370 mm (14.5")
Weight	2.35 kg (5.18 lbs)	2.7 kg (6.0 lbs)	3.5 kg (7.7 lbs)
Needles	19 × 3 mm	19 × 3 mm	65 × 2 mm 28 × 3 mm 19 × 4 mm

Remark : LpA dB(A) – Sound Power Level
LwA dB(A) – Sound Pressure Level
Name of Mfr. : Trelawny SPT Ltd

Parts List for Trelawny Heavy Duty Needle Scaler (Low Vibration)

Model: VL223

No.	Part No.	Description	Quantity
1	615.3021	Cap Valve	1
2	809.0139	O'Ring 10.8 x 1.78 Valve Cap	1
3	712.3022	Spring Valve Universal	1
4	618.3022	Valve Stem	1
5	809.0089	O'Ring Square Section V/Seat	1
7	716.3000	Throttle Lever Universal	1
8	813.0108	Spring Pin 1/8" x 1" Long	1
10	423.2023	VL223 Valve Body/Cover	1
12	652.2003	Guide Plate VL203/223	1
13	829.2003	Guide Plate Seal	1
14	809.0299	O'Ring 37.8 x 1.78 3BPG/3BLR	1
15	428.2003	Cylinder VL203	1
17	816.3003	6 mm dia Plastic Ball	1
18	809.0080	O'Ring 4.47 x 1.78 VR 3BPG	1
19	809.2004	Piston Cushion VL203/223 50 mm	1
22	622.2031	Intermediate Tube VL203/223	1
23	721.2003	Int/Tube Outer Sleeve (Black)	1
25	809.0299	O'Ring 37.8 x 1.78 3BPG/3BLR	1
26	612.2003	Piston VL203/223	1
28	636.3003	Valve Pin	1
29	829.2002	Piston Ring VL203	1
30	601.2030	Needle Holder 3 mm VL203/223	1
32	712.2003	Front Spring VL203/223	1
33	620.2003	Front Tube Insert	1
33a	620.2003A	Front Tube Spacer	1
34	622.2030	Front Tube VL203/223	1
35	809.3005	Cylinder Stem Reaction Ring	1

Model : VL203

No.	Part No.	Description	Quantity
1	615.3021	Cap Valve	1
2	809.0139	O'Ring 10.8 x 1.78 Valve Cap	1
3	712.3022	Spring Valve Universal	1
4	618.3022	Valve Stem	1
5	809.0089	O'Ring Square Section V/Seat	1
6	423.3021	Valve S/A 3B/4B & all PG range	1
7	716.3000	Throttle Lever Universal	1
8	813.0108	Spring Pin 1/8" x 1" Long	1
9	717.3050	Grip 2/3BPG Trelawny Logo	1
10	425.2003	Cover Assembly VL203	1
12	652.2003	Guide Plate VL203/223	1
13	829.2003	Guide Plate Seal	1
14	809.0299	O'Ring 37.8 x 1.78 3BPG/3BLR	1
15	428.2003	Cylinder VL203	1
17	816.3003	6mm dia Plastic Ball	1
18	809.0080	O'Ring 4.47 x 1.78 VR 3BPG	1
19	809.2004	Piston Cushion VL203/223 50 mm	1
22	622.2031	Intermediate Tube VL203/223	1
23	721.2003	Int/Tube Outer Sleeve (Black)	1
25	809.0299	O'Ring 37.8 x 1.78 3BPG/3BLR	1
26	612.2003	Piston VL203/223	1
28	636.3003	Valve Pin	1
29	829.2002	Piston Ring VL203	1
30	601.2030	Needle Holder 3 mm VL203/223	1
32	712.2003	Front Spring VL203/223	1
33	620.2003	Front Tube Insert	1
33A	620.2003A	Front Tube Spacer	1
34	622.2030	Front Tube VL203/223	1
35	809.3005	Cylinder Stem Reaction Ring	1

Model : VL303

No.	Part No.	Description	Quantity
1	615.3021	Cap Valve	1
2	809.0139	O'Ring 10.8 x 1.78 Valve Cap	1
3	712.3022	Spring Valve Universal	1
4	618.3022	Valve Stem	1
5	809.0089	O'Ring Square Section V/Seat	1
6	423.3021	Valve S/A 3B/4B & all PG range	1
7	716.3000	Throttle Lever Universal	1
8	813.0108	Spring Pin 1/8" x 1" Long	1
9	717.3050	Grip 2/3BPG Trelawny Logo	1
10	425.3003	Cover Assembly VL303	1
12	652.3003	Guide Plate	1
13	829.3003	Guide Plate Seal	1
14	809.0299	O'Ring 37.8 x 1.78 3BPG	1
15	428.3003A	VL303 Cyl Kit inc 729.3003	1
17	816.3003	6 mm dia Plastic Ball	1
18	809.0080	O'Ring 4.47 x 1.78 VR 3BPG	1
19	809.3004	Piston Cushion 85 mm long	1
22	622.3031	Intermediate Tube	1
23	721.3003	Intermediate Tube Outer Sleeve	1
24	814.3003	Circlip (Spring Seat Location)	1
25	809.0299	O'Ring 37.8 x 1.78 3BPG	1
26	612.3003	Piston VL303	1
28	636.3003	Valve Pin	1
29	829.3002	Piston Ring	1
30	601.3030	Needle Holder 3 mm VL303	1
32	712.3003	Front Spring	1
33	620.3003	Front Tube Insert VL303	1
34	622.3030	Front Tube VL303	1
35	729.3003	Cylinder Stem Reaction Ring	1

Spare Needles for Pneumatic Needle Scaler

Agujas de Repuesto para Martilleta de Aguja Neumática
ニードルスケーラー用スペアニードル
气动针束除锈机备用针

Unit Per Pc.

CODE	Size	Shape of Tip
59 04 86	2 mm	Flat tip
59 04 87	3 mm	Chisel tip
88		Pointed tip
89		Flat tip
59 04 92	4 mm	Flat tip

Name of Mfr.: Trelawny SPT Ltd.

Needle Supporters for Pneumatic Needle Scaler

Soportes de Aguja para Martillata de Aguja Neumática
ニードルスケーラー用ニードルサポーター
风动针束除锈机用针架

Unit Per Pc.

CODE	Size	For Model	Part No.
59 05 01	2 mm	2 B	601/2002
02		2 BPG	601/2002
03		3 BPG	601/3002
59 05 04	3 mm	2 B	601/2003
05		2 BPG	601/2003
06		3 BPG	601/3003
59 05 08	4 mm	3 BPG	601/3004

Name of Mfr.: Trelawny SPT Ltd.

Fall Arresters

for Trelawny Needle Scaler and Chisel Scaler

Sujeción para martilletas de aguja y martilletas de cincel
スケーラー用落下防止装置
除锈工具跌落 / 损坏防止装置



Shackle is not included.



Developed for securing the scaler onto a belt or safety cable ensuring the tool is not dropped, damaged, or causes harm to other members of the crew.

Unit Per Pc.

CODE	For Needle/Chisel Scaler	Part No.
59 05 98	VL203 / VL223	720.2003
99	VL303	720.3003

Name of Mfr.: Trelawny SPT Limited.

Pneumatic Hand Scalers

Manuales Neumáticos　エアハンドスケーラー　手用风动除锈机

Lightweight and ideal for removing rust, mill scale, old paint, etc. Please note that the tools for the pneumatic hand scaler listed below are included with model 59 05 12, but not included with model 59 05 11.



59 05 11



59 05 12

How to order: CODE

Hand scaler, pneumatic, NO LOAD SPEED R.P.M., MODEL

Unit Per Set

CODE	**59 05 11**	**59 05 12**
Model	YBD-2X	KC-20
Free Speed	3,000	5,000
No Load Air Consumption	0.7 m^3/min.	
Air Hose Size	12.7 mm	
Air Pressure	6 kgf/cm^2	
Overall Length	318 mm	400 mm
Weight	2.5 kg	5 kg
Name of Mfr.	Yokota	Kobe Cleaner

Tools for Pneumatic Hand Scaler

Herramientas para Descascarrilladora Neumática
エアハンドスケーラー用アクセサリー
气动手提式除锈机用品



Wire Wheel Brush



LG Tool Assembly



HH Tool Assembly



Hammer Head



Grind Stone

CODE	Description	Unit
	For Model YBD-2X (59 05 11)	
59 05 15	Wire wheel brush	Pc.
16	LG tool assembly	Set
17	HH tool assembly	"
	For Model KC-20 (59 05 12)	
59 05 21	Wire wheel brush	Pc.
22	LG tool assembly	Set
23	HD tool assembly	"
24	Hammer head	"
25	Grind stone	Pc.

Pneumatic Needle/Chisel Scalers

Rustibus® 20

Decapadora de Aguja/Cincel Rustibus 20
エアー式ニードルチゼルスケーラー
氣動除鏽針 / 鑿

This handheld, pneumatic de-scaling machine is ideal for use on those awkward hard to reach corners, pipe joints and those few other areas that the other scaling tools have difficulty reaching. Equipped with a 18 cm (7") Flat chisel and fitted with 13 cm (5") needles. Two machines in one.



Unit Per Set

CODE	**59 05 28**
Model	Rustibus® 20
Stroke	2.85 cm (1-1/8")
BPM	4,600
Air Consumption	339.8 Cu.Ltr/min (12 CFM)
Bore	2.54 cm (1")
Inlet	0.635 NPT (1/4" NPT)
Min Hose Size	0.79 cmb (5/16")
Length	43 cm w/13 cm needles (17" w/5" needles) 48 cm w/18 cm needles (19" w/7" needles)
Weight	2.9 kg (6.4 lbs)

Name of Mfr.: Rustibus®

Vacuum Systems for Scaler

Rustibus® 20

Sistema de Vacio para Limpiadores Rustibus 20
スケーラー用バキュームシステム
刮除器用真空系統



Available for the Rustibus® 20 Needle / Chisel descaler has a flexible nose piece that allows the user to get into every corner. This vacuum system also allows the tool to exhaust into the vacuum stream. Requires only 87 CFM / 2.5 M^3 vacuum flow and 90 psi / 6.2 bar operating pressure.

N.B. To use this vacuum system, your Rustibus® 20 needs to be fitted with 18 cm (7") needles. Includes: vacuum attachment,connection hoses and clamps.

59 05 29	Vacuum system, Rustibus® 20, item no. 020-00VT for needle/chisel scaler	Set

Pneumatic Flux Chippers

Cincelador Recto Neumático
エアフラックスチッパー　风动焊剂切片机

For scaling and chipping rust and cleaning metal surfaces.



Unit Per Set

CODE	59 05 31
Model	CH-24
Stroke Speed	4,000/min
Rated Air Pressure	0.6 MPa (6 kgf/cm²)
Air Consumption	0.2 m³/min
Overall Length	184 mm
Weight	1.7 kg
Standard Accessories	* 1 pc Curved flat chisel (59 05 33) * 1 pc Reducer R 3/8" × NPT3/8" * 1 pc Hose nipple R 3/8" × 3/8"

Name of Mfr.: Nitto Kohki Co.,Ltd.

Spare Chisels for Pneumatic Flux Chipper

Cortafrío de Recambio para Descantilladora Neumática
エアフラックスチッパー用チゼル
气动焊剂剥离备用品



Curved　Straight　Flat

Unit Per Pc.

CODE	Type	Size Blade Width × Length
59 05 33	Curved flat chisel	25 × 155 mm
34	Straight flat chisel	12.7 × 165 mm
35	Flat chisel	25 × 155 mm

Hand-Held Deck Scalers

Escaladoras manuales de cubiertas
ハンドスケール剥離工具　手动剥线工具

Specialist surface preparation tool designed for applications where open blasting may not be possible. A fast economical way of effectively carrying out surface preparation in small or remote areas. Ideal for preparing flat or large vertical surfaces such as beams, girders, and tanks. When fitted with abrasive flaps this tool can achieve up to a 100-micron anchor profile, perfect for the reapplication of coatings.



with Flaps



with Cutters

Unit Per Set

CODE	Model	Part No.	Production Rate/Hour M² (ft²)	Average Cutter Life Hours	Weight kg (lbs)
Air Powered					
59 22 51	2" with flaps	194.0205	17.3 (186.3)	40	3.4 (7.5)
52	4" with flaps	194.0405	34.6 (372.6)	40	4.1 (9.0)
53	2" with cutters	194.C205	10.6 (113.9)	15	5.2 (11.5)
54	4" with cutters	194.C405	21.2 (227.8)	15	6.4 (14.0)
Electric Powered - 230V					
59 22 55	2" with cutters	195.C221	17.3 (186.3)	40	4.4 (9.7)

Name of Mfr.: Trelawny SPT Ltd.

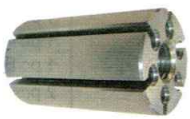
Replacement Hub Assemblies and Heads

Cabezales de Repuesto para Herramienta Preparativa para Despegar
剥離工具用交換ヘッド　錘鍛除銹工具交換頭

Hubs



Hub for Cutters



Hub for C Flaps

Unit Per Pc.

CODE	For	Part No.
59 22 91	2" (50 mm) cutters	438.0209
92	4" (100 mm) cutters	438.0409
59 22 93	2" (50 mm) C flaps	438.0205
94	4" (100 mm) C flaps	438.0405

Heads



Star Cutter



Beam Cutter



C Flap

Heavier Scaling ← → Lighter Burnishing

Unit Per Pc.

CODE	Item	Part No.	Applications
59 22 56	Star cutter	312.S200	Aggressive removal of thick coatings.
57	Beam cutter	312.R200	Removal of light coatings, and surface rust.
58	C flap	312.MRPC	Removal of light paint and rust.

Name of mfr.: Trelawny SPT Ltd.

Pneumatic Belt Sanders

Lijadora Neumática de Cinta
エアーベルトサンダー　气动砂带磨光机

Compact and lightweight belt sander to be suitable for sanding jobs in narrow spaces, recessed corners or on curved surfaces. Available 3 models of belt width: 10 mm, 20 mm and 30 mm, and in addition to above models extra light model of 10 mm belt width is also available.



Unit Per Set

CODE	59 03 92	59 03 93	59 03 94
Model	B-10CL	B-20CL	B-30CL
Belt Width	10 mm	20 mm	30 mm
Air Consumption m³/min	0.4	0.48	0.82
Motor Free Speed min⁻¹ (rpm)	17,000	18,000	15,000
Belt Speed m/min	1,120	2,770	2,310
Hose Size	1/4		
Rated Air Pressure MPa (kgf/cm²)	0.6 (6)		
Weight kg	0.9	1.6	2.4

Standard Accessories

Model B-10CL	2 pcs Abrasive Belt Z#60 × 10 mm 1 pc Abrasive Belt Z#80 × 10 mm 1 pc Abrasive Belt Z#100 × 10 mm 1 pc Abrasive Belt Z#120 × 10 mm 1 pc 1.5 mm Hex. Wrench Key 1 pc 4 mm Hex. Wrench Key 1 pc Bushing R 1/4 × NPT 1/4
Model B-20CL	2 pcs Abrasive Belt Z#60 × 20 mm 1 pc Abrasive Belt Z#80 × 20 mm 1 pc Abrasive Belt Z#100 × 20 mm 1 pc Abrasive Belt Z#120 × 20 mm 1 pc 2.5 mm Hex. Wrench Key 1 pc 4 mm Hex. Wrench Key 1 pc Bushing R 1/4 × NPT 1/4 1 pc Convex Shoe
Model B-30CL	2 pcs Abrasive Belt Z#60 × 30 mm 1 pc Abrasive Belt Z#80 × 30 mm 1 pc Abrasive Belt Z#100 × 30 mm 1 pc 5 mm Hex. Wrench Key 1 pc Bushing R 1/4 × NPT 1/4 1 pc Sub Handle Ass'y

Unit Per Set

CODE	59 03 91	59 03 90
Model	BB-10B Lever Type	BB-20
Belt Width	10 mm	20 mm
Air Consumption m^3/min	0.2	0.43
Motor Free Speed min^{-1} (rpm)	17,000	17,000
Belt Speed m/min	1,120	1,230
Hose Size	1/4	
Rated Air Pressure MPa (kgf/cm^2)	0.6 (6)	
Weight kg	0.55	0.8

Standard Accessories

Model BB-10B	1 pc Abrasive Belt Z#100 × 10 mm 1 pc Abrasive Belt Z#120 × 10 mm 1 pc Abrasive Belt Z#180 × 10 mm 1 pc Abrasive Belt Z#240 × 10 mm 1 pc 1.5 mm Hex. Wrench Key 1 pc Bushing R 1/4 × NPT 1/4 1 pc Offset Bracket Ass'y
Model BB-20	1 pc Abrasive Belt Z#60 × 20 mm 1 pc Abrasive Belt Z#120 × 20 mm 1 pc Abrasive Belt Z#240 × 20 mm 1 pc 2.5 mm Hex. Wrench Key 1 pc 3 mm Hex. Wrench Key 1 pc Shoe 1 pc Dust Cover 1 pc Bushing R 1/4 × NPT 1/4

Pneumatic Orbital Sanders

Lijadoras Orbital Neumáticas　エア研磨機　空气式磨砂机

Lightweight and handy palm sander makes working easy in corners and other tight spots.



Unit Per Set

CODE	59 05 41	59 05 42
Model	FS-50A	FS-100C
Pad Size	75 × 82 mm	110 × 100 mm
Sand Paper Size	70 × 114 mm	114 × 140 mm
Rated Air Pressure	0.6 MPa (6 kgf/cm^2)	
Motor Free Speed	15,000 min^{-1} (rpm)	20,000 min^{-1} (rpm)
Air Consumption (No load)	0.14 m^3/min	0.2 m^3/min
Weight	0.5 kg	
Standard Accessories	- 5 sheets each Sanding paper #180, #240 - 1 set Air hose assembly - 1 pc Bushing R 1/4 x NPT 1/4	

Name of Mfr.: Nitto Kohki Co.,Ltd.

Sanding Paper for Pneumatic Orbital Sander

Papel de lija para Lijadora Orbital Neumática
エア研磨機用サンドペーパー　空气式磨砂机用磨砂纸



Unit Per Pkt.

CODE	Grit	Sht/Pkt	CODE	Grit	Sht/Pkt
59 05 43	100	200's	**59 05 47**	240	200's
44	120		**48**	280	
45	150		**49**	320	
46	180				

Pneumatic Needle Scalers

Martilletas de Aguja Neumática
エアー・ニードル・スケーラー　气动针式除垢仪

Unique needle scaler with integrated anti-vibration system in order to protect the operators hands and arms but not the rust. Optimal weight distribution and fully insulated handle and pistol body.



Unit Per Pc.

CODE	59 05 51
Model	NP23K (#700722)
Air Hose Size	1/4"
Air Consumption	100 l/min. (3.5 cfm)
Air Pressure (Max.)	7 bar (100 psi)
Vibration Value on Handle	8.91 m/s^2
Sound Pressure Level	<100.7 dB (A)
Acoustic Power Level	<110.0 dB (A)
Needles	ø3 mm × 19 pcs
Weight	2.2 kg (4.9 lbs)

Name of Mfr.: Von Arx EOOD

Pneumatic Chisel Hammers

Martillo-Buril Neumático
エアー・チゼル・ハンマー　风动式凿眼机

Low vibration, but high power pneumatic chisel hammer. Various types of spare chisel are available in separate order.



Unit Per Pc.

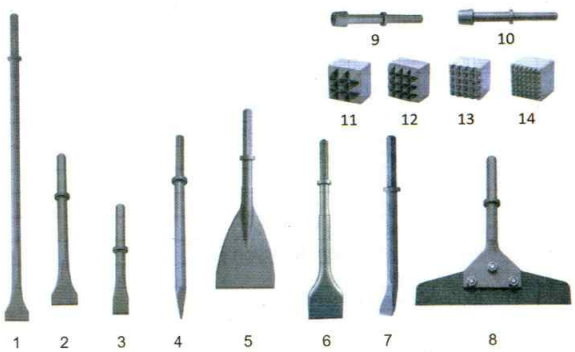
CODE	59 05 52
Model	MH23K (#706092)
Air Hose Size	1/4"
Air Consumption	100 l/min. (3.5 cfm)
Air Pressure (Max.)	7 bar (100 psi)
Vibration value on hande	12.79 m/s²
Sound pressure level	< 98.2 dB (A)
Acoustic Power Level	≤ 106.2 dB (A)
Chisel (Flat)	1 pc. (W: 24 mm)
Weight	2.3 kg (5.1 lbs)

Name of Mfr.: Von Arx EOOD

Spare Chisels

for Pneumatic Chisel Hammer MH23K

Cortafrío de Recambio para Martillo Neumático
エアーチゼルハンマー用チゼル
风动式凿眼机用备用凿子



Unit Per Pc.

CODE	Description	S/No.	No.
59 05 53	Flat chisel W: 40 mm × 520 mm	700207	1
59 05 55	Flat chisel W: 40 mm × 250 mm	700194	2
59 19 16	Flat chisel W: 24 mm × 190 mm	700193	3
59 05 56	Pointed chisel 290 mm	700196	4
59 05 57	Flat chisel W: 100 mm × 180 mm	700205	5
59 05 58	Flat chisel W: 60 mm × 300 mm	708582	6
59	Flat chisel cranked 24 mm × 260 mm	700195	7
61	Carpet removal chisel 210 mm	706867	8
62	Pitching tool holder, hexagonal shaft	700204	9
63	Pitching tool holder, round shaft	700198	10
59 05 64	Pitching tool 3x3	700199	11
65	Pitching tool 4x4	700200	12
66	Pitching tool 5x5	700201	13
67	Pitching tool 7x7	700202	14

Name of Mfr.: Von Arx EOOD

Pneumatic Chisel Scalers

Trelawny

Martilletas de Aguja Neumática
エアー・チゼル・スケーラー　　风动凿式除锈机

Provides a thorough and effective means of removing coatings, corrosion and other accumulated materials. These scalers will work on almost any surface, especially irregular ones that are otherwise hard to prepare.



Application

2B : For light duty 2BPG : For intermediate duty	3BPG : For heavy duty

Unit Per Set

CODE	59 05 81	59 05 82	59 05 83
Model	2B	2BPG	3BPG
Part No.	124.2200	125.2300	135.3300
Type	Inline	Pistol grip	
BPM	3,000	3,000	2,200
Air Consumption (lps/sec)	2.6 (5.5 cfm)	2.6 (5.5 cfm)	3.8 (8 cfm)
Noise Level LpA dB (A) LwA dB (A)	 85.6 98.9	 85.6 98.9	 92.1 105.1
Vibration (AEQ)	17.4 m/s²	22.4 m/s²	25.6 m/s²
Air Inlet Size	BSP 1/4" or NPT 1/4"		
Length	343 mm (13.5")	260 mm (10.2")	339 mm (13.4")
Weight	2.0 kg (4.4 lbs)	2.0 kg (4.4 lbs)	2.6 kg (5.8 lbs)

Remark : LpA dB(A) – Sound Power Level
LwA dB(A) – Sound Pressure Level
Name of Mfr. : Trelawny SPT Ltd

Model: 2B

No.	Part No.	Description	Quantity
1	615.3021	Cap Valve	1
2	809.0139	O'Ring 10.8x1.78 Valve Cap	1
3	712.3022	Spring Valve Universal	1
4	618.3022	Valve Stem	1
5	809.0089	O'Ring Square Section V/Seat	1
6	423.2021	Valve S/A 2B	1
7	716.3000	Throttle Lever Universal	1
8	813.0108	Spring Pin 1/8" x 1" Long	1
9	612.2001	Piston 2B & 2BPG	1
13	411.2002	2B Cylinder c/w Sleeve Assy	1
17	809.5179	O'Ring 36.3 x 1.78 2B	1
30	806.0830	Cap Head Screw - M8x30	1
31	419.2241	Chisel Holder 1/2" Square	1
32	704.1101	Chisel 1/2" Square 7" Long x 3/4" Blade	1

Model : 2BPG

No.	Part No.	Description	Quantity
1	615.3021	Cap Valve	1
2	809.0139	O'Ring 10.8 x 1.78 Valve Cap	1
3	712.3022	Spring Valve Universal	1
4	618.3022	Valve Stem	1
5	809.0089	O'Ring Square Section V/Seat	1
6	423.3021	Valve S/A 3B/4B & all PG range	1
7	716.3000	Throttle Lever Universal	1
8	813.0108	Spring Pin 1/8" x 1" Long	1
9	612.2001	Piston 2B & 2BPG	1
10	613.2101	Cylinder 2BPG	1
11	809.0249	O'Ring 28.3 x 1.78 1B/2BPG	1
12	809.0269	O'Ring 31.5 x 1.78 2BPG/3B	1
14	425.2100	Cover S/A 2BPG	1
18	717.3101	Grip Rubber 2BPG & 3BPG	1
30	806.0830	Cap Head Screw - M8x30	1
31	419.2241	Chisel Holder 1/2" Square	1
32	704.1101	Chisel 1/2" Square 7" Long x 3/4" Blade	1

Model : 3BPG

No.	Part No.	Description	Quantity
1	615.3021	Cap Valve	1
2	809.0139	O'Ring 10.8 x 1.78 Valve Cap	1
3	712.3022	Spring Valve Universal	1
4	618.3022	Valve Stem	1
5	809.0089	O'Ring Square Section V/Seat	1
6	423.3021	Valve S/A 3B/4B & all PG range	1
7	716.3000	Throttle Lever Universal	1
8	813.0108	Spring Pin 1/8" x 1" Long	1
9	612.3001	Piston 3B	1
10	613.3101	Cylinder 3BPG & 3BLR	1
11	809.0289	O'Ring 34.6 x 1.78 3BPG/3BLR	1
12	809.0299	O'Ring 37.8 x 1.78 3BPG/3BLR	1
14	425.3100	Cover S/A 3BPG	1
18	717.3101	Grip Rubber 2BPG & 3BPG	1
30	806.0830	Cap Head Screw - M8 x 30	1
31	419.3341	Chisel Holder 1/2" Square	1
32	704.1101	Chisel 1/2" Square 7" Long x 3/4" Blade	1

Low-Vibration Chisel Scalers

Escaladores de cincel de baja vibración
低振動チゼル・スケーラー　低振动凿鳞器

Heavy duty scaler for toughest applications, ideal for removing paint, coatings and corrosion.



VL223　VL203　VL303

Unit Per Set

CODE	59 05 19	59 05 13	59 05 14
Model	VL223	VL203	VL303
Part No.	196.2213	196.2203	196.3203
Type	In-line	Pistol Grip	
BPM	2,400	2,400	3,000
Air Consumption (lps/sec)	1.89 (4 cfm)	1.89 (4 cfm)	2.6 (5.5 cfm)
Noise Level LpA dB (A) LwA dB (A)	LwA: 76.3	LwA: 76.3	86.7 78.2
Vibration (AEQ)	3.69 m/s²	3.33 m/s²	3.7 m/s²
Air Inlet Size	BSP 1/4" or NPT 1/4"		
Length	435 mm (17.1")	395 mm (15.5")	440 mm (17.3")
Weight	2.95 kg (6.5 lbs)	3.2 kg (7.05 lbs)	4.0 kg (8.8 lbs)

Remark: LpA dB(A) – Sound Power Level
LwA dB(A) – Sound Pressure Level
Name of Mfr. : Trelawny SPT Ltd

Model: VL223

No.	Part No.	Description	Quantity
1	615.3021	Cap Valve	1
2	809.0139	O'Ring 10.8 x 1.78 Valve Cap	1
3	712.3022	Spring Valve Universal	1
4	618.3022	Valve Stem	1
5	809.0089	O'Ring Square Section V/Seat	1
7	716.3000	Throttle Lever Universal	1
8	813.0108	Spring Pin 1/8" x 1" Long	1
10	423.2023	VL223 Valve Body/Cover	1
12	652.2003	Guide Plate VL203/223	1
13	829.2003	Guide Plate Seal	1
14	809.0299	O'Ring 37.8 x 1.78 3BPG/3BLR	1
15	428.2003	Cylinder VL203	1
17	816.3003	6mm dia Plastic Ball	1
18	809.0080	O'Ring 4.47 x 1.78 VR 3BPG	1
19	809.2004	Piston Cushion VL203/223 50 mm	1
22	622.2031	Intermediate Tube VL203/223	1
23	721.2003	Int/Tube Outer Sleeve (Black)	1
26	612.2003	Piston VL203/223	1
28	636.3003	Valve Pin	1
29	829.2002	Piston Ring VL203	1
32	712.2003	Front Spring VL203/223	1
35	809.3005	Cylinder Stem Reaction Ring	1
36	610.2003	Anvil	1
37	419.2003	Chisel Holder 1/2" Square	1
38	704.3101	Chisel 1/2" Sq Shank 7" x 3/4" Blade	1

(to be continued)

Model : VL203

No.	Part No.	Description	Quantity
1	615.3021	Cap Valve	1
2	809.0139	O'Ring 10.8 x 1.78 Valve Cap	1
3	712.3022	Spring Valve Universal	1
4	618.3022	Valve Stem	1
5	809.0089	O'Ring Square Section V/Seat	1
6	423.3021	Valve S/A 3B/4B & all PG range	1
7	716.3000	Throttle Lever Universal	1
8	813.0108	Spring Pin 1/8" x 1" Long	1
9	717.3050	Grip 2/3BPG Trelawny Logo	1
10	425.2003	Cover Assembly VL203	1
12	652.2003	Guide Plate VL203/223	1
13	829.2003	Guide Plate Seal	1
14	809.0299	O'Ring 37.8 x 1.78 3BPG/3BLR	1
15	428.2003	Cylinder VL203	1
17	816.3003	6mm dia Plastic Ball	1
18	809.0080	O'Ring 4.47 x 1.78 VR 3BPG	1
19	809.2004	Piston Cushion VL203/223 50 mm	1
22	622.2031	Intermediate Tube VL203/223	1
23	721.2003	Int/Tube Outer Sleeve (Black)	1
25	809.0299	O'Ring 37.8 x 1.78 3BPG/3BLR	1
26	612.2003	Piston VL203/223	1
28	636.3003	Valve Pin	1
29	829.2002	Piston Ring VL203	1
32	712.2003	Front Spring VL203/223	1
35	809.3005	Cylinder Stem Reaction Ring	1
36	610.2003	Anvil	1
37	419.2003	Chisel Holder 1/2" Square	1
38	704.3101	Chisel 1/2" Sq Shank 7" x 3/4" Blade	1

Model : VL303

No.	Part No.	Description	Quantity
1	615.3021	Cap Valve	1
2	809.0139	O'Ring 10.8 x 1.78 Valve Cap	1
3	712.3022	Spring Valve Universal	1
4	618.3022	Valve Stem	1
5	809.0089	O'Ring Square Section V/Seat	1
6	423.3021	Valve S/A 3B/4B & all PG range	1
7	716.3000	Throttle Lever Universal	1
8	813.0108	Spring Pin 1/8" x 1" Long	1
9	717.3050	Grip 2/3BPG Trelawny Logo	1
10	425.3003	Cover Assembly VL303	1
12	652.3003	Guide Plate	1
13	829.3003	Guide Plate Seal	1
14	809.0299	O'Ring 37.8 x 1.78 3BPG/3BLR	1
15	428.3003A	VL303 Cyl Kit inc 729.3003	1
17	816.3003	6mm dia Plastic Ball	1
18	809.0080	O'Ring 4.47 x 1.78 VR 3BPG	1
19	809.3004	Piston Cushion 85 mm long	1
22	622.3031	Intermediate Tube	1
23	721.3003	Intermediate Tube Outer Sleeve	1
24	814.3003	Circlip (Spring Seat Location)	1
25	809.0299	O'Ring 37.8 x 1.78 3BPG/3BLR	1
26	612.3003	Piston VL303	1
28	636.3003	Valve Pin	1
29	829.3002	Piston Ring	1
32	712.3003	Front Spring	1
35	729.3003	Cylinder Stem Reaction Ring	1
36	610.3003	Anvil	1
37	419.3003	Chisel Holder 1/2" Square	1
38	704.3101	Chisel 1/2" Sq Shank 7" x 3/4" Blade	1

Spare Chisels for Pneumatic Chisel Scaler

Cortafrío de Recambio para Descascarilladora Neumático
エアー・チゼル・スケーラー用替えチゼル
气动铲备用品

Common to all models when fitted with the standard (12 mm) 1/2" sq chisel holder.

Unit Per Pc.

CODE	Blade Size mm		Type	Part No.
	Width	Length		
59 05 91	19 (3/4")	175 (7")	Flat	704.1101
92	19 (3/4")	254 (10")	"	704.1107
93	62 (2-1/2")	175 (7")	"	704.1103
59 05 95	34 (1-3/8")	175 (7")	Cranked	704.2105
97	50 (2")	175 (7")	*Flat	704.1110
59 19 01	19 (3/4")	175 (7")	1/2" Square	704.3101
02	62 (2-1/2")	175 (7")		704.3103
59 19 03	50 (2")	175 (7")	*1/2" Square	704.3110
04	34 (1-3/8")	175 (7")	1/2" Square cranked	704.3205
05	19 (3/4")	254 (10")	Square - flat	704.3107

Note: * marked is non-spark for use in hazard areas.
59 19 01 to 59 19 04 are common to all VL models.
Name of Mfr.: Trelawny SPT Ltd.

Dust Shrouds

for Trelawny Needle Scaler and Chisel Scaler

Cubiertas antipolvo para martilletas de aguja y martilletas de cincel Trelawny
スケーラー用ほこり防止覆い　除锈机用防尘罩

Where control of dust is necessary, Trelawny's range of needle and chisel scalers can be fitted with vacuum shrouded front tubes (look for the TVS Logo for applicable models).



Standard Range

Shroud only

Unit Per Pc.

CODE	59 25 01		59 25 02
Shroud Part no.	418.2200		418.3040
For Scaler	2B	2BPG	3BPG

Complete Needle Scaler fitted with shroud

Unit Per Set

CODE	59 25 03	59 25 04	59 25 05
Set Part No.	139.2000	139.2100	139.3197
Needle Scaler	2B	2BPG	3BPG

Low Vibration Range

Shroud only

Unit Per Pc.

CODE	59 25 06		59 25 07
Shroud Part no.	418.2003		418.3003
For Scaler	VL223	VL203	VL303

Complete Needle Scaler fitted with shroud

Unit Per Set

CODE	59 25 08	59 25 09	59 25 10
Set Part No.	139.2103	139.2003	139.3003
Needle Scaler	VL223	VL203	VL303

Name of Mfr.: Trelawny SPT Limited.

Pneumatic Rattling Needle Chisels



Cinceles de aguja vibratorios neumáticos
エアー式ニードルチゼル
气动针束除锈凿

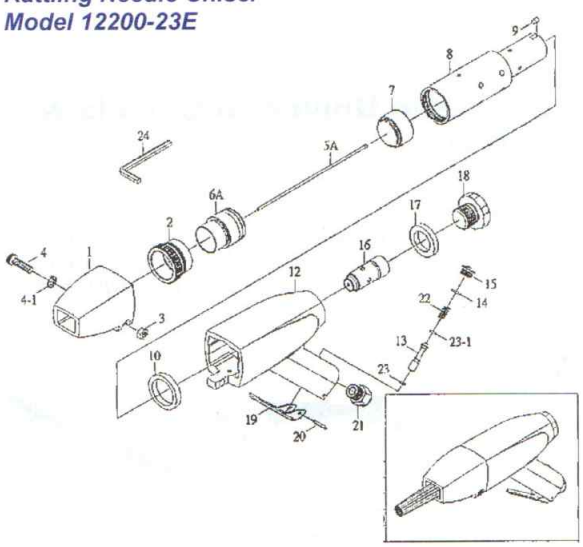
Equipment suitable for chipping rust, old paints, welding, casting scales and various fouling from irregular, angular or bent surfaces. Each needle is independent from the other, thus permitting a perfect adherence to all irregular surfaces, with guarantee of very accurate cleaning. Due to the possibility of using spark proof needles, the machine is suitable for use in environments with risk of explosion.

Unit Per Set

CODE	59 05 36	59 05 37	59 05 38
Model	12200-23E	12200-28E	12200-L
Handle Type	Pistol		Straight
Blow per Min. rpm	3,500		4,600
Air Consumption m^3/min.	0.22	0.25	0.25
Air Pressure bar	6		
Connection inch	3/8" gas		1/4" gas
No. of Needles	2 mm dia×53 pcs 3 mm dia×23 pcs	2 mm dia×66 pcs 3 mm dia×28 pcs 4 mm dia×14 pcs	3 mm dia×19 pcs
Needle Length	180 mm		
Overall Length mm	348	360	457
Weight kg	2.7	3.5	2.8

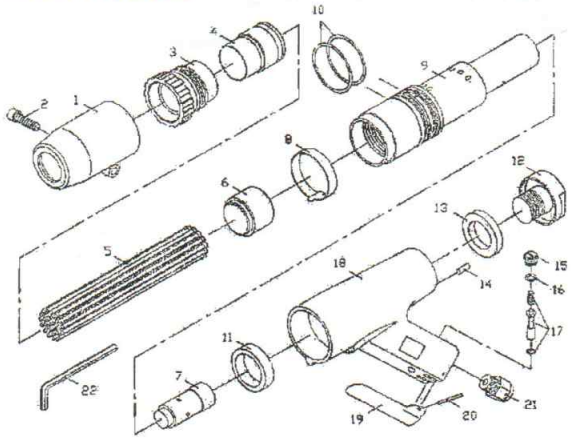
Name of Mfr.: I.CO. s.r.l.

Spare Parts for ICO Pneumatic Rattling Needle Chisel Model 12200-23E



No.	Part Name	Q'ty	No.	Part Name	Q'ty
1	Needle guide ass'y	1 set	13	Throttle valve	1
2	Lock ring	1	14	O ring (d8.8 x W1.9)	1
3	Nut (5/16)	1	15	Valve cap	1
4	Cap Head Screw	1	16	Piston	1
4-1	Washer	1	17	Rear washer	1
5	Needle set dia 3 x 180 mm	23	18	Rear plug	1
6	Needle supporter dia 3 mm	1	19	Throttle lever	1
7	Throttle anvil	1	20	Spring pin	1
8	Cylinder	1	21	Air inlet	1
9	Cylinder lock pin	1	22	Throttle spring	1
10	Front washer	1	23	O ring	1
12	Housing Sub Ass'y	1 set	24	Hex. Wrench (6 mm)	1

Model 12200-28E



No.	Part Name	Q'ty	No.	Part Name	Q'ty
1	Round needle guide ass'y	1 set	12	Rear bolt ass'y	1 set
2	Hexagon socket head bolt 8 x 25 mm	1	13	Rear washer	1
3	Stop ring	1	14	Cylinder lock pin	1
4	Needle supporter diam 3 mm	1	15	Valve cap	1
5	Needle diam 3 x 180 mm	28	16	Valve packing	1
6	Throttle anvil	1	17	Throttle valve ass'y	1 set
7	Piston	1	18	Housing sub ass'y	1 set
8	Safety band	1	19	Throttle lever	1
9	Cylinder	1	20	Spring pin 3 x 28 mm	1
10	O ring W-4	2	21	Air inlet	1
11	Front washer	1	22	Hex wrench (6 mm)	1

Pneumatic Universal Chisels & Chippers

Cinceles y cortafrios neumáticos
エアー式ニードルチゼル＆チッパー　气动式凿及铲

Powerful hammers for general chipping and caulking weld line, paint and rust removing in limited space. Compact chippers in light weight pistol handle or straight handle, supplied with flat chisel.



850-0



850-00



850-L

Unit Per Set

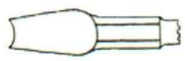
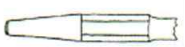
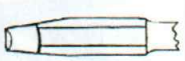
CODE	59 24 21	59 24 22	59 24 23
Model	850-0	850-00	850-L
Handle	Pistol	Pistol	Straight
Blow per Min.	2,000	2,000	2,100
Piston Stroke	30 mm	30 mm	89 mm
Piston Dimension	24.5 mm dia × 69.5 mm	24.5 mm dia × 69.5 mm	19 mm dia × 60 mm
Hose Connection	1/2" gas	1/2" gas	1/2" gas
Air Hose Diam	13 mm	13 mm	13 mm
Air Pressure	6 bar	6 bar	6 bar
Air Consumption	300 ltr/min	300 ltr/min	200 ltr/min
Overall Length	450 mm	400 mm	350 mm
Weight	2.5 kg	2.5 kg	2.0 kg

Name of Mfr.: I.CO. s.r.l.

Interchangeable Tools for Pneumatic Universal Chisel & Chipper

Herramientas intercambiables　交換可能ツール　可互换工具

Unit Per Pc.

CODE	Drawing	ICO No.	Use
59 24 26		850-26	Normal chisel 50mm: suitable to eliminate foundry & welding burrs, devel edges & light jobs.
59 24 27		850-27A	Sheet sharing chisel; suitable for cutting rolled sheets 1.5mm – 2mm thick.
59 24 28		850-27B	Triangle cross cut chisel: suitable to eliminate fusion & welding blowholes & to prepare triangle grooves for welding.
59 24 29		850-27C	Mason's point: suitable for drilling concrete or brick walls.
59 24 30		850-27E	Nail punch: suitable to punch flat head nails against the plate to obtain better tightness.
59 24 31		850-27D	Rammer: suitable to caulk plates.
59 24 32		850-27F	Wails: suitable for rivetting.

4. Pneumatic Saws

Pneumatic Hacksaws

Sierra (Segueta) Neumáticas　エアーハックソー　风动弓锯

Light duty air operated hand hacksaw. Maximum cutting capacity is up to 3 mm thickness of steel plate. Special hacksaw blade is to be used.



Unit Per Set

CODE	59 05 71
Model	SSW-110
Stroke Speed (No Load)	7,000 min^{-1}
Stroke Length	11 mm
Cutting Capacity	Max. plate thickness 3 mm (for mild steel SS400)
Rated Air Pressure	0.6 MPa (6 kgf/cm^2)
Air Consumption (No Load)	0.29 m^3/min
Weight	0.62 kg
Standard Accessories	- 2 pcs Hacksaw blade 32 teeth - 1pc 3 mm Hex Socket Screw Key - 1pc Bushing R 1/4 x NPT 1/4

Name of Mfr.: Nitto Kohki Co.,Ltd.

Spare Blades

for Pneumatic Hacksaw

Hojas de Repuesto para Sierra (Segueta) Neumática

エアー式弓鋸用替え刃　风动弓锯用备用刀刃

Sold by 10 pieces per package.



Unit Per Pkt

CODE	Tooth/Inch	Pcs/Pkt	CODE	Tooth/Inch	Pcs/Pkt
59 05 73	9	10's	**59 05 76**	18	10's
74	12		**77**	24	
75	14		**78**	32	

Pneumatic Saws

Sierra Neumática　エアーソー　氣動鋸

ATEX certified saws for cutting all types of Metal, up to 300mm diameter Steel pipe, conduit, bolts and composite materials. Operates on less than 6 cfm, fast cutting, low weight, low vibration and low noise levels.



CL 50 or CL 75



PL 905



JP 901



JSZ

Unit Per Set

CODE	59 05 79	59 05 80
Model	CL50	CL75
Blade Width (mm)	12	19
Blade Type	Hand hacksaw, MC, MCSS blades	MB blades, 220 mm long
Speed Stroke Per Minute	1,200	
Stroke mm	45	
Air Consumption M³/min.	0.168	
Air Pressure Bar	5 - 6	
L x H x W mm	400x135x40.6	
Weight Kgs	2.5	
Application	Suitable for cutting steel sections and pipe up to 150mm diameter. Use freehand or mounted on a clamp / Inside or outside trigger.	
Name of Mfr.	Cengar Ltd.	

Unit Per Set

CODE	59 05 88	59 05 89	59 05 90
Model	PL 905	JP 901	JSZ
Blade Width (mm)	12	12	25
Blade Type	Hand hacksaw, MC, MCSS blades	Hand hacksaw, MC, MCSS, MY notched or Tapered blades	MJ Blades
Speed Stroke Per Minute	2,000	10,000	400/600
Stroke mm	22	9	57
Air Consumption M³/min.	0.116	0.116	0.168
Air Pressure Bar	5-6		
L x H x W mm	300x135x40.6	270x70x40	448x141x54
Weight Kg	2.4	1.6	5.5
Application	For cutting steel pipe, sections, bolts and GRP up to 50mm thick Use Freehand / Inside or Outside Trigger.	For cutting out circles and other shapes e.g., in instrument panels and dashboards. Use Freehand.	For cutting 150 mm to 300 mm dia. steel pipes. Mounted on a clamp with a blade guide which ensures straight cuts.
Name of Mfr.	Cengar Ltd.		

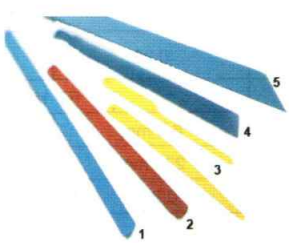
Spare Blades for Cengar Pneumatic Saw

Cuchillas de repuesto para sierra neumática Cengar

エアーソー用替え刃　Cengar 气锯的替换锯片

Made of special quality European steel which allows them to be bent during use without shattering. Long life, smooth cutting and safe.

A wide range of sizes and tpi's to suit every application.



Blades

Unit Per Pc.

CODE	Type	Length mm	T.P.I.	Ref. No.	For Model
12 mm (1/2") Wide Bi-Metal					
59 06 14	Hand	305	18	HB300/18	CL50, PL905, JP901
15			24	HB300/24	CL50, PL905
59 06 16	Machine (Red)	220	24	MC220/24	
59 06 18	Notched Yellow	152	18	MYN150/18	JP901
19	Tapered Yellow			MYT150/18	

(to be continued)

Unit Per Pc.

CODE	Type	Length mm	T.P.I.	Ref. No.	For Model
19 mm (3/4") Wide Bi-Metal					
59 06 92	Machine (Blue)	152	10/14	MB150/10/14	CL75, CS75
93			18	MB150/18	
94			24	MB150/24	
59 06 95		203	10/14	MB200/10/14	
96			18	MB200/18	
97			24	MB200/24	
59 06 98		254	10/14	MB250/10/14	
99			18	MB250/18	
59 07 00			24	MB250/24	
59 07 05		305	8	MB300/8	
06			10/14	MB300/10/14	
07			18	MB300/18	
08			24	MB300/24	
59 07 15	Machine (Grey)	305	6	MJ300/6	JSZ
16			8	MJ300/8	
17			10/14	MJ300/10/14	
18			14	MJ300/14	
59 07 25		457	6	MJ450/6	
26			8	MJ450/8	
27			10/14	MJ450/10/14	
28			14	MJ450/14	

Pneumatic Saws

Sierra Neumática　エアーソー　氣動鋸

Equipped with a damper to minimize vibration,stroke regulator and blade cooling device, and can cut in any direction.



FRF-4-2　　FRS-45

Unit Per Set

CODE	59 05 85	59 05 86
Model	FRF-4-2	FRS-45
Stroke/Min.	1,600	1,200
Blade Stroke	12 mm	45 mm
Air Consumption Nm^3/min.	0.28	0.40
Air Inlet Thread	PT 1/4	
Air Hose Size	6.3 mm	9.5 mm
Overall Length	233 mm	419 mm
Mass Weight	0.8 kg	2.9 kg

Name of Mfr. : Fuji Air Tools Co., Ltd.

Explosion-Proof Air Saws

Sierras Aéreas Resistentes a Explosión

防爆エアーソー　防爆风锯

A unique and most ideal all-purpose pneumatic hacksaw. Its reciprocating blade is designed to cut any sawable material of any shape.



Its automatic lubricating system will not produce either heat or sparks on the blade and material to be cut.

This safety saw can be used even in places where flammables are prohibited such as tankers, chemical plants, and petroleum refineries. This pneumatic saw is rust-proof and water-proof. Thus it can also be used for under water work.

Unit Per Set

CODE	59 05 87
Model	ITI-45
Stroke/Min.	0 - 1,200
Blade Stroke	45 mm
Air Consumption	0.18 m^3/min.
Dimensions L x W x H	approx. 425 x 42 x approx. 160 mm
Weight	2.65 kg
Blade	Standard hacksaw blade, Broken hacksaw blade, Band saw blade, etc.
Standard Accessories	* 1 pc Metal case * 1 can Maintenance oil * 1 pr Air coupler * 1 pc Saw blade * 1 pc Wrench for attaching blade

5. Pneumatic Winches

Pneumatic Driven Winches

Grua Tanque Neumática　エア・ウインチ　风动驱动绞盘

Pneumatic driven mucking winch specially designed for tank cleaning purposes. Pipe frame pole and suspension available with or without wheels. For further details, please ask your local manufacturers.



Unit Per Set

CODE	Lifting Capacity Kg	Lifting Speed (Mtr/Min)	Wire Rope Diam. mm	Wire Rope Length mtr	Air Hose Diam. mm	Weight kg
59 06 01	50	35	3	33	15	47
02	75	35	3	33	15	50
03	100	30	4	33	15	70
04	150	25	6	33	19	75
05	200	30	5	40	12	75
06	250	20	6	33	25	120
07	300	30	5	40	12	80

Electric Driven Winches

Cabrestante de propulsión eléctrica

電動式ウィンチ　电动绞盘

Electric driven winch specially designed for lifting goods from ship tank, ship bottom. Frame equipped with winding wheel for easy removal. Available from 100 - 400 kgscapacity, 110–220 Voltage.

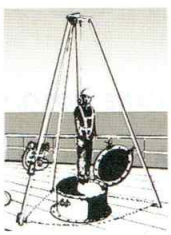


Unit Per Set

CODE	Lifting Capacity Kg	Lifting Speed (Mtr/Min)	Wire Rope		Voltage	Weight kg
			Diam. mm	Length mtr		
59 06 08 10	100	30	5	42	110V 220V	66
59 06 13 24	150	26	5	42	110V 220V	68
59 06 30 36	200	24	5	40	110V 220V	70
59 06 38 39	250	22	5	35	110V 220V	80
59 06 40 50	300	20	6	30	110V 220V	80
59 06 58 59	400	18	6	30	110V 220V	85

Pneumatic Casualty Winches

Cabrestante neumático para emergencias
エアー式非常時負傷者用ウインチ
气动式紧急伤员用起降机



Built in galvanized steel. Frame equipped with winding wheel and handles to allow quick and easy removal. Tested by the most important classification international registers.

Areas of use: Tankers and Freighters/For hoisting injured men and various materials from tanks, holds, etc.

Unit Per Set

CODE	59 06 09
Model	1500-MW7
Lifting Capacity	250 kg
Lift from Deck Level	15 – 20 mtr
Steel Rope Breaking Point	1,500 kg
Diam. of Sparkless Steel Rope	5 mm
Power	1 HP
Speed	20 mtr/min.
Air Pressure	6 – 7 atm.
Air Consumption	1.2 cbm/min
Air Inlet	3/4" × 19mm diam.
Overall Dimensions	500 × 500 × 4,000 mm
Weight	60 kg

Name of Mfr.: I.CO. s.r.l.

6. Neoprene Rubber Buckets

Neoprene Rubber Buckets

Cubo de Goma para Grua Tanque
ネオプレンゴムばけつ　氯丁橡胶桶



Specially developed spark proof buckets for use when cleaning tanks with chemical or petroleum cargo. Made of hard neoprene. When ordering, please specify the liter capacity required referring to the list below.

Unit Per Pc.

CODE	Capacity ltr	Dimension mm	
		Upper Diam	Height
59 06 11	10	260	335
12	20	360	350

7. Air Motors

Air Motors

Motores de Aire　エアモーター　压缩空气发动机



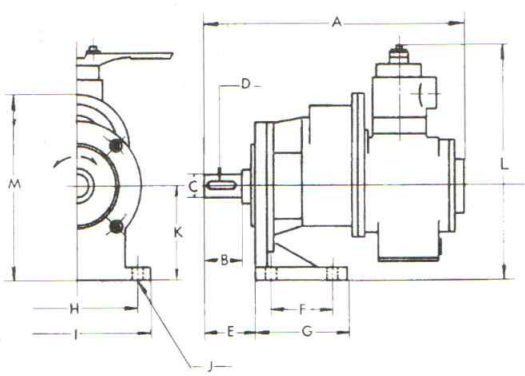
This air motor is free from explosion because it is equipped with a non-spark mechanism. It has a wide range of applications where an electric motor can not be used because of severe working conditions such as high temperature, high humidity, or problems with sparking.

Required air pressure for this motor is 0.59 MPa (6 kgf/cm^2).

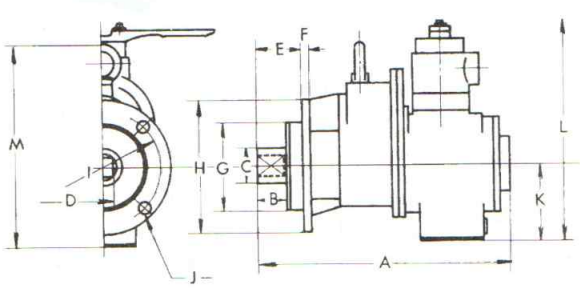
How to order : 59 - 06 - 20

Air motor, with the following specifications:

1) Mounting system	Base type (Horizontal) Flange type (Vertical)
2) Shaft connecting system	Key type Socket type
3) Operation system	Manual operation Remote operation
4) Load torque	kg-m
5) Free speed	R.P.M.
6) Maximum power	P.S.
7) Application	For opening and closing hatches. For lifting and lowering life boats or ladders.



Mounting System : Base Type
Shaft Connecting System : Key Type



Mounting System : Flange Type
Shaft Connecting System : Socket Type

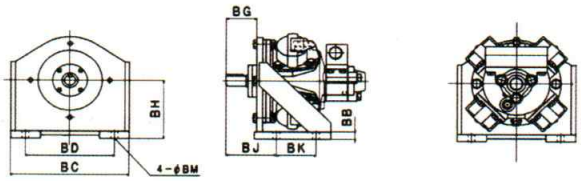
Air Motors

Motores de Aire　エアモーター　压缩空气发动机

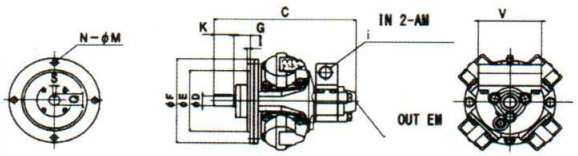
PADIAL PISTON MOTOR (DM)



This is the most popular Radial Piston type air motor. The quality of this motor is high torque and low speed. So it may use with compact reducer and in low noise area. Generally, used for air hoists and air winches. The method of air motor operation is direct pipe connecting. The way of motor mounting are base mount or flange mount. And the optional accessories can be available as air brake, reduction gear, pneumatic equipment etc.



BASE TYPE



FLANGE TYPE

Unit Per Pc.

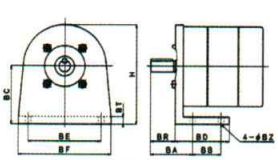
CODE	Output kW	Model	CODE	Output kW	Model
Base Mount					
59 09 31	0.86	DM1	**59 09 34**	7.15	DM220
32	1.73	DM3	**35**	11.99	DM36
33	3.90	DM9	**36**	17.62	DM45
Flange Mount					
59 09 37	0.86	DM1	**59 09 40**	7.15	DM220
38	1.73	DM3	**41**	11.99	DM36
39	3.90	DM9	**42**	17.62	DM45

Name of Mfr. : San-ei Seiki Seisakusho Co., Ltd.

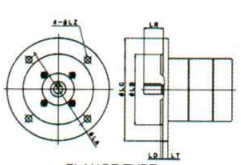
VANE MOTOR (VA) – One Way Rotation



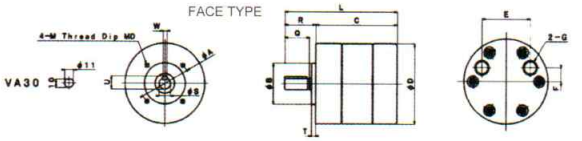
A compact and light-weight motors by the high quality machining and finishing. It is the most popular model and it is used to various fields widely. The motor speed is middle and high range. The unique system makes to keep the low speed torque and high starting torque. In case of the extra low speed or the extra high torque, the optional reducer can be available. The way of motor mounting are base mount, flange mount or face mount, and it can be applied to various site requirement.



BASE TYPE



FLANGE TYPE



Unit Per Pc.

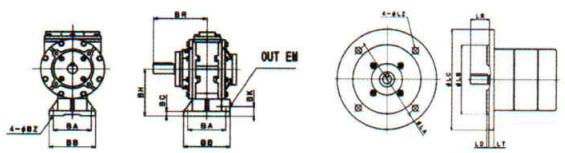
CODE	Output kW	Model	CODE	Output kW	Model
Base Mount					
59 09 51	0.14	VA15	**59 09 53**	0.45	VA50
52	0.27	VA30	**54**	0.90	VA100
Flange Mount					
59 09 55	0.14	VA15	**59 09 57**	0.45	VA50
56	0.27	VA30	**58**	0.90	VA100
Face Mount					
59 09 59	0.14	VA15	**59 09 61**	0.45	VA50
60	0.27	VA30	**62**	0.90	VA100

Name of Mfr.: San-ei Seiki Seisakusho Co., Ltd.

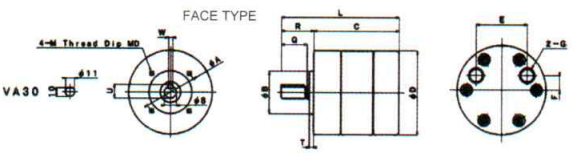
VANE MOTOR (VF) – Two Way Rotation



A compact and light-weight motors by the high quality machining and finishing. The motor speed is middle and high range, which keeps the low speed torque and high starting torque. In case of the extra low speed or the extra high torque, the optional reducer can be available. The way of motor mounting are base mount, flange mount or face mount, and it can be applied to various site requirement.



BASE TYPE　FLANGE TYPE



Unit Per Pc.

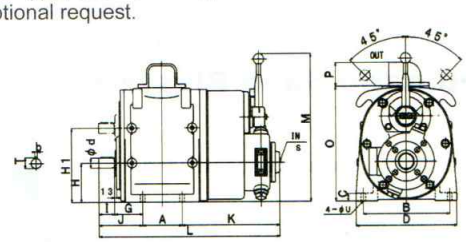
CODE	Output kW	Model	CODE	Output kW	Model
Base Mount					
59 09 65	0.38	VF05	**59 09 68**	2.25	VA30
66	0.75	VF10	**69**	3.76	VA50
67	1.50	VF20	**70**	5.71	VA70
Flange Mount					
59 09 71	0.38	VF05	**59 09 74**	2.25	VA30
72	0.75	VF10	**75**	3.76	VA50
73	1.50	VF20	**76**	5.71	VA70
Face Mount					
59 09 77	0.38	VF05	**59 09 80**	2.25	VA30
78	0.75	VF10	**81**	3.76	VA50
79	1.50	VF20	**82**	5.71	VA70

Name of Mfr. : San-ei Seiki Seisakusho Co., Ltd.

GEAR TURBINE MOTOR (AGM)

The construction of this motor is the same as gear pump. Because of no sliding parts inside, it rotates without friction heat-up. This motor is equipped on the speed governor, and the rotating speed is always fixed against the alternation of the driving load. The way of motor control is handle type, and remote type is available by optional request.





Unit Per Pc.

CODE	Output kW	Model	CODE	Output kW	Model
Handle Type					
59 09 85	5.65	AGM6	**59 09 88**	22.46	AGM23
86	8.95	AGM10	**89**	37.70	AGM40
87	14.14	AGM15			

Name of Mfr. : San-ei Seiki Seisakusho Co., Ltd.

8. Air Winches

Air Winches

Cabrestante de Aire　エアウインチ　气动式起降机



Simple, rugged, reliable source of enormous lifting, lowering and tensioning with variable speed control for precise load handling for their weight.

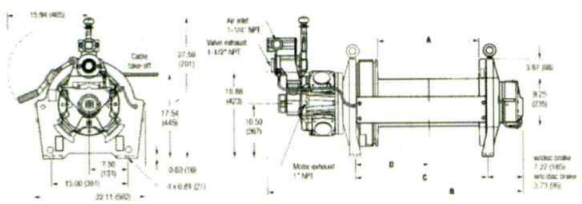
Air winches are well-suited for applications in hot, cold, dusty, dirty, explosive and wet conditions. They pose no electric shock hazard, require no special enclosures, and there are no high pressure hydraulic lines to leak. Air winches are easy to service, maintain, and repair. The most common models are described below for your reference. Please ask for further information and brochures of various manufacturers and models available from local suppliers when required. Wire rope is to be ordered separately.

Guidance to choose the correct utility winch for your applications ;
1. How much is to be lifted, pulled, or tensioned?
2. How fast is the load to be moved (if at all)?
3. How much wire rope is needed?

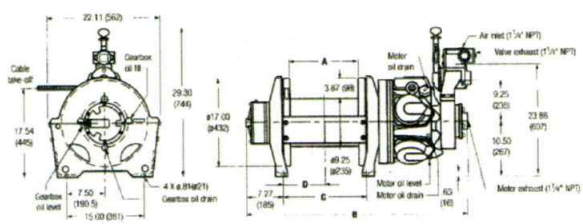
Unit Per Set

CODE		**59 06 21**	**59 06 22**	**59 06 23**
Model		FA2B	FA2.5A	FA5A
Capacity lbs (kg)				
Lift Rating per ANSI / ASME B30.16 at 5:1	First	5,000 (2,273)	5,000 (2,273)	11,400 (5,182)
	Mid	4,000 (1,818)	5,000 (2,273)	10,000 (4,545)
	Top	3,200 (1,455)	4,100 (1,864)	8,000 (3,636)
Pull Rating ANSI / ASME B30.7 at 3.5:1	First	5,100 (2,138)	7,100 (3,227)	13,100 (5,955)
	Mid	4,000 (1,818)	6,400 (2,909)	10,000 (4,545)
	Top	3,200 (1,455)	5,400 (2,455)	8,000 (3,636)
Speed fpm (mpm)				
Lift Rating per ANSI / ASME B30.16 at 5:1	First	79 (24)	119 (36)	40 (12)
	Mid	96 (29)	114 (35)	50 (15)
	Top	122 (37)	141 (43)	62 (19)
Pull Rating ANSI / ASME B30.7 at 3.5:1	First	76 (23)	67 (20)	26 (8)
	Mid	96 (29)	42 (13)	50 (15)
	Top	122 (37)	45 (14)	62 (19)
Standard Drum Length*		20"	20"	27"
Drum Root Diameter		9.25" (235 mm)	9.25" (235 mm)	12.75" (324 mm)
Stall lbs (kg)		6,800 (3,084)	10,400 (4,727)	17,000 (7,727)
Average Air Consumption cfm (m^3/min)		350 (10)	700 (20)	700 (20)
Motor HP		16	25	25
Air Inlet - NPT Size		1-1/4" (32 mm)	1-1/4" (32 mm)	1-1/4" (32 mm)
Rope Anchor Diameter		1/2" (13 mm)	5/8" (16 mm)	3/4" (19 mm)
Recommended Rope Size		1/2" (13 mm)	5/8" (16 mm)	3/4" (19 mm)
Weight lbs (kg)		738 (335)	818 (372)	1,251 (569)
Name of Mfr.		Ingersoll Rand		

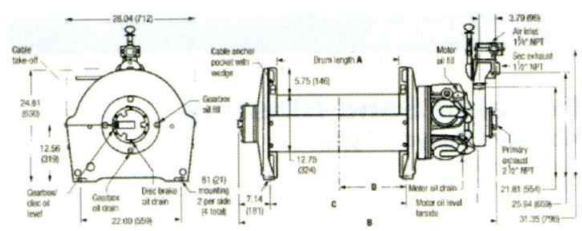
Remark : *Other drum length is available on request.



FA2B



FA2.5A



FA5A

Air Winches

Cabrestante de Aire　エアウインチ　气动式起降机

This is the multi-purpose air winch and it is attached standard radial piston type air motor, and control valve. The handling of this winch can be easily and safety. DNV type approved.



- Easy operation [control Lever only] and safe mechanism [Brake] are designed.
- Compact light weight can be moved quickly from one location to another.
- Dusty environment is acceptable for use.
- No sparks are generated.
- No damage with overheat occurs even for overload.
- Continuous operation at full capacity is available.
- Drum diameter is large enough to prolong life of rope.

Guidance to choose the correct utility winch for your applications;

1. How much is to be lifted, pulled, or tensioned?
2. How fast is the load to be moved (if at all)?
3. How much wire rope is needed?

Specifications

Model	W-05	W-10	W-20	W-30	W-50
Motor Output (kW)	1.73	7.15	7.15	12.00	12.00
Rope Pull (Ton)	0.5	1	2	3	5
Rope Speed (m/min)	19	37	19	19	11
Air Consumption (Nm^3/min)	2.0	5.4	5.4	9.0	9.0

Unit Per Set

CODE	Model	Drum Capacity (dia × m)		Weight (kg)	
		Short Drum	Long Drum	Short Drum	Long Drum
Manual Brake					
59 13 71	W-05	8 × 45	8 × 90	55	60
72	W-10	10.0 × 175	10.0 × 350	257	276
		12.5 × 115	12.5 × 230		
73	W-20	12.5 × 115	12.5 × 230	266	287
74	W-30	16 × 160	16 × 320	470	513
75	W-50	22.4 × 115	22.4 × 230	-	850
Automatic Brake					
59 13 76	W-05	8 × 45	8 × 90	59	64
77	W-10	10.0 × 175	10.0 × 350	267	288
		12.5 × 115	12.5 × 230		
78	W-20	12.5 × 115	12.5 × 230	276	297
79	W-30	16 × 160	16 × 320	513	527
80	W-50	22.4 × 115	22.4 × 230	780	873

Name of Mfr.: San-ei Seiki Seisakusho Co.

9. Sand Blasters

Portable Sand Blasters

Abrasive Recycle Type

Máquina de Granallar Portátil

ポータブルサンドブラスター　循环耐磨型便携式喷砂机



Lightweight, portable abrasive blasting tool with an integral abrasive recovery system. During blasting, the sand is continuously recycled, while dust and other debris is collected in a slip-on dust filter.

This item is effective for conserving the amount of abrasive necessary for large jobs.

Unit Per Set

CODE	59 06 37
Model	Educt-O-Matic
Blast Media	Steel & Iron Grit 40 to 100 mesh
Air Consumption	90 cfm @ 90 psi
Closed-circuit Blast Head	Rubber containment with 3/8" suction blast nozzle and 3/16" suction jet
Weight	5.4 kg
Name of Mfr.	Clemco Industries Corp.

Pneumatic Sand Blasters

Máquina de Granallar Neumática

サンドブラスター　风动喷砂机



Removes rust, scale, corrosion and paint, etc.

For use on metal, plastic, concrete, brick and glass. Has a compressed air sandjet with a compact and large volume tank which is suitable for continuous operation.

Cleans any hard surface quickly and leaves it in an ideal condition for repainting without further preparation.

Specifications

Model		AC(R)-1P	AC(R)-2P	AC(R)-3P
Tank Capacity	Net (Ltr)	88	134	275
	Sand (kg)	90	150	300
	Grits (kg)	240	400	800
Diam of Tank (mm)		500	600	750
Height of Tank (mm)		1,181	1,328	1,525
Weight of Tank (kg)		130 (145)	160 (175)	210 (225)

Name of Mfr. : Atsuji Tekko

Specifications

Model	1648	2452
Working Pressure	150 psi	150 psi
Dimension (Dia x Height)	16" × 48"	24" × 52"
Capacity in Cuft.	3	6
Piping I.D.	1" or 1-1/4"	1" or 1-1/4"

Name of Mfr. : Clemco Industries Corp.

How to order: CODE

Sand blaster, pneumatic, TYPE, MODEL

Unit Per Set

CODE	Model	Type	Name of Mfr.
59 06 41	AC - 1P	Portable	Atsuji-Tekko
42	AC - 2P		
43	AC - 3P		
59 06 44	ACR - 1P	Portable and Remote Control	
45	ACR - 2P		
46	ACR - 3P		
59 06 48	1648		Clemco Industries Corp.
49	2452		

10. Tank Cleaning Machines

Tank Cleaning Machines

Máquinas de Limpieza para Tanque

タンククリーニングマシン　油舱清洗机



Equipped with a unique, self start, hydraulic turbine which cleans effectively using the least amount of water. These machines are capable of rotating 360° horizontally and vertically to reach any tank surface.

The movement of the nozzle can be programmed to make a controlled pass suitable to the areas of the tank being cleaned. The gear box is enclosed with the bearings fully lubricated to preserve the long life of the workings. The gears are built into the lower part of the body for easy inspection and replacement.

Tank cleaning machines are available from a variety of manufacturers internationally. Because models, gearbox design, and wash patterns differ, it is advisable to ask your supplier or local dealer for detailed information about each machine and its features. A major manufacturer is listed below as a reference. When ordering, select a representative code for the nozzle size you require and specify the name of the manufacturer from whom you wish to order.

Unit Per Set

CODE	59 06 51	59 06 52	59 06 53
Model	Mu-301	Mu-302	Mu-303
Nozzle Diam	11 mm	12 mm	13 mm
Water Consumption	29 m³/Hr	34 m³/Hr	39 m³/Hr
Jet Length	11.5 mtr	12.5 mtr	14.5 mtr
Washing Cycle	3.7 min./cycle		
Working Pressure	10 kgf/cm²		
Weight	18 kg		
Name of Mfr.	Exeno-Yamamizu		

Tank Cleaning Hose

Manguera de Limpieza para Tanque
タンククリーニングホース　油舱清洗管



The hoses are made of a suitable rubber specially compounded for attaining high durability. There is no elongation or expansion of the outer diameter when pressure is exerted on the inside of the hose. Stainless wires (two spiral wires) are incorporated for discharging any static electricity. They are lightweight and have excellent flexibility.

Hoses are available from a variety of manufacturers internationally. Hoses from a few of the major manufacturers are listed below as a reference. When ordering, select a representative code for the size of the hose required and specify the name of the manufacturer from whom you wish to order.

Hoses for: MU Series: Exeno Yamamizu

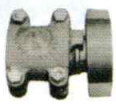
Unit Per Lgh.

CODE	Nom. Dia x Lgh	Out Diam mm	Working Pressure kgf/cm²	Bursting Pressure kgf/cm²	Appli-cable Temp.	Weight kg
59 06 61	2-1/2 x 10 mtr	70	13	26	140°C	28
62	2-1/2 x 15 mtr					39
63	2-1/2 x 20 mtr					50
64	2-1/2 x 25 mtr					61

Tank Cleaning Hose Accessories

for MU Series

Accesorios para Manguera de Limpieza para Tanque Serie MU
タンククリーニングホース附属品
油箱清洁管附件



59 06 71



59 06 72



59 06 73



59 06 76



59 06 74



59 06 75



59 06 77

For MU Series

Unit Per Pc.

CODE	Name	Size			Material	Weight
59 06 71	Coupling	ASA 2-1/2" 7.5 thread			Cast Bronze	3.3 kg
59 06 72	Y. Piece For Connecting Hose	"			"	4.9 kg
59 06 73	Double Male Coupling	"			"	1.3 kg
59 06 74	Coupling Spanner				Cast Alum-Bronze	0.9 kg
59 06 75	Combined Spanner				"	0.8 kg
59 06 76	Hose Packing	O.D.	I.D.	t	Neoprene	
		73	51	6		
59 06 77	Y. Piece Packing	78	62	4	"	

Tank Cleaning Hose Saddles

Sillines para Manguera de Limpieza para Tanque
タンククリーニングホースサドル
油舱清洗管鞍垫



For the protection and easy lifting of tank cleaning hoses.

Unit Per Set

CODE	Type	Material	Weight
For Mu Series			
59 06 81	300 N	Corrosion-proof	6.7 kg
82	400 N	Aluminium alloy	8.3

Tank Washing Machines, Twin Nozzle VP Major & VP Minor, Stainless Steel

Máquina Lavadora de Depositos,Boquilla Doble VP Majar Bronce y Acero Inoxidable
タンククリーニングマシン　油箱清洁机

The VP Major & VP Minor are pre-programmed twin nozzle tank washing machines available in 316 Stainless Steel.

Both use an orbital progressive intensity wash pattern to meet IMO Annex II pre-wash requirement standard. Automatic 'slip-clutch' to prevent accidental damage in use. Simple to service, with use of hi-performance long life gears, and fully Type Approved by Class Societies worldwide. Ancillary equipment available i.e. rigid hoses, adaptors, hose saddle, lifting tripod and downtubes.

VP Major



Suitable for use on both medium and large crude oil, chemical and product tankers, and can be supplied as a fixed or portable application.

Key Features

* Nozzle sizes range from 12 mm to 18 mm (18 mm Fixed machines only).
* Offered with 'media lubricated' drive.
* Alternative flange (up to 180 mm diameter) and fixings available.

Technical Specification

Wash Pattern: pre-programmable rotary 360°
Operating Pressure: Maximum 12 kg/cm² (190 psi)
Operating Temperature: Maximum 95°C (203°F)
Installation: Portable 2" NST male thread, Fixed Flanged Std DIN 50 NP16
Weight: Portable 19.5 kg (43 lbs), Fixed Flanged 21 kg (46 lbs)
Minimum Deck Opening: Φ245 mm (9.6 inches)

Unit Per Set

CODE	Nozzle Diam.	Supply Pressure kg/cm²								
		8	10	12	8	10	12	8	10	12
		Flow m³/hour			Jet Length mtr			Cycle Time mins.		
59 07 62	2 × 12 mm	32	35	40	19	20.5	21.5	39	36	34
63	2 × 14 mm	42	45	51	20	23	24	43	39	37
64	2 × 16 mm	50	55	61	22	24	25	42	39	37
65	2 × 18 mm	57	64	70	23	25	26	49	46	44

Name of Mfr. : Victor Marine Ltd.

VP Minor



Suitable for use on both small and medium crude oil, chemical and product tankers, and can be supplied as a fixed or portable application.

The VP Minor is also available as a "sealed for life" machine which has been specifically designed to operate with aggressive / abrasive types of drive media. The "sealed for life machines" are also the perfect choice when considering the cleaning of mud / slop tanks: this is due to the nature of the sealed gearbox design.

Key Features

* Nozzle sizes range from 7 mm to 11 mm (portable or flanged);
* Offered with either "sealed for life" (mud machine) or "media lubricated" drive to ensure no cargo contamination;
* Alternative flange (up to 160 mm diameter) and fixings available:
* Sealed unit available for use in corrosive mud tanks;

Technical Specification

Wash Pattern: Pre-programmable rotary 360°
Operating Pressure: Maximum 12 kg/cm² (190 psi)
Operating Temperature: Maximum 95°C (203°F)
Installation: Portable 1½" BSP male thread, Fixed Flanged Std DIN 40 NP10
Weight: Portable 8.2 kg (18.1 lbs), Fixed Flanged 10.2. kg (22.5 lbs)
Minimum Deck Opening : Φ 200 mm (8.0 inches)

Unit Per Set

CODE	Nozzle Diam.	Supply Pressure kg/cm²											
		6	8	10	12	6	8	10	12	6	8	10	12
		Flow m³/hour				Jet Length mtr				Cycle Time mins.			
59 07 66	2 × 7 mm	7.3	8	8.5	9.2	9.1	10.5	11	11.6	27	21	18.5	18
67	2 × 8 mm	10	11.3	12.2	13	9.5	11.3	12	12.5	26	20	18	17
68	2 × 9 mm	10.4	11.6	12.6	13.7	10.6	11.6	12.5	13	27	23	19	16
69	2 × 10 mm	13	14.2	16	17.6	11.6	14.2	14.8	15.5	26	22	20	18
70	2 × 11 mm	15	16.2	17.7	19.3	14	12.2	16	17	24	20	18	17

Name of Mfr. : Victor Marine Ltd.

Tank Cleaning Hose & Accessories

for VP Major and VP Minor

Mangueras y accesorios para limpieza de depósitos
タンク清掃用ホース＆アクセサリー　储罐清洗软管及配件



Used for delivery of sea water, detergent solutions and for cleaning fuel and oil tanks, road tankers and ships' tanks. Made from superior quality Neoprene with Styrene Butadine Rubber (SBR) liner and cover. Reinforced with multiple rayon braids for long life. Anti-scuff cover, weather and ozone resistant, with anti-friction lining. Earthed with two stainless steel braided wires, spirally wound, embedded in hose wall and connected to couplings. All hoses continuity tested (to under 6 Ohms per/mtr) and certified prior to dispatch.

Tankwash Hose (Black/Yellow with Logo) for VP Major Twin Nozzle Tank Washing Machine

2" (50 mm) nominal bore. Standard lengths are 10, 15, 25, 30, 40 and 50 metres. Fitted with standard 2½" NST (7.5 TPI) BW couplings. Couplings : Bronze swivel couplings. Clamp bands for safety. Fully earthed. Other connections are available upon request including Stainless Steel.

Unit Per Lgh.

CODE	Nom. Dia × Lgh	Working Pressure Bar (psi)	Min. Burst Pressure Bar (psi)	Temp. Range	Weight kg per mtr
59 07 74	50 mm × 10 mtr	20 bar (290 psi)	60 bar (870 psi)	- 30°C to 85°C	1.96
71	50 mm × 15 mtr				
72	50 mm × 25 mtr				
73	50 mm × 30 mtr				
80	50 mm × 40 mtr				
82	50 mm × 50 mtr				

Name of Mfr.: Victor Marine Ltd.

Tankwash Hose (Black/Yellow with Logo) for VP Minor Twin Nozzle Tank Washing Machine

1½" (38 mm) nominal bore. Standard lengths are 10, 15, 25, 30, 40 and 50 mtrs. Fitted with standard 1½" BSP couplings. Couplings : Bronze swivel couplings. Clamp bands for safety. Fully earthed. Other connections are available upon request including Stainless Steel.

Unit Per Lgh.

CODE	Nom. Dia × Lgh	Working Pressure Bar (psi)	Min. Burst Pressure Bar (psi)	Temp. Range	Weight kg per mtr
59 07 75	38 mm × 10 mtr	20 bar (290 psi)	60 bar (870 psi)	- 30°C to 85°C	1.51
76	38 mm × 15 mtr				
77	38 mm × 25 mtr				
78	38 mm × 30 mtr				
84	38 mm × 40 mtr				
86	38 mm × 50 mtr				

Name of Mfr.: Victor Marine Ltd.

Hose Saddle



Lightweight LM6 aluminium alloy comprising of saddle, deck plate, hose guide and positioning clamp. Suitable for 38 mm nominal bore or 50 mm nominal bore (1½" or 2") hoses. Deck base plate for standard 318 mm deck opening or other sizes to special order. Weight 5.5 kg.

CODE	Items	Remarks	Unit
59 07 91	Hose saddle	For 38 mm bore or 50 mm bore hoses. Weight 5.5 kg	Pc.

Name of Mfr.: Victor Marine Ltd.

Tank Washing Machines

D-3000 Stainless Steel

Máquinas para Limpiar Tanques
タンククリーニングマシン　油箱清洁机



The smallest and most versatile tank washing machine and can be supplied as a fixed, permanently installed unit or as a portable machine.

Lubrication by the wash media alone removes the possibility of contamination by gearbox lubricants. A combination of nozzle sizes and cycle times allows tailor made to suit particular applications. Type Approval by BV.

Unit Per Set

CODE	59 21 05	59 21 03	59 21 04	59 21 07	59 21 10	59 21 06
Nozzle Diam	6 mm	7 mm	8 mm	9 mm	10 mm	12.5 mm
Jet Length (m)	11.6-14.5	12.8-14.9	12.9-15.2	13.9-15.8	14.2-16.5	15.5-16.9
Flow m³/hr	7.8-10.2	9.2-13.8	12.6-16.2	14.5-19.0	16.2-21.9	26.4-33.6
Inlet Connection	1.5" BSP, PN10/40 flange					
Operating temperature range	Up to 100°C					
Cycle times	Various times available					
Sizes	H: 241 mm × W: 150 mm (max)					
Weight	11 kg					

Name of Mfr.: Dasic Marine Ltd.

Tank Washing Machines

D-4000 Stainless Steel

Máquinas para Limpiar Tanques
タンククリーニングマシン　油箱清洁机



A pre-programmed double nozzle sealed gearbox machine to be used as part of a permanently installed Crude Oil Washing System on any size Crude Tanker.

Double Nozzle COW allows the user to start COW operations while Machine is submerged in Crude with no cumbersome time-consuming adjustments.

The drive mechanism of the D4000 enables operation to commence at very low pressure (3.5 kg/cm² - 50 psi) therefore making it ideally suited to Tank Washing with water when required as well as allowing more machines to be used at one time while COW operations are underway.

Maintenance is greatly reduced due to a minimum of working parts this works to improve reliability of the Machines. Sealed grease lubricated gearbox for long life.

Unit Per Set

CODE	59 21 08	59 21 12	59 21 09
Nozzle Diam	12.5 mm	14 mm	16 mm
Jet Length (m)	16.5 -19.2	18.9-25.5	18.9-25.5
Flow m³/hr 6	26.0-32.6	32.0-40.4	41.5-52.0
Inlet Connection	2.5" 7.5 tpi male, PN16/50 flange		
Operating temperature range	Up to 100°C		
Cycle times	Various times available		
Size	H: 265 mm x W: 165 mm (max)		
Weight	14 kg		

Name of Mfr.: Dasic Marine Ltd.

Tank Cleaning Machines

Orbitor

Máquinas para Limpiar Tanques
タンククリーニングマシン　油箱清洁机



A self lubricated, self cleaning orbital tank washing machine. Its unique design and simplicity of operation and maintenance is ideally suited for use in the rigorous marine environment.

It is a turbine driven with the cleaning medium passing through the machine before being delivered by the nozzles as high pressure impact jets. It is ideally suited for use with very hot water and can be used with low supply pressures. Ideally suited for product carriers up to 20k dwt, with its cleaning media lubricated gear box there is no risk of cargo contamination.

The Orbitor can be supplied as a fixed or portable machine and can easily be utilized as a multi-level unit in chemical carriers.

Unit Per Set

CODE	59 21 13	59 21 14	59 21 15	59 21 16	59 21 17	59 21 18
Nozzle Diam	5 mm	6 mm	7 mm	8 mm	10 mm	12.5 mm
Jet Length (m)	6.0-10.5	8.0-12.5	9.0-13.5	10.0-14.5	13.0-20.0	13.0-21.0
Flow m³/hr	9.9-13.5	6.6-9.0	8.4-12.4	10.5-14.2	17.4-24.2	26.4-35.5
Inlet Connection	1.5" BSP					
Operating temperature range	Up to 95oC					
Cycle times	Various times available					
Sizes	H: 265 mm × W: 120 mm (max)					
Weight	6 kg					

Name of Mfr.: Dasic Marine Ltd.

Tank Cleaning Hose

for Jetstream Tank Cleaning Machine

Manguera de Limpieza para Tanque
タンククリーニングホース　油舱清洗管



Manufactured with a fully woven polyester reinforcement and completely encapsulated with a thermoplastic elastomer (polyurethane), the hose provides high pressure capabilities together with excellent resistance to attack by fuels, chemicals, abrasion, weathering and ozone/u.v..

Two low resistance stainless steel bonding wires are incorporated against the build up of static electricity. Standard hose length will be available up to 30mtr. Please specify length when ordering. Also available in 50mm diameter.

Unit Per Mtr.

CODE	Dia	Working Pressure	Min. Burst Pressure	Temp. Range	Weight per Mtre
59 21 11	38 mm	20.5 bar (300 psi)	41 bar (600 psi)	- 48°C to 98°C	0.3 kg

Name of Mfr.: Dasic Marine Ltd.

Tank Cleaning Machines

Butterworth K / SK / SSK Series Machine

Limpiadora de Tanque Serie Butterworth K/KS/KSS
タンククリーニングマシン　油箱清洗機　油脂 K/KS/KSS 系列



They are used portably for water washing, or fixed-in-place crude oil washing of small and medium size tanks and for cleaning hard-to-reach surfaces in large tanks.

They can operate in any position by the Full-sphere with 360° coverage washing pattern.

K Machines

Features rotating twin nozzles and a wash head revolving in panes 90° apart. Small, low-cost and weighing less than 28 kilograms (62 pounds), the K machine has a cleaning range of 10 meters (33 feet) and fluid capacity up to 32 cubic meters (377 cubic feet) per hour. Wash cycle times range from 50 to 23 minutes for inlet pressures of 3.5 to 12 kilograms per square centimeter (50 to 175 psi).

SK and SSK Machines

The SK and SSK machines both weight 30 kilograms (66 pounds) and are identical except for the SSK's larger nozzle and great capacity. The SSK (only used for fixed-in place installations) has a maximum capacity of 75 cubic meters per hour and a cleaning range of 25 meters (82 feet).
The SK has a maximum capacity of 53 cubic meters per hour and a cleaning range of 21 meters (69 feet). The wash cycle times for both units run from 17 to 32 minutes with inlet pressure of 5.25 to 12 kilograms per square centimeter (75 to 175 psi).

Specification

Model	K	SK	SSK
Cleaning Range	10 meters (33 feet)	21 meters (69 feet)	25 meters (82 feet)
Fluid Capacity	Up to 32 m^3 (377 $feet^3$)	Up to 53 m^3	Up to 75 m^3
Pressure Range	Maximum : 250 psi (17.3 bar) Nominal Range : 85-150 psi (5.9-103 bar)		
Jet-Length Radius	Maximum : 125' (38 meters) @ 250 psi (12 bar)		
Application	Portable		Fixed-in-place
Inlet Pipe	50 mm to 65 mm (2" to 2.5")		75 mm (3")
Inlet Connection Type	2.50" ASA - B - 26 (NST) - Male		
Thread Connection	American national 2" x 7-1/2 TPI male		
Minimum Tank Opening Requirement	9.00" (228.6 mm)		
Material	Bronze Alloy		
Weight	48 lbs (21.77 kg)	58 lbs (26.31 kg)	

Unit Per Pc.

CODE	Nozzle Size	Type
59 23 01	9.5 mm (0.375")	K
02	11 mm (0.437")	
03	14 mm (0.562")	
04	22 mm (0.866")	
59 23 05	9.5 mm (0.375")	SK
06	11 mm (0.437")	
07	14 mm (0.562")	
08	22 mm (0.866")	
59 23 09	9.5 mm (0.375")	SSK
10	11 mm (0.437")	
11	14 mm (0.562")	
12	22 mm (0.866")	

Accessories for Tank Cleaning Machine Butterworth K / SK / SSK Series Branch Connector



2" Tank Cleaning Hose



Quadrant Deck Plate (Hose Saddle)



Branch Connector



Double Male Coupling



Coupling Spanner

CODE	Description		Unit
59 23 21	Tank cleaning hose	2" x 50 feet	Lgh
22	"	2" x 75 feet	"
23	"	2" x 100 feet	"
59 23 24	Quadrant deck plate (Hose Saddle)		Pc.
59 23 25	Branch connector	2-1/2" (3 male threads)	Pc.
26	"	2-1/2" (2 male & 1 female thread)	"
59 23 27	Double male coupling 2-1/2"		Pc.
28	Coupling spanner		Pc.

Tank Cleaning Machines

Butterworth LT & LT-FT

Máquinas de limpieza de depósitos　タンククリーニングマシン　储罐清洗机



An automated portable or fixed-in-place tank cleaning machine provides 360° impact indexed coverage for the cleaning of the inside of tanks of Chemical and Product Tankers. A highly versatile machine and is applicable in most all types of tanks for process, storage, and transportation. Tank capacities range from 500 – 150,000 gallons (2 – 570 m^3) for one machine per tank and larger tanks where multiple machines are installed.

LT machine creates a pattern matrix similar to a ball of twine, and a complete pattern is established when 65 axial revolutions of the body have been completed. During the process of this pattern build out, 4 cycles are established with each cycle increasing the density of the pattern matrix.

Specification

Pressure Range	0 – 300 PSI (21 Bar)
Jet Length Radius	0 – 58' (17.68 mtr)
Inlet Connection Type	1-1/2" NPT (F), 1-1/2" BSP (F)
Minimum Tank Operating Requirement	5.613" (142.56 mm)
Material	316 Stainless steel / CD4-MCU Duplex S/S
Weight	15 lbs (6.8 kg)

NPT Inlet Type

Unit Per Pc.

CODE	Nozzles	Inlet	Max. Rotational PSIG	Model
Female Threaded				
59 23 71	2 × 6.0 mm	1-1/2" NPT	150	LT6Z33NOFT
72	2 × 8.0 mm		300	LT8Z21NOFT
73	2 × 10 mm		300	LT10Z11NOFT
74	2 × 10 mm		150	LT10Z21NOFT
75	2 × 12 mm		300	LT12Z11NOFT
Male Threaded				
59 23 76	2 × 6.0 mm	1-1/2" NPT	150	LT6Z33NMOFT
77	2 × 8.0 mm		300	LT8Z21NMOFT
78	2 × 10 mm		300	LT10Z11NMOFT
79	2 × 10 mm		150	LT10Z21NMOFT
80	2 × 12 mm		300	LT12Z11NMOFT

BSP Inlet Type

Unit Per Pc.

CODE	Nozzles	Inlet	Max. Rotational PSIG	Model
Female Threaded				
59 23 81	2 × 6.0 mm	1-1/2" BSP	150	LT6Z33BOFT
82	2 × 8.0 mm		300	LT8Z21BOFT
83	2 × 10 mm		300	LT10Z11BOFT
84	2 × 10 mm		150	LT10Z21BOFT
85	2 × 12 mm		300	LT12Z11BOFT
Male Threaded				
59 23 86	2 × 6.0 mm	1-1/2" BSP	150	LT6Z33BMOFT
87	2 × 8.0 mm		300	LT8Z21BMOFT
88	2 × 10 mm		300	LT10Z11BMOFT
89	2 × 10 mm		150	LT10Z21BMOFT
90	2 × 12 mm		300	LT12Z11BMOFT

Name of Mfr. : Butterworth

Subsea Robots for Hull Cleaning

Robot submarino para limpieza de cascos
船体清掃用ロボット　用于清洁船体的水下机器人

Subsea hull cleaning robot is designed for requirement of higher effective plan with less consumption. The drive mechanism of the robot consists of a thruster and a crawler motor. It has multiple mixed motion modes for cruising through the water, climbing vertically, and walking upright/ inverted. The bottom-mounted cavitation jet cleaning nozzles allow cleaning while moving on the surface without damaging the hull's paint. The robot is fitted with a high-definition camera and a dark ambient light compensation system. The whole operation is fully visible and the cleaning effect can be verified. The robot uses thrust adsorption, which can be adapted to different work surface operation requirements and can meet non-magnetic requirements.



ECOSEA ES-150



ECOSEA ES-2000

Unit Per Set

CODE	59 23 91	59 23 92
Model	ECOSEA ES-150	ECOSEA ES-2000
Maximum running speed	12 m/min	60 m/min
Maximum working depth	50 m	50 m
Cleaning speed	≤ 200 m²/h	≤ 2,000 m²/h
Continuous working time	24 h	24 h
Power supply	AC440 V±40, ≥55 kW	DC500 V ±50, ≤20 kW
Dimensions (L×W×H) mm	1,100 × 1,100 × 900	3,000 × 1,850 × 900
Weight (kg)	150	580
Name of Mfr	Nesto	

11. Vacuum Cleaners

Vacuum Cleaners, Industrial Pneumatic

Aspiradpras, Neumática Industrial
空気式工業用真空掃除機　空气式工业用真空吸尘器

Compressed air driven type vacuum cleaner. Safe operation even in an explosive gas atmosphere.

A wide range of models are available, and the listed specifications are for your reference. When ordering, ask your supplier for more details about the capacity of the machine or ask for catalogues and any further information.



A-250
(wet and dry)



AX-1
(wet and dry)



AX-2
(wet and dry)

Unit Per Set

CODE	59 07 03	59 07 01	59 07 02
Model	A-250	AX-1	AX-2
Tank Capacity (ltr)	18	50	60
Suction Air Pressure (KPa)	15.0	29.5	
Working Air Pressure (kgf/cm²)	5.0 - 6.0		
Air Hose	1/4" or 3/8"	1/2"	
Reduction	32-32	50-38	
Suction Hose I.D. (mm)	32	38	
Size (W × D × H mm)	315 × 315 × 500	465 × 560 × 890	
Weight (kg)	7.5	16	22
Working Air Quantity (L/min)	800	1,500	

Remark: A-250 model replaceable your own 18L (Φ300) pail-cans
Name of Mfr. : Sanritsu-Kiki



VHC110



VHC200

Unit Per Set

CODE	59 07 04	59 07 09
Model	VHC110	VHC200
Tank Capacity (ltr)	37	100
Suction Air Pressure (KPa)	32.5	38.0
Working Air Pressure (kgf/cm²)	4.0 - 7.0	4.0 - 6.0
Air Hose	1/2"	
Reduction	50 - 40	70 - 50
Suction Hose I.D. (mm)	40	50
Size (W × D × H mm)	570 × 560 × 1010	910 × 600 × 1,590
Weight (kg)	37	70

Remarks: ATEX/ Explosion Proof version available upon request
Name of Mfr. : Nilfisk Pte Ltd

Vacuum Cleaners, Industrial Electric

Aspiradpras, Eléctrica Industrial
電動工業用真空掃除機　工业电动真空吸尘器

Electric driven, powerful, heavy duty vacuum cleaners for the removal of dust, metal particles, powder, or liquid. A wide range of models are available, and the listed specifications are for your reference. When ordering, ask your supplier for more details about the machine or for catalogues from the dealer.

How to order: CODE

Vacuum cleaner, industrial, electric, CAPACITY ltr, POWER SOURCE VOLTAGE



JE-250-3D (wet and dry)



JX-4530 (wet and dry)

Unit Per Set

CODE	59 07 10	59 07 19
Model	JE-250-3D	
Voltage	100V	200V
Tank Capacity (ltr)	18	
Motor Output (kW)	1.0	
Suction Pressure (KPa)	21.6	
Inlet (mm)	38	
Reduction	38 - 38	
Suction Hose I.D. (mm)	38	
Size (W × D × H mm)	315 × 315 × 660	
Weight (kg)	9.2	

Remark: Model JE250-3D replaceable your own 18L (ø300) pail-cans
Name of Mfr.: Sanritsu-Kiki

Unit Per Set

CODE	59 07 11	59 07 12
Model	JX-4530	
Voltage	100V	200V
Tank Capacity (ltr)	60	
Motor Output (kW)	1.1	
Suction Pressure (KPa)	31.4	
Inlet (mm)	50	
Reduction	50-38	
Suction Hose I.D. (mm)	38	
Size (W × D × H mm)	465 × 560 × 890	
Weight (kg)	26.0	

Name of Mfr.: Sanritsu-Kiki



ATTIX 30



VHS120



S3 L100

Unit Per Set

CODE	59 07 20	59 07 23	59 07 24
Model	ATTIX 30	VHS120	S3 L100
Voltage	110/ 230V*	230V	110V/ 220V*
Tank Capacity (ltr)	30	37	100
Motor Output (kW)	1.5	2.0	3.0
IP Protection Class	X4	44	
Suction Pressure (KPa)	25	21	
Inlet (mm)	50	50	70
Reduction	50 - 36	50 - 40	70 - 50
Suction Hose I.D.(mm)	36	40	50
Size (W×D×H mm)	450×380×595	560×570×1,015	800×600×1,580
Weight (kg)	10	38	71

Remarks: ATEX/ Explosion Proof version available upon request
Remarks*: 110V available upon request
Name of Mfr. : Nilfisk Pte Ltd

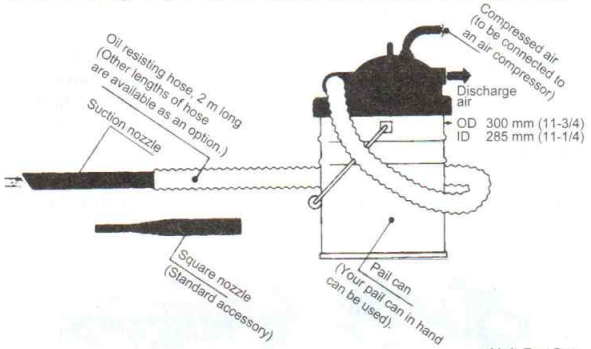
Pneumatic Vacuum Cleaners "BLOVAC CLEANER"

Aspiradoras Neumaticas
ブローバッククリーナー　风动真空吸尘器

A compact and lightweight industrial vacuum cleaner which works on compressed air. Capable of cleaning off water, oil, and bottom sludge as well as dust and metal chippings. It will even vacuum explosive materials as long as the machine is properly grounded from electrical current. Made of a unique design permitting the use of an ordinary pail can with an outside diameter of 300 mm to collect the dust and waste. Furnished with a pail can, 2 meters of oil resistant hose, and an oil stopper which automatically stops suction when the receiver becomes full.



Square Nozzle　Round Nozzle



Unit Per Set

CODE	Type	Hose	Suction nozzle	Air consumption at 5kgf/cm²	Vacuum (in water column) at 5kgf/cm²	Suction capacity at 5kgf/cm²
59 07 21	V-300 (for 3 HP)	ø25 mm × 2 m (oil-resisting)	ø25 mm w 30 cm 2 types available	350 Ltr/ min	2,600 mm/H_2O	1.1 m^3
59 07 22	V-500 (for 5 HP)	ø32 mm × 2 m (oil-resisting)	ø32 mm w 30 cm 2 types available	500 Ltr/ min	2,600 mm/H_2O	1.8 m^3

Name of Mfr.: Blovac Co. Ltd.

Optional hoses of other lengths are also available on request.

Air Polishers

Pulidoras de aire

エア式ポリッシャー　气动式打磨器

Best choice to shampoo the floor and deck board of hazardous area. This air polisher can be used without any electricity nor battery.

* With safety handle.
* Air filter, regulator and lubricator equipped.
* Exhaust muffler/cleaner equipped.
* Various type of pad & brush available to choose.

Pad and brush is optional.



FP-140AP

Unit Per Set

CODE		59 07 30	
Model		AFP-140AP	
Air Pressure (MPa)		0.5	0.4
Pad/Brush r.p.m.		260	200
Air Consumption (Nm³/min)		0.98	0.73
Air Inlet		Rc 1/2 (PT 1/2)	
Size	Width	390 mm	
	Height	1,175 mm	
	Pad/ Brush	15 inch/14 inch	

Name of Mfr.: San-ei Seiki Seisakusho Co., Ltd.

12. High Pressure Cleaners

High Pressure Cleaners

Aspiradoras de Alta Presión　高圧クリーナー　高压清洗机

High performance, excellent ergonomics, low noise levels and easy servicing make this an efficient pressure washer. For more efficient cleaning with reduced chemical consumption the unit can be fed with hot water up to 60 - 85 degrees. HPC 54/1 ideal for 3-4 hours and HPC 67/1 for 6-7 hours continuously operations.



Unit Per Set

CODE	59 07 36	59 07 35	59 07 37
Model	HPC 54/1	HPC 67/1	HD10/22 S
Working Pressure	200 bar	195 bar	3-22 MPa
Water Flow	1,000 ltr/hour	1,280 ltr/hour	450-900 L/H
Max. Water Inlet Temp.	60°C	85°C	60°C
Rotation Speed	1,750 rpm		-
IP Protection	X5		-
Water Inlet Connection	3/4" male		-
Voltage	3-440 / 60 Hz / 11.4 A		3-200V, 50/60 Hz
Dimensions L × W × H (mm)	735 × 570 × 1,020	775 × 570 × 1,020	560 × 500 × 1,090
Weight kg	71	90	62
Name of Mfr.	Unitor™ by Wilhelmsen Ships Service		Karcher

Air-Operated Pressure Washers

Hydra-Clean

Limpiadoras a presión

エア式高圧クリーナー　高压清洗机

High Pressure Washer which can be used safe in hazardous locations. Efficient cleaning with water, detergent or chemical solutions. Supports multiple guns. Designed to use with cold or hot water up to 200°F (93°C). Includes everything needed to use with open-head universal drums. Fits most pressure, flow and material requirements. Available with an accumulator and chemical injector.



Unit Per Set

CODE	59 07 38	59 07 39	59 07 34
Model	247551	247553	258664
Pump Package	23:1	30:1	40:1
Pump Construction	Stainless Steel		
Mount Type	Cart Mount		
Max. Working Pressure	2,275 psi (157 bar, 15.7 MPa)	3,065 psi (211 bar, 21.1 MPa)	4,000 psi (276 bar, 27.6 MPa)
Max. Air Input Pressure	100 psi (7 bar, 0.7 MPa)		
Fluid Flow at 60 cpm	9.2 gpm (34.7 lpm)	6.8 gpm (25.9 lpm)	4.6 gpm (17,4 lpm)
Volume per Cycle	19.6 oz (580 cc)	14.5 oz (430 cc)	9.8 oz (290 cc)
Air Inlet Size	3/4" npt (f)		
Fluid Inlet Size	1"		
Fluid Outlet Size	3/8"		

Name of Mfr. : Graco

High Pressure Cleaners

Maquinas para Limpiar de Alta Presión

高圧クリーナー　风动高压吸尘器

Air Powered Heavy Duty

Designed for heavy duty use in hazardous areas where combustible gases and liquids may be present, ensuring safety and effective cleaning. It is ideal for removing stubborn dirt, stains and other debris.
Non corrosive materials are used in pump, fittings and pipes.



Unit Per Set

CODE	59 08 51
Model	C-200AIR
Power Consumption	9.0 HP (6.6 KW)
Motor Speed	1,500 r.p.m.
Working Pressure	200 bar (2,900 psi)
Flow Capacity	15.0 ltr/min.
Max. Air Consumption	560 m³ /hour (330 Cf/min)
Dimensions	L850 × W550 × H900 mm
Weight	70 kg

Name of Mfr. : DEN-SIN by Nilfisk

Electric Powered

Designed for general purpose cleaning tasks in multiple industries. These high pressure cleaners are used for daily cleaning of machinery, vehicles, and buildings, for the removal of stubborn dirt, stains and other debris from multiple surfaces. Available in AC220V or AC440V. All pump materials, fittings and pipes in contact with water are non-corrosive.



C-110E/C-170E

Unit Per Set

CODE	59 08 52	59 08 53	59 08 54
Model	C-110E	C-170E	
Power Supply	AC 220V 1 ph 60Hz	AC 220V 3 ph 60Hz	AC 440V 3 ph 60Hz
Power Consumption	3.0 HP (2.2 kW)	6.0 HP (4.4 kW)	
Motor Speed	1,750 r.p.m.		
Working Pressure	110 bar (1,600 psi)	170 bar (2,465 psi)	
Flow Capacity	11.7 ltr/min.	15.2 ltr/min.	
Dimensions	L720 × W480 × H900 mm		
Weight	45 kg	46 kg	

Name of Mfr. : DEN-SIN by Nilfisk

C-200E

Unit Per Set

CODE	59 08 55	59 08 56
Power Supply	AC 220V 3 ph 60Hz	AC 440V 3 ph 60Hz
Model	C-200E	
Power Consumption	7.5 HP (5.5 KW)	
Motor Speed	1,750 r.p.m.	
Working Pressure	200 bar (2,900 psi)	
Flow Capacity	16.5 ltr/min.	
Dimensions	L720 × W480 × H900 mm	
Weight	56 kg	

Name of Mfr. : DEN-SIN by Nilfisk

Combijet Model JE60-500

500 bar compact unit with a pressure regulator valve as standard.

Suitable for removal of hard dirt, grease oil, embedded crystallized salt, barnacles and marine growth, soil and clay, rust flakes and corroded paint. Available in 50 and 60 Hz.



Unit Per Set

CODE	59 08 64	59 08 65
Power Supply	AC 380-440V/ 3 ph 50Hz	AC 380-440V/ 3 ph 60Hz
Model	JE60-500	
Power Consumption	20 HP (15 KW)	
Motor Speed	1,450 rpm @50 Hz / 1,750 rpm @60 Hz	
Working Pressure	500 bar (7,250 psi)	
Flow Capacity	16 ltr/min.	19 ltr/min.
Dimensions	L1,070 × W550 × H900 mm	
Weight	245 kg	

Name of Mfr. : Combijet Manufacturing Ltd.

Engine Powered



The petrol and diesel powered series of High-Pressure Cleaners offers total independence of external power supply giving the user a higher degree of mobility. For effective removal of stubborn dirt, stains and other debris. Non corrosive materials are used in pump, fittings and pipes. Self-priming and suction allow water to be drawn from a tank or river. Rugged, flat-proof wheel design and high mobility across any surface. Reliable engines, provided by Honda or Kohler depending on model, ensure long equipment life and high-impact cleaning.

Diesel Engine

MC5DE

Unit Per Set

CODE	59 08 61
Model	MC5M-195/1000DE
Fuel Oil	Diesel
Power Consumption	10 HP (7.5 kW)
Pump Speed	1,650 r.p.m.
Working Pressure	195 bar (2,800 psi)
Flow Capacity	16.7 ltr/min.
Fuel Tank Capacty	5.5 ltr
Dimensions L × W × H	750 × 680 × 850 mm
Weight	110 kg

Name of Mfr. : DEN-SIN by Nilfisk

Petrol Engine (Gasoline)

MC5PE



Unit Per Set

CODE	59 08 63	59 08 62
Model	MC5C-240/940PE	MC5M-280/110PE
Fuel Oil	Petrol (Gasoline)	
Power Consumption	9 HP (6.6 kW)	13 HP (9.5 kW)
Pump Speed	3,400 r.p.m.	
Working Pressure	240 bar (3,500 psi)	280 bar (4,000 psi)
Flow Capacity	15.7 ltr/min.	18.4 ltr/min.
Fuel Tank Capacty	5.3 ltr	6.0 ltr
Dimensions L×W×H (mm)	546 × 615 × 1,021	713 × 572 × 1,021
Weight	45 kg	61 kg

Name of Mfr. : DEN-SIN by Nilfisk

Combijet JP Series 200-250 bar



Unit Per Set

CODE	59 08 78	59 08 79
Model	JP 9-200	JP 13-250
Pressure	200 bar (2,900 psi)	250 bar (3,625 psi)
Power (Petrol Motor)	9 HP (6.6 KW)	13 HP (9.7 KW)
Flow Rate	13 ltr/min.	17 ltr/min.
Electric Supply	Petrol Engine	Petrol Engine
Motor Speed	3,400 rpm	1,700 rpm
Dimensions LxWxH (mm)	1,030 × 500 × 670	1,000 x 660 × 920
Weight	45 kg	61 kg

Name of Mfr. : DEN-SIN by Nilfisk

High Pressure Water Blasters

Heavy Duty

Lanzas de agua a alta presión　高圧洗浄機　高压射水器



Powerful & cost efficient cleaning for MARINE users.

Applications: General cleaning, washing of salt spray, removal of lose paint & rust. Cleaning in holds & transfer pipes. Cleaning scaffolding material. Removal of lime scale deposits and marine growth. Removal of oil & grease from decks & machinery. Dust free wet abrasive sand blasting & pipe cleaning with accessories.

Unit Per Set

CODE	59 08 44	59 08 58	59 08 59
Model	CE20-200	MC 9P 350/1260	MC 9P 500/960
Pressure	170 bar (2,500 psi)	350 bar (5,075 psi)	500 bar (7,250 psi)
Power (Elec. Motor)	20 HP (15 kW)	24 HP (18 kW)	
Flow Rate	45 ltr/min.	21 ltr/min.	16 ltr/min.
Electric Supply	AC 440V 3 ph 60 Hz		
Motor Speed	1,750 rpm	1,760 rpm	
Dimensions L×W×H (mm)	90 × 500 × 850	1,100 × 500 × 980	
Weight	170 kg	245 kg	255 kg
Manufacturer	Den-Jet Marine	DEN-SIN by Nilfisk	

Ultra High Pressure Water Blasters

Lanzas de Agua a Ultra Alta Presión
超高圧ウォータープラスター
超高压射水器

Water blasting of decks, tanks, ballast tanks to remove all surface particles & corrosion to a superior standard without the use of abrasives.

Applications: Removal of paint, rust from steel & concrete surfaces. Removal of lime scale deposits & marine growth. Deck cleaning & cargo hold cleaning. Dust free wet abrasive sand blasting & pipe cleaning with rotating nozzle accessories.

Electric Powered



Unit Per Set

CODE	59 08 71	59 08 72	59 08 74	59 06 88	59 08 73
Model	MC 10P 500/1680	MC 10P 800/1170	MC 10P 1100/900	CE40-1380	UHP C-2500/25E
Pressure	500 bar (7,250 psi)	800 bar (11,600 psi)	1,100 bar (16,500 psi)	1,380 bar (20,000 psi)	2,500 bar (36,000 psi)
Power Consumption	40 HP (30 KW)	40 HP (30 KW)	40 HP (30 KW)	45 HP (33KW)	150 HP (113 KW)
Flow Rate	28 ltr/min.	20 ltr/min.	15 ltr/min.	13.8 ltr/min.	25 ltr/min.
Electric Supply	440/3ph 60Hz				
Motor Speed	1,765 rpm	1,175 rpm	1,175 rpm	1,200 rpm	540 rpm
Current Consumption	54 amps	54 amps	54 amps	57 amps	125 amp
Dimensions L × W × H (mm)	1670 × 750 × 1180			1,600×1,050 ×1,150	2,300×1,400 ×1,800
Weight	470 kg	565 kg	565 kg	650 kg	1,700 kg
Manufacturer	DEN-SIN by Nilfisk			Den-Jet Marine	DEN-SIN by Nilfisk

Diesel Powered



C-500/30D & C-800/20D



C2500/25D

Unit Per Set

CODE	59 08 75	59 08 76	59 08 80	59 08 77
Model	C-500/30D	C-800/20D	C-1100/16D	C-2500/25D
Pressure	500 bar (7,500 psi)	800 bar (11,600 psi)	1,100 bar (15,950 psi)	2,500 bar (36,000 psi)
Power (Diesel Engin)	50 HP (36.7 KW)	50 HP (36.7 KW)	50 HP (36.7 KW)	150 HP (113 KW)
Flow Rate	30 ltr/min.	20 ltr/min.	18 ltr/min.	25 ltr/min.
Fuel Tank Capacity	124 ltr	124 ltr	124 ltr	140 ltr
Dimensions L × W × H (mm)	1,800 × 1,200 × 1,850			2,600 × 1,450 × 1,800
Weight	970 kg			1,950 kg

Name of Mfr.: DEN-SIN by Nilfisk

Explosion Proof Type

Electric devices enclosed in a solid cabinet type is also available as explosion proof for tankers & chemical carriers.



CEX Series



EXP Series

Unit Per Set

CODE	59 07 13	59 07 14	59 07 29	59 07 98
Model	CEX-20-200	CEX20-280	CEX20-350	CEX20-500
Pressure	170 bar (2,500 psi)	250 bar (3,600 psi)	350 bar (5,075 psi)	500 bar (7,250 psi)
Power Rating	20 HP (15 KW)			
Flow Rate	45 ltr/min.	32ltr/min.	23ltr/min.	16ltr/min.
Electrical Supply	440V 60Hz			
EP Grade	EExde IIC T4	EExde IIC T4	EExde IIC T4	EExde IIC T4
Dimensions L × W × H (mm)	1,085 × 500 × 1,080			
Weight	235 kg			
Manufacturer	DEN-JET Marine			

Unit Per Set

CODE	59 08 50	59 07 99	59 08 82	59 08 00
Model	EXP20-14KEMC	CEX40-1380	EXP30-22KEMC	CEX40-1800
Pressure	1,100bar (16,500 psi)	1,380 bar (20,000 psi)	1,500 bar (21,750 psi)	1,800 bar (26,100 psi)
Power Rating	20 HP (15 KW)	45HP (33 KW)	30 HP (22 KW)	45 HP (33 KW)
Flow Rate	8 ltr/min.	13.8ltr/min	8 ltr/min.	10ltr/min
Electrical Supply	3-440V/ 60Hz/27A	3-440/400V 60Hz/57A	3-440V/ 60Hz/32A	3-440/400V 60Hz/57A
EP Grade	Ex d IIB T4	EExde IIC T4	Ex d IIB T4	EExde IIC T4
Dimensions L × W × H (mm)	1,250 × 880 x 1,270	1,600 × 1,050 x 1,150	1,250 × 880 x 1,270	1,600 × 1,050 x 1,150
Weight	630 kg	680 kg	670 kg	680 kg
Manufacturer	BC Taechang	Den-Jet Marine	BC Taechang	Den-Jet Marine

Vertical type

Designed to use for any narrow passage, suitable on Container Vessels.



Unit Per Set

CODE	59 08 42	59 08 90	59 09 00
Model	CE20-500	MJ20-14KEV	HJ30-22KEV
Pressure	500 bar (7,250 psi)	1,100 bar (16,500 psi)	1,500 bar (21,750 psi)
Power Rating	20 HP (15 kW)	20 HP (15 kW)	30 HP (22 kW)
Flow Rate	16 ltr/mn.	8 ltr/min.	
Electrical Supply	3-440V/60Hz/28A	3-440V/60Hz/27A	3-440V/60Hz/32A
IP Protection	55	54	
Dimensions L × W × H (mm)	950 × 500 × 850	950 × 550 × 1,440	
Weight	170 kg	486 kg	526 kg
Manufacturer	Den-Jet Marine	BC Taechang Corp.	

Hot Box

Ideal tool for cargo hold cleaning to reduce use of chemicals. Connects to any type of water blaster up to 500 bar and heats up the water to create hot water, enhancing the efficiency of cleaning works.



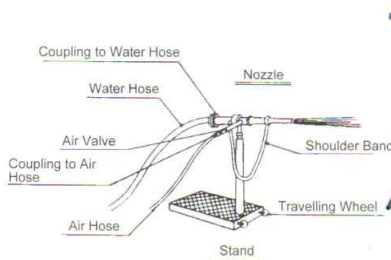
CODE	59 08 43
Model	HOT BOX 220 VAC - 500
Pressure	MAX 500 bar (7,250psi)
Flow Rate	MAX 45 ltr/min
Heating source	Diesel burner
Heat Energy	90,000 kcal/h / 105 KW
Electrical Supply	220 V/230 V
Heat Transfer Temp. at 10 lpm: °C	98
Heat Transfer Temp. at 20 lpm: °C	75
Heat Transfer Temp. at 30 lpm: °C	50
Heat Transfer Temp. at 40 lpm: °C	37
Heat Transfer Temp. at 45 lpm: °C	33
Dimensions L × W × H (mm)	800 × 600 × 1,045
Weight	150 kg
Manufacturer	Den-Jet Marine

13. Hold Cleaning Guns

Hold Cleaning Guns

Lanzas de Presión para Limpieza Bodegas/Tanques
ホールドクリーニングガン　　气力清洁枪

For cleaning of bulk carrier holds by a high pressure water stream. A strong stream of water can be projected a distance of up to 25 mtrs for the removal of any loose rust, flaking paint, or cargo residue. Supplied complete with a tripod stand, the lightweight design is ideal for a one-man operation. Please specify type and size of water hose coupling to be connected, when ordering.



59 07 41



59 07 43

Unit Per Set

CODE	59 07 41	59 07 43
Model	Water Tobey	VP Water Gun & Tripod
Effective Jet Reach	20 - 25 mtr	25 mtr
Working Pressure	5 - 7 kgf/cm^2	5 - 6 kgf/cm^2
Water Consumption	28 ton/hour	12 - 28 m^3/hour
Water Hose	50 mm or 65 mm	50 mm BSP male connection
Hose Coupling	Nakajima type	BSP Plus Any other type
Air Hose	15 mm	3/4" / 1" claw coupling or 1" BSP female
Weight	Gun : 4.7 kg Stand : 18 kg	Gun with tipod 10.5 kg
Name of Mfr.	Exeno Yamamizu	Victor Marine Ltd.

Hold Cleaners

Trelawny Hydraflex

Mantenga Limpiadores　ホールドクリーナー　保持清洁

Specifically designed for hold cleaning on bulk carriers and cargo vessels of all sizes. Operated by a combination of water and compressed air, the gun throws a solid, tightly compressed jet of water of up to 30 mtr (100 ft).



Features and Benefits

- Stainless steel construction
- Compact design
- Low maintenance

Unit Per Set

CODE	59 07 42
Type	Standard kit
Model	342.HY50
Effective Jet Reach	30 mtr
Recommended Water Pressure	6 kgf/cm^2
Recommended Air Pressure	7 kgf/cm^2
Water Consumption	300 gal/min.
Water Hose	2"
Hose Coupling	Instantaneous
Air Hose	3/4"
Weight	15 kg (Gun & Tripod)
Including	Gun, Tripod, Water hose coupling (2-1/2"× 2-1/2" and 1-1/2"× 2"), and Instantaneous water hose adapter

Name of Mfr. : Trelawny SPT Ltd.

Spare Parts for Hydraflex Hold Cleaning Gun

Unit Per Pc.

CODE	Description	Part No.	Weight Kg (lb)
59 07 46	Water hose coupling 2-1/2"x2-1/2"	342.HY03	1.70 (4.3)
47	Water hose coupling 2-1/2"x2"	342.HY04	1.95 (0.75)
48	Instantaneous water hose adapter	342.HY05	0.30 (0.66)
49	Ball valve	342.HY07	1.40 (3.10)

Hold Cleaning Guns

Maxi-Gun

Lanzas de Presión para Limpieza
ホールドクリーニングガン　固定式清洁枪

It consists of a uniquely designed series of air and water nozzles with 2 special swivel units in the vertical and horizontal planes. It is designed to give the highest and strongest solid water jet possible up to about 60 meters. It can be easily operated by one man using the normal service mains available on most Bulk carriers and OBO type vessels.



It requires air pressures of 7 bar and can simply be connected to the normal water-on-deck line and the service air line.

For safety, the Maxi-Jet incorporates 3 easily mounted water ballast tanks. These form a weighted, self-supporting stand for the nozzle and swivel units. With the ballast tanks full one man can easily and safely operate the equipment from a standing position, controlling jet direction and cleaning pattern from the nozzle handle.

Unit Per Set

CODE	59 07 45
Recommended Air Pressure	7 bar
Minimum Air Supply	5 m^3/min.
Estimated Water Consumption	20 – 100 m^3/hr.
Effective Washing Height	35 – 60 meters
Air Hose	Minimum 1"
Water Hose	Minimum 2-1/2"
Accessories	Twin water hose inlet, Water-filled ballast tank x 3
Total Weight	180 kg
Name of Mfr.	Stromme

Hold Cleaner Guns

VULCAN

Lanzas de Presión para Limpieza
ホールドクリーニングガン　固定式清洁枪

Designed for cleaning cargo holds, operated by combination of water and electric motor which makes working condition more steady. Due to high flow, water can reach at high position on the cargo holds easily.



Unit Per Set

CODE	59 07 79
Type	Standard kit With Cleaning Stand & Nozzle
Medium	Seawater (or Fresh Water)
Effective Jet Reach	25 mtr
Water Pressure	17-19 Bar
Water Consumption	400 ltr/min.
Hose Connection	Inlet 65A / Outlet 40A hydrant nipple
Weight	Pump unit: 345 kg/Stand: 50 kg
Size L × W × H (mm)	Pump Unit: 1,520 × 650 × 1,310 Stand: 900 × 500 × 1,200

Name of Mfr. : BC Taechang Ind. Corp.

Hold Auto Cleaners

Limpiador automático de la bodega de carga
自動カーゴホールドクリーナー　货舱自动清洁器

Designed for cleaning cargo holds, controlled by DC motors which make the water jets move up and down automatically without crews' operation. Standard kit with DC converter type and portable kit with rechargeable battery type are available.





Unit Per Set

CODE	59 06 54	59 06 60
Type	Standard Kit with DC Converter	Portable Kit with Rechargeable Battery
Effective Jet Reach	20 - 30 meters	
Recommended Water Pressure	4 - 6 kgf/cm^2	
Water Hose	50 mm or 65 mm	
Hose Coupling	2" or 2-1/2"	
Voltage	DC 24V	
Accessories	Assembled portable stand, Auto Nozzles, Waterproof Control Box, DC Converter/ Rechargeable Battery	
Weight	66 kg	68 kg
Name of Mfr.	Goldbay Marinetech Ltd.	

59 Pneumatic & Electrical Tools

Cargo Hold Application Set

Juego de aplicación para bodegas de carga
カーゴホールドアプリケーションセット
货舱实用工具组合



For applying all kinds of protective coatings, as well as for the application of chemical solutions for cleaning of cargo holds. Suitable for all kinds of chemicals (acids, alkaline, solvent, polymer, chlorine base). The lightweight telescopic applicator lance, made by Carbon Fiber, Glass Fiber, allows for reaching up to 20m height, with a bare pole weight of less than 4 kg. An air-operated double diaphragm pump made by GFR + PP (Glass Fiber + Polypropylene) material is also included, as well as an 50 m delivery hose roll and a 5 m suction hose.

Unit Per Set

CODE	59 07 90	59 07 92	59 07 95	59 07 96
Model	M36	M42	L42	L57
Consist of:				
Double Diaphragm Pump	1/2 inch		1 inch	
Telescopic Lance	35 ft	42 ft	42 ft	57 ft
Others	165 ft (50 m) Delivery hose, 16.5 ft (5 m) Suction hose, 2 pieces Spray nozzles, 1-unit Lance holder with belt, 3 pieces Respirator mask, 3 pairs Protective goggles, Instruction Videos, Manual, Specifications.			

Name of Mfr.: Chemo Marine Chemicals

Application Set Repair kit

Consists of: Spray nozzles, Spraying head, Hose connectors set, Tap connector and Extension joint.

59 07 97	Repair kit for cargo hold application set, Chemo marine	Set

14. Air Line Filters

Air Line Filters

Filtros para Línea de Aire　エアフィルター　高压清洗机



Designed for cleaning of compressed air and draining water drips.

The standard filtration is 5 μm and the maximum working pressure is 1.0 MPa. The maximum working temperature is 60°C. The filter case is made of a polycarbonate material and reinforced by a guard. A bracket and auto drain are also available on request.

Unit Per Pc.

CODE	Connection	Bowl Capacity (cm^3)	Weight kg
59 08 01	PT 1/4	8	0.09
02	PT 3/8	25	0.17
59 08 03	PT 1/2	45	0.35
04	PT 3/4		0.39
05	PT 1		0.85

Air Line Lubricators

Lubricadores para Línea de Aire
エアルブリケーター　空气管路润滑器



For use in adding lubricant into pressurized air. Maximum working pressure is 1.0 MPa and maximum working temperature is 60°C. The filter case is made of a polycarbonate material and reinforced by a guard. The recommended lubricant is turbine oil (ISO VG32). A bracket is also available on request.

Unit Per Pc.

CODE	Connection Thread	Min. Flow for Drop (ltr/min)	Lubricant Storage Volume (cm^3)	Weight kg
59 08 11	PT 1/4	15	25	0.10
12	PT 3/8	40	55	0.18
13	PT 1/2	50	135	0.37
14	PT 3/4	50		0.41
15	PT 1	190		0.92

Air Line Pressure Regulators

Reguladores de Presión para Línea de Aire
エアレギュレーター　空气管路压力调节器



Non relief valve type regulator for use on airlines to maintain constant pressure. The maximum operating pressure is 1.0 MPa and the maximum operating temperature is 60°C. Available in standard type and a pressure gauge attached type.

Unit Per Pc.

CODE	Connection Thread	Set Pressure Range	Type	Weight kg
59 08 21	PT 1/4	0.05 - 0.85 MPa	w/o Pressure Gauge	0.14
22	PT 3/8			0.27
23	PT 1/2			0.48
24	PT 3/4			0.51
25	PT 1			1.13
59 08 06	PT 1/4		with Pressure Gauge	0.14
07	PT 3/8			0.27
08	PT 1/2			0.48
09	PT 3/4			0.51
10	PT 1			1.13

Air Line F.R.L. Combinations

Combinaciones F.R.L. para Línea de Aire
エアコンビネーション
空气管路过滤器、调节器及润滑器



Comprised of an air filter, regulator with pressure gauge, a lubricator, and intermediate connectors. For use in compressed air filtration, regulation and lubrication. The maximum operating pressure is 1.0 MPa and the maximum operating temperature is 60°C. The standard filtration is 5 µm.

Unit Per Pc.

CODE	Connection Thread	Min. Flow of Drop (itr/min)	Set Pressure Range	Weight kg
59 08 31	PT 1/4	15	0.05 - 0.85 MPa	0.38
32	PT 3/8	40		0.75
33	PT 1/2	50		1.42
34	PT 3/4	50		1.55
35	PT 1	190		3.34

Mobile Air Filter Lubricators

Rustibus® Air Pro

Lubricadores Portátiles para Filtros de Air Rustibus Aire Pro
可動式エアフィルタールブリケーター
移动式润滑机空气过滤器



Designed for easy use and operation. The counter balance system makes the filter-lubricator unit remain ideally positioned as the operator moves around while working. A regulator is used to maintain the pressure at a level suitable for the equipment in use.

It can be used with any pneumatic hand tool, giving a safe, more flexible and efficient working position.

Unit Per Set

CODE	**59 08 45**
Model	Air-Pro
Air Pressure	6 – 8 bar
Dimensions L × H × W	300 × 400 × 300 mm
Weight	5.8 kg

Name of Mfr.: Rustibus®

In-Line Lubricators

Lubricador en Línea　インラインルブリケーター　同轴润滑器



Heavy duty in-line lubricators to be installed 1.5 – 2 meters from the tool. Designed for use with tools that are in use too far away from the compressor to be lubricated but a permanently mounted unit. This units can be used on everything from an air scribe to a paving breaker.

Technical features:
- Meter valve for adjusting oil flow.
- Slight disk in housing for visual oil inspection.
- Heavy duty and robust.
- Repair kits available.

Unit Per Pc.

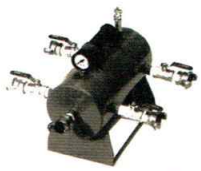
CODE	Model	Capacity Ltr	Hose Size cm	Weight kg	Max. Working Press. bar	Air Flow Cap. at 4.8 bar m³/min
59 08 46	TX-0L	0.04	1.27	0.681	34.47	0.849
47	TX-1L	0.11	1.9	0.704	17.93	1.982
48	TX-2L	0.33	1.9	1.090	17.24	1.982
49	TX-3L	0.47	2.54	1.977	20.68	4.247

Name of Mfr. : TXP/Rustibus®

15. Air Distributors

Four-Way Air Distributor

Distribuidor de Aire con Cuatro Vías
エアー四方分配器　气动管四通



Constructed of carbon steel pipe. Permits the simultaneous connection of 4 pneumatic tools at to a single air line while maintaining constant feed pressure. Equipped with carrying handle, support skids, and safety valve pressure gauge. Air inlet and outlets are fitted with bronze ball valves and variable universal couplers. Maximum pressure: 10 bar (140 psi), Unit weight: 17 kg.

59 08 91	Distributor, air, 4-way	Set

Tank Style Air Manifolds

Múltiples de Aire en Forma de Tanque
タンク式エアーマニホールド　筒型空气管

Keep your work site uncluttered by having only on hose going to the work area. Both sizes can be used in tandem to provide as many outlets as needed. With ASME approved tanks and POP-OFF safety valves; pressure gauge and brass draining valve to vent droplets, both models meet OSHA guidelines.



TX-3AMF



TX-2AMF

Unit Per Set

CODE	**59 08 92**	**59 08 93**
Model	TX-3AMF	TX-2AMF
Capacity	9.46 ltr	56.77 ltr
No. of Outlet	4	8
Working Pressure	13.79 bar	
Test Pressure	20.68 bar	
Inlet Size	2.54 cm (1")	5.08 cm (2")
Tank Diameter	20.3 cm	30 cm
Size L × W × H cm	58.4 × 35.5 × 25.4	87.6 × 55.8 × 45.7
Weight	10.4 kg	28.6 kg

Name of Mfr. : TXP / Rustibus®

16. Electric Hand Tools

Cordless Drill Drivers

Taladro sin Cable
コードレス（充電式）ドリルドライバー　无绳钻孔机

Designed for continuous use and easy service. Compact and lightweight for increased maneuverability. Battery charger and plastic case are included as standard accessories.



How to order: CODE
Cordless drill driver, NOMINAL CAPACITY, MODEL

Unit Per Set

CODE		59 09 01	59 09 02	59 09 05	59 09 06
Power Source		110V	220V	110V	220V
Nominal Capacity		6.5 mm (1/4")		10 mm (3/8")	
Drilling Capacity mm	Steel	6.5		10	
	Wood	9		15	
Chuck Size		UNF 3/8		UNF 3/8	
No Load Speed R.P.M.		500		1,100 / 320	
Voltage		4.8		9.6	
Weight kg		1.0		1.5	

Cordless Impact Wrenches

Llaves de Impacto sin Cable
コードレス（充電式）インパクトレンチ　无绳冲击式扳手

For fast tightening or loosening of bolts. Compact and well-balanced design for positive control. Battery charger and plastic case are prepared as standard accessories.



How to order: CODE
Cordless impact wrench, SQUARE DRIVE, MODEL

Unit Per Set

CODE	59 09 21	59 09 22	59 09 25	59 09 26
Power Source	110V	220V	110V	220V
Square Drive	3/8"		1/2"	
Bolt Size	M5 - M12		M6 - M14	
Torque kg. m	700		1,200	
No Load Speed R.P.M.	2,200		0 - 1,500	
Stroke	2,900		0 - 2,300	
Voltage	9.6		12	
Weight kg	1.5		2.3	

Cordless Angle Grinders

Amoladoras angulares sin cables
コードレス（充電式）アングルグラインダー　充电式角磨机

A rechargeable handheld power tool for griding or cutting for various purposes with spinning of grinding or cutting wheel by the motor and gears when the tool is activated. This product uses new technology from EV(electrical vehicle), the direct-drive exterior-rotor could reduce the consumption of tool gearing and current, breathable brushless motor to reduce the temperature rise of motor. These two tools and upgraded rechargeable lithium battery could make battery life last longer than normal batteries. Even after several years of storage, the battery is still charged normally.



Unit Per Set

CODE	59 09 10	59 09 11	59 09 12
Battery Voltage	20 V		
Battery Current	4.0 Ah / 6.0 Ah / 8.0 Ah		
Diameter of Grinding Wheel	Φ100 mm	Φ115 mm	Φ125 mm
Maximum Aperture	Φ16 mm		
Spindle Thread	M10		
No-load Speed	8,500 r/min.		

Unit Per Set

CODE	59 09 13	59 09 14	59 09 15
Battery Voltage	20 V		
Battery Current	4.0 Ah / 6.0 Ah / 8.0 Ah		
Diameter of Grinding Wheel	Φ100 mm	Φ115 mm	Φ125 mm
Maximum Aperture	Φ16 mm		
Spindle Thread	M10		
No-load Speed	11,000 r/min.		

Cordless Circular Saws

Sierras circulares sin cable
コードレス（充電式）電動丸鋸　充电式圆锯



Rechargeable powerful hand-held or table-mounted tool for cutting with a flat disc shape blade. It adopts the new technologies, the direct-drive exterior rotor which has excellent high rigidity, high response, high precision, higher torque and efficiency, the brushless motor which reduces the temperature rise of the motor and lowers the current, and the lithium battery used in EV (electrical vehicle) which is more durable, safer than the normal type, greatly improve the lifetime and stability.

Unit Per Set

CODE	59 09 16	59 09 17
Battery Voltage	20 V	
Battery Current	4.0 Ah / 6.0 Ah / 8.0 Ah	
Saw Blade Diameter	Φ180 mm	Φ185 mm
Maximum Cutting Depth	60 mm at 90°	62.5 mm at 90°
Maximum Beveling Depth	46 mm at 45°	-
No-load Speed	4,800 r/min.	

Cordless Reciprocating Saws

Sierras de sable sin cable
コードレス（充電式）電動往復動鋸　充电式往复锯



Versatile power tool for cutting a wide range of materials such as wood, metal, plastic and more. It adopts the new technologies, the direct-drive exterior rotor which has excellent high rigidity, high response, high precision, higher torque and efficiency, the brushless motor which reduces the temperature rise of the motor and lowers the current,

and the lithium battery used in EV (electrical vehicle) which is more durable, safer than the normal type, greatly improve the lifetime and stability.

Unit Per Set

CODE	59 09 18
Battery Voltage	20 V
Battery Current	4.0 / 6.0 /8.0 Ah
Reciprocating Stroke	28 mm
No-load Speed	0-3,000 r/min.

Cordless Paint Mixers

Mezcladores de pintura sin cable
コードレス（充電式）ペイントミキサー　无绳（可充电）油漆搅拌机



Electrical mixing tool for paint with rechargeable battery, useful tool for dealing with large amounts of paint. It adopts the new technologies, the direct-drive exterior rotor which has excellent high rigidity, high response, high precision, higher torque and efficiency, the brushless motor which reduces the temperature rise of the motor and lowers the current, and the lithium battery used in EV (electrical vehicle) which is more durable, safer than the normal type, greatly improve the lifetime and stability.

Unit Per Set

CODE	59 09 19
Battery Voltage	20 V
Battery Current	4.0/6.0/8.0 Ah
Max. Clamping Capacity	Φ13 mm
Max. Screw Diameter	Φ10 mm
No-load Speed	L: 0 - 400 r/min., H: 0 - 2,000 r/min.
Standard Torque	80 N.m
Impact Frequency	L: 0 - 7,200/min., H: 0 - 36,000/min.

Cordless Blowers

Sopladores sin cable
コードレス（充電式）ブロワー　无绳（可充电）鼓风机



Rechargeable mechanical apparatus used for making airflow or increase air pressure to move air or gas from one place to another. It adopts the new technologies, the direct-drive exterior rotor which has excellent high rigidity, high response, high precision, higher torque and efficiency, the brushless motor which reduces the temperature rise of the motor and lowers the current, and the lithium battery used in EV (electrical vehicle) which is more durable, safer than the normal type, greatly improve the lifetime and stability.

Unit Per Set

CODE	59 09 20
Battery Voltage	20 V
Battery Current	4.0 / 6.0 / 8.0 Ah
Rated Speed	Low - 11,000 r/min.
	High - 16,000 r/min.
Air Volume	Low - 1.9 m^3/min.
	High - 2.6 m^3/min.

Portable Electric Drills

Taladros Eléctricos Portátiles　電気ドリル　便携式钻孔机

Designed for precision and reliability for marine and industrial use. To be used for all conventional drilling of steel or wood. Furnished for a 110 volt power supply or 220 volt power supply. Further detailed data on the complete line of the drills, ask your local distributor.

The specifications listed here are for your reference. If you wish to order electric drills from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-64.



For 6.5 – 10.0 mm



For 16.0 – 32.0 mm

Specifications

Drilling Capacity mm		Chuck Size mm	Spindle	Motor	No Load Speed R.P.M.	Weight kg
Steel	Wood					
6.5	13	0.5 - 6.5	3/8"-24UNF	305 W	2,700	1.5
10.0	21	0.8 - 10.0	1/2"-20UNF	390 W	1,700	1.8
13.0	30	1.2 - 13.0	J.T.#6	620 W	780	4.4
16.0	36	3.2 - 16.0	J.T.#3	670 W	700	4.6
20.0	-	-	M.T.#2	730 W	500	5.7
25.0	-	-	M.T.#3	1,300 W	370	12.0
32.0	-	-	M.T.#3	1,600 W	330	12.5

Note: J.T. denotes Jacobs Taper.
M.T. denotes Morse Taper.

How to order: CODE

Drill, electric portable, DRILLING CAPACITY, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

AC 110V Single Phase		AC 220V Single Phase	
CODE	Drilling Capacity mm	CODE	Drilling Capacity mm
59 10 01	6.5	**59 10 11**	6.5
02	10.0	**12**	10.0
03	13.0	**13**	13.0
04	16.0	**14**	16.0
05	20.0	**15**	20.0
59 10 06	25.0	**59 10 16**	25.0
07	32.0	**17**	32.0

Portable Magnetic Base Drill Machines

Taladro de base magnética portátil
ポータブル磁気固定式穴あけ機　便携式磁性底座钻孔机

A portable drilling machine with a magnet base, geared to drilling mild steel (or equivalent), using one-touch type "JETBROACH" or "HI-BROACH" cutter. The machine will be mounted on the workpiece to be drilled with the magnet securely fastening the machine onto the workpiece while drilling takes place. Pilot pins and broach cutters are sold separately.

Model WOJ-3200 - Cord Type



Designed to use Jetbroach cutters or twist drill. Loosening the pillar clamp allows the complete frame to be lifted up to a maximum of 60 mm for specific drilling. The use of Jet-broach cutters require the frame to be at the lowest position, while twist bit drilling required the appropriate amount of elevation to be adjusted for safe operation. The pillar clamp is required to be tightened before drilling safely. Feed handles can be positioned on the right or left hand side for ease of drilling and mounting in confined spaces.
Note: Always engage the magnet before adjusting the body height.

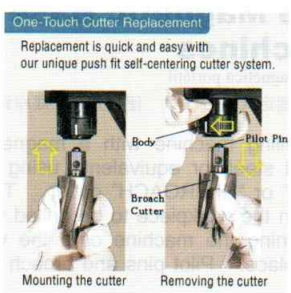
Unit Per Set

CODE		59 10 08	59 10 09
Power Source (Single Phase)		110-120V AC, 50/60 Hz	220-240V AC, 50/60 Hz
Model		WOJ-3200	
Electric Drill	Rated power consumption (W)	950	
	Rated current (A)	8.6	4.3
	No-load speed min^{-1} (rpm)	870	
Magnet Power Consumption (W)		38	30
Hole Capacity (mm)	One-touch type JETBROACH		
		Hole Dia. / Plate Thick	Hole Dia / Plate Thick
	25L	12 to 17 / 9 to 25	12 to 17 / 9 to 25
	35L	17.5 to 32 / 9 to 35	17.5 to 32 / 9 to 35
	50L	12 to 32 / 9 to 50	12 to 32 / 9 to 50
	Twist drill	Max. 13 mm dia.	
Max Stroke (mm)		130	
Magnet Holding Power N (kgf)		9,000 (918)	
Magnet Dimensions (mm)		99 × 177	
Mass (Weight) (kg)		13	
Accessories included		*Carry Case *Oil Tank *Pilot Pin 08035 *Sub Handle *2 pieces of Hex. Socket Head Bolt 5 × 10 mm *3 pieces of Rod Handle	*Hex. Socket Screw Keys; 3 mm / 4 mm / 6 mm *8 × 10 mm Spanner *Guard *Safety strap
Optional		Optional one-touch adapter allows the use of up to 13 mm twist drills to be used in the original arbor.	

Name of Mfr. : Nitto Kohki Co., Ltd.

Replacement Cutters

Replacement is quick and easy with unique push fit self-centering cutter system by pilot pins and broach cutters. Pilot pins and broach cutters are sold separately.



Pilot pins;

Hi-Broach cutter: 06025 (C1) or 08025 (A1)

JETBROACH cutter: 06025 (C1), 08035 (A2), 06050 (C2), 08050 (A3) *for Model WOJ3200

Broach cutters;

HI-BROACH: 12 mm (TK00698) – 17 mm (TK00703) diameter
17.5 mm (TK01391) – 27 mm (TK1407) diameter

JETBROACH: 12 mm (TK01148/TK01154) – 17 mm (TK01153 / TK01159) diameter
17.5 mm (TK01249/TK01282) – 32 mm (TK01273/TK01305) diameter

Combination of Pilot Pins and Broach Cutters

Pilot pins	06025 (C1)	08025 (A1)	06025 (C1)	08035 (A2)	06050 (C2)	08050 (A3)
	P/N. TK01167	P/N. TK01486	P/N.TK TK01167	P/N. TK01487	P/N. TK01166	P/N. TK01488
Broach cutters	One-touch type HI-BROACH (High speed steel)		One-touch type JETBROACH (Tungsten carbide tip)			
Diameter	Depth 25 mm		Depth 25 mm	Depth 35 mm	Depth 50 mm	
12	TK00698		TK01148		TK01154	
13	TK00699		TK01149		TK01155	
14	TK00700		TK01150		TK01156	
15	TK00701		TK01151		TK01157	
16	TK00702		TK01152		TK01158	
17	TK00703		TK01153		TK01159	
17.5		TK01391		TK01249		TK01282
18		TK01392		TK01250		TK01283
18.5				TK01251		
19		TK01393		TK01252		TK01284
19.5		TK01394		TK01253		TK01285
20		TK01395		TK01254		TK01286
20.5				TK01255		TK01287
21		TK01396		TK01256		TK01288
21.5		TK01397		TK01257		TK01289
22		TK01398		TK01258		TK01290
22.5		TK01399		TK01259		TK01291
23		TK01400		TK01260		TK01292
23.5		TK01401		TK01261		TK01293
24		TK01402		TK01262		TK01294
24.5		TK01403		TK01263		TK01295
25		TK01404		TK01264		TK01296
25.5				TK01265		TK01297
26		TK01405		TK01266		TK01298
26.5				TK01267		TK01299
27		TK01407		TK01268		TK01300
28				TK01269		TK01301
29				TK01270		TK01302
30				TK01271		TK01303
31				TK01272		TK01304
32				TK01273		TK01305

Electric Angle Grinders

Amoladoras Angulares Eléctricos
電動ディスクグラインダー　电动角向磨光机



Especially designed for continuous heavy duty work for all grinding applications. Furnished for a 110 volt power supply or 220 volt power supply. For further detailed information on the complete line of the grinder, ask a local distributor.
The specifications listed here are for your reference. If you wish to order Angle Grinders from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-65.

Specifications

For Wheel Diam	Spindle Thread	Motor	No Load Speed R.P.M.	Weight kg
100 mm	M10 x 15 mm	510 W	11,000	1.4
125 mm	M16 x 17 mm	630 W	9,500	2.3
150 mm	M16 x 17 mm	1,050 W	8,000	3.8
180 mm	M16 x 21 mm	1,400 W	6,500	4.6

How to order: CODE

Angle grinder, electric portable, WHEEL DIAM, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

AC 110V Single Phase		AC 220V Single Phase	
CODE	For Wheel Diam	CODE	For Wheel Diam
59 10 21	100 mm	**59 10 31**	100 mm
22	125 mm	**32**	125 mm
23	150 mm	**33**	150 mm
24	180 mm	**34**	180 mm

Rubber Pads and Holder Nuts

for Electric Grinder

Repuestos Amoladoras Eléctricas,Plato Coma, Portatuercas
アングルグラインダー用ラバーパッド
胶垫及支架螺母



Since the size of the rubber pad and nut differs from manufacturer to manufacturer, it is necessary to provide information about the manufacturer and model of the grinder you are currently using.

Rubber Pad

Unit Per Pc.

CODE	For Wheel Diam	CODE	For Wheel Diam
59 10 41	100 mm	**59 10 45**	150 mm
43	125 mm	**47**	180 mm

Holder Nut

Unit Per Pc.

CODE	For Wheel Diam	CODE	For Wheel Diam
59 10 42	100 mm	**59 10 46**	150 mm
44	125 mm	**48**	180 mm

Electric Bench Grinders

Afiladora Eléctrica Sobremesa
卓上用電動グラインダー　电动台式磨床

For sharpening tools and other appliances.



According to safety measures, the grinding must be fitted with a wheel cover and must be firmly secured to a bench stand. Provided with permanently self lubricating ball bearings. Furnished for use with a 110 volt power supply or 220 volt power supply.

The specifications listed here are for your reference. If you wish to order Bench Grinders from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-65.

Specifications

Wheel Size mm	Motor	No Load Speed R.P.M.	Weight kg
150 × 16 × 12.7	300 W	3,600	16
205 × 19 × 15.88	600 W	3,600	28

How to order: CODE

Bench grinder, electric, WHEEL DIAM, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

AC 110V Single Phase		AC 220V Single Phase	
CODE	For Wheel Diam	CODE	For Wheel Diam
59 10 51	150 mm	**59 10 56**	150 mm
52	205 mm	**57**	205 mm

Electric Straight Grinders

Amoladora Eléctrica Recta
電動ストレートグラインダー　电动直线型磨床



Designed for grinding jobs in tight corners.

The specifications listed here are for your reference. If you wish to order Straight Grinders from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-65.

Specifications

Wheel Size mm	Motor	No Load Speed R.P.M.	Weight kg
100 × 19 × 12.7	750 W	9,500	5.5
125 × 19 × 12.7	590 W	4,000	5.5

How to order: CODE

Straight grinder, electric portable, WHEEL DIAM, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

AC 110V Single Phase		AC 220V Single Phase	
CODE	For Wheel Diam	CODE	For Wheel Diam
59 10 61	100 mm	**59 10 66**	100 mm
62	125 mm	**67**	125 mm

Electric Die Grinders

Amoladora Eléctrica Recta de 6 mm
電動ダイグラインダー　电动冲膜磨床

For precision grinding. A lightweight, high speed grinder to be used with a 6 mm diameter shaft stone. Furnished for

a 110 volt or 220 volt power source. For further detailed information on the complete line of die grinders, ask your local distributor.



The specifications listed here are for your reference. If you wish to order Die Grinders from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-65.

Specifications

For Collet Diam	Maximum Wheel O.D.	Motor	No Load Speed R.P.M.	Weight kg
6 mm	18 mm	145 W	30,000	0.9
6 mm	32 mm	240 W	23,000	1.9

How to order: CODE

Die grinder, electric portable, COLLET DIAM, MAXIMUM WHEEL DIAM, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

AC 110V Single Phase			AC 220V Single Phase		
CODE	For Collet Diam	Maximum Wheel Diam	CODE	For Collet Diam	Maximum Wheel Diam
59 10 71	6 mm	18 mm	**59 10 75**	6 mm	18 mm
72	6 mm	32 mm	**76**	6 mm	32 mm

Electric Sheet Sanders

(Orbital Sanders)

Lijadora Eléctrica Orbital 電動オービタルサンダー 电动钢板磨砂机

Ideal for direct material finishing or sanding painting surfaces. Furnished for a 110 volt power supply or 220 volt power supply. For further detailed information on the complete line of sheet sanders, ask your local distributor.



The specifications listed here are for your reference. If you wish to order Sheet Sanders from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-65.

Specifications

Sanding Area mm	Motor	No Load Speed R.P.M.	Weight kg
114 x 280	300 W	10,000	2.6

How to order: CODE

Sheet sander, electric portable, SIZE of SANDING AREA, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

AC 110V Single Phase		AC 220V Single Phase	
CODE	Sanding Area mm	CODE	Sanding Area mm
59 10 81	114 x 280	**59 10 82**	114 x 280

Electric Nibblers

Cizalla Eléctrica 電動ニブラー 电动毛坯下料机

For free hand cutting or cutting by template of all types of heavy sheet metal plates, light alloys, and plastic panel without damaging the material. Can also be used on curved surfaces. Furnished for use with a 110 volt or 220 volt power supply. For further detailed data on the complete line of the nibbler, ask your local distributor.



The specifications listed here are for your reference. If you wish to order Nibblers from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-66.

Specifications

Cutting Capacity		Motor	No Load Speed R.P.M.	Weight kg
Mild Steel	Radius			
1.6 mm	40 mm	400 W	2,000	1.7
2.3 mm	50 mm	335 W	950	3.5
3.2 mm	100 mm	670 W	900	5.8
4.5 mm	110 mm	1,140 W	850	7.5

How to order: CODE

Nibbler, electric portable, CUTTING CAPACITY, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

AC 110V Single Phase		AC 220V Single Phase	
CODE	Cutting Capacity	CODE	Cutting Capacity
59 11 01	1.6 mm	**59 11 05**	1.6 mm
02	2.3 mm	**06**	2.3 mm
03	3.2 mm	**07**	3.2 mm
04	4.5 mm	**08**	4.5 mm

Accessories for Electric Nibbler

Punches and dies differ from manufacturer to manufacturer. When ordering, it is necessary to provide information about the manufacturer and model of the nibbler you are currently using.



Punch



Die

How to order: CODE

PUNCH or DIE, CUTTING CAPACITY mm, for MODEL

Unit Per Pc.

Punch		Die	
CODE	Cutting Capacity mm	CODE	Cutting Capacity mm
59 11 09	1.6	**59 11 10**	1.6
11	2.3, 3.2	**12**	2.3, 3.2
13	4.5	**14**	4.5

Electric Shears

Cizalla Eléctrica 電動シャー 电动剪切机

For cutting iron, copper, stainless steel sheeting, etc. Able to cut either straight or curved lines without deformation. Furnished for use with a 110 volt or 220 volt power supply. For further detailed data on the complete line of shears, ask your local distributor.



The specifications listed here are for your reference. If you wish to order shears from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-66.

Specifications

Cutting Capacity		Motor	No Load Speed R.P.M.	Weight kg
Mild Steel	Radius			
1.6 mm	25 mm	440 W	4,200	1.8,
2.0 mm	70 mm	240 W	2,200	4.7
2.9 mm	100 mm	335 W	1,200	6.0

How to order: CODE

Shear, electric portable, CUTTING CAPACITY, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

AC 110V Single Phase		AC 220V Single Phase	
CODE	Cutting Capacity	CODE	Cutting Capacity
59 11 21	1.6 mm	**59 11 24**	1.6 mm
22	2.0 mm	**25**	2.0 mm
23	2.9 mm	**26**	2.9 mm

Accessories for Electric Shear

Moving blades and stationary blades differ from manufacturer to manufacturer. When ordering, it is necessary to provide information about the manufacturer and model name of the shear you are currently using.



Moving Blade



Stational Blade

How to order: CODE

MOVING BLADE or STATIONAL BLADE, CUTTING CAPACITY mm, MODEL

Unit Per Pc.

Moving Blade		Stational Blade	
CODE	Cutting Capacity	CODE	Cutting Capacity
59 11 31	1.6	**59 11 32**	1.6
33	2.0, 2.9	**34**	2.0, 2.9

Electric Planers

Cepilladores Eléctricas　電動カンナ　电动刨床

For smoothing and planing wood surfaces. Furnished for use with a 110 volt or 220 volt power supply. For further detailed information on the complete line of the planers, ask your local distributor.



The specifications listed here are for your reference. If you wish to order Planers from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-66.

Specifications

Planing width	Motor	No Load Speed R.P.M.	Weight kg
82 mm	700 W	16,000	2.8

How to order: CODE

Planer, electric portable, PLANING WIDTH, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

AC 110V Single Phase		AC 220V Single Phase	
CODE	Planing Width	CODE	Cutting Capacity
59 11 36	82 mm	**59 11 37**	82 mm

Electric Circular Saws

Sierras Circulares Eléctricas　電動丸のこ　电动圆锯

Blade guard operates automatically in all positions. Easily adjustable for depth cut and mitre. Furnished for a 110 volt or 220 volt power supply.

The specifications listed here are for your reference. If you wish to order Circular Saws from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-66.







Specifications

Blade Diam	Arbor	Max. Cutting 90°	Motor	No Load Speed R.P.M.	Weight kg
160 mm	19 mm	55 mm	670 W	4,700	3.1
185 mm	19 mm	65 mm	1,050 W	4,700	3.9

How to order: CODE

Circular saw, electric portable, BLADE DIAM, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

AC 110V Single Phase		AC 220V Single Phase	
CODE	Blade Diam	CODE	Blade Diam
59 11 41	160 mm	**59 11 42**	160 mm
44	185 mm	**45**	185 mm

Spare Blades for Circular Saw

Hojas de Repuesto para Sierra Circulares
丸のこ用替え刃　圆锯的备用刀刃

When ordering, please specify the saw's use, size (O.D. and I.D.), and number of teeth. Also the manufacturer's name and the model number of the circular saw are necessary to assure a proper fit.



How to order: CODE

Spare blade for circular saw, BLADE DIAM (O.D. and I.D.)mm, NUMBER OF TEETH, for MODEL

Unit Per Pc.

CODE	Blade Size mm		Tooth
	O.D.	I.D.	
59 11 43	160	19	50/inch
47	185	19	"

Electric Tool Sets

Juegos de Herramientas Eléctricas　電動工具セット　电动工具组

Comprising of 1 set each of drill, circular saw and planer in plastic portable case.



Specifications

Item	Capacity	Watt	No Load Speed	Weight
Drill	10 mm for iron 15 mm for wood	380 W	0 - 2,800 rpm	1.8 kg
Circular Saw	160 mm blade diam	670 W	4,000 rpm	3.0 kg
Planer	84 mm blade width	430 W	15,000 rpm	2.8 kg

59 11 46	Tool set electric AC 100 V 3's/set	Set
48	" AC 220 V 3's/set	"

Cable Cutters Battery-Operated

Cortacables a batería
電池駆動式ケーブルカッター　电池供电的电缆剪



A powerful battery-operated cable cutter with a 50 mm opening width, which can be safely positioned on the cable even in confined spaces. This is achieved by an LED that illuminates the working area. In addition to Cu and Al cable, the cable cutter also cuts power cables up to a diameter of 50 mm. The crescent-shaped cutting geometry convinces with a clean cutting pattern with low conductor deformation. Thanks to the closed cutting head, the cut is also particularly safe. A real benefit are the balanced ergonomics and the low weight. With this lightweight tool you can work fatigue-free and in any position.

The tool is compatible with 18 V lithium-ion batteries from Makita, which fits seamlessly into your existing tool park. Adapters for other battery systems are available upon request.

Unit Per Set

CODE	**59 11 49**
Opening Width	50 mm
Battery Voltage	18 V
Construction Form	Straight
Head	Closed
Dimensions L × W × H	117 × 197 × 330 mm
Weight without battery	2.1 Kg

Name of Mfr.: Holger Clasen GmbH & Co. KG

Crimping Tools Battery-Operated

Crimpadoras a batería　電池駆動式圧着工具　电池供电的压接工具



Thanks to its balanced and ergonomic design the light and powerful pressing tool with 60kN can be handled with one hand and ensures fatigue-free working. The narrow pressing head, which can be rotated by 180°, also allows pressing in hard-to-reach places. This is achieved by an LED that illuminates the working area. The battery press utilizes commercially available narrow C-shaped crimping die (CS-shape). The crimping dies are firmly locked in the press head by means of a press insert lock for more safety on the construction site. You can crimp with the battery press cross-sections DIN hexagon Cu/Al up to 300 mm².

The tool is compatible with 18 V lithium-ion batteries from Makita, which fits seamlessly into your existing tool park. Adapters for other battery systems are available upon request.

Unit Per Pc.

CODE	**59 11 50**
Crimping force	60 kN
Crimping width max.	DIN up to 14 mm
Crimping dies	C-shaped small (CS)
Crimping range DIN hexagon Cu	6 - 300 mm²
Crimping range DIN hexagon Al	10 - 300 mm²
Battery voltage	18 V
Stroke	15 mm
Weight without battery	3.4 kg
Dimensions L x W x H	340 × 82 × 277 mm
Construction form	Pistol
Head	Closed
Lock type	Snap fit

Name of Mfr.: Holger Clasen GmbH & Co. KG

Electric Rod Cutters

Tronzadora Eléctrica　電動切断機　电动杆状刀具



For cutting steel rods, pipes and angle iron, etc.

Furnished for use with a 110 volt or 220 volt power supply.

For further detailed information on the complete line of rod cutters, ask your local distributor.

The specifications listed here are for your reference. If you wish to order rod cutters from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-66.

Specifications

Wheel Diam	Cutting Capacity mm		Motor	No Load Speed R.P.M.	Weight kg
	Round Bar	Flat			
305 mm	ø60	100 x 100	1,450 W	3,900	16
355 mm	ø60	130 x 130	1,450 W	3,800	16
405 mm	ø65	135 x 135	1,450 W	3,100	23.6

How to order: CODE

Rod cutter, electric, WHEEL DIAM, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

AC 110V Single Phase		**AC 220V Single Phase**	
CODE	Wheel Diam	CODE	Wheel Diam
59 11 51	305 mm	**59 11 56**	305 mm
53	305 mm	**58**	355 mm
52	405 mm	**57**	405 mm

Spare Wheels for Electric Rod Cutter

Ruedas de Repuesto para Tronzadoras
電動切断機用替え刃　电动杆状刀具的备用轮

When ordering, please specify the outer diameter, inner diameter, thickness and maximum r.p.m.



Unit Per Pc.

CODE	Wheel Diam mm	Thick mm	I.D. mm	Max. R.P.M.
59 11 61	305	2.5	25.4	4,800 mtr/min.
63	355	3.0	25.4	4,800 mtr/min.
62	405	3.0	25.4	4,800 mtr/min.

Electric Jig Saws

Sierras de Calar Eléctricas 電動ジグソー 电动竖线锯



Used for sawing wood, plastic, mild steel plate, etc.

Able to cut either straight or curved lines without warping the surface.

Furnished for a 110 volt or 220 volt power supply.

For further detailed data on the complete line of jig saws, ask your local distributor.

The specifications listed here are for your reference. If you wish to order jig saws from a specific manufacturer, please refer to the comparison table listing major international manufacturers and product model numbers on page 59-66.

Specifications

Cutting Capacity mm			No Load Speed R.P.M	Watt	Weight kg
Wood	Steel	Radius			
60	6	25°	3,200	380 W	2.1

How to order: CODE

Jig saw, electric portable, CUTTING CAPACITY, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

AC 110V Single Phase		AC 220V Single Phase	
CODE	Cutting Capacity	CODE	Cutting Capacity
59 11 71	60 mm	**59 11 72**	60 mm

Spare Blades for Electric Jig Saw

Hojas de Repuesto para Sierra de Calar Eléctrica
電動ジグソー用替え刃 备用刀刃

When ordering, please specify the type number of the blade with the manufacture and model name of the jig saw you are currently using. Minimum order quantity is 5 blades per packet for any types.

No.1		No.4	
No.2		No.5	
No.3		No.6	

Unit Per Pkt

CODE	Type No.	Application					
		Wood	Plastic	Mild Steel	Alum	Hard Board	Hard Rubber
59 11 73	1	○					
74	2	○	○				○
75	3	○					
76	4		○				
77	5		○	○	○	○	
78	6		○	○	○	○	

Electric Blowers

Sopladores Eléctricos 電動送風機 电动鼓风机



Lightweight with high air pressure and displacement. Capable of vacuuming dust. (Dust bag is available as a standard accessory.) Furnished for use with a 110 volt or 220 volt power supply. For further detailed information on the complete line of blowers, ask your local distributor.

Specifications

Air Volume	Watt	No Load Speed R.P.M.	Overall Length mm	Weight kg
2.3 m^3/min.	335	13,000	428	1.8

How to order: CODE

Blower, electric, AIR VOLUME m^3/min, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

AC 110V Single Phase		AC 220V Single Phase	
CODE	Air Volume	CODE	Air Volume
59 11 81	2.3 m^3/min.	**59 11 82**	2.3 m^3/min.

Electric Hot Air Blowers

Soplantes eléctricos de aire caliente
電動熱風機 电动热风机



A pistol type hot air blower, also known as heat guns. This can be used safely in a variety of applications, including paint and varnish removal, molding for PVC pipes, and hot air shrinkage for plastic package. Available for 110V or 220V power supply. Standard heating range is 50 – 55°C, but there are variety of heating ranges available from manufacturers, so please specify the further details when ordering.

Specifications

Air Volume	Watt	Heating Range
100 - 500 ltr/min.	1,000 - 2,000W	50 – 600°C

How to order: CODE

Hot Air Blower, electric, AIR VOLUME Ltr/min, WATT, POWER SOURCE VOLTAGE, HEATING RANGE, MODEL etc

Unit Per Set

CODE	Voltage	CODE	Voltage
59 11 83	100V	**59 11 84**	220V

Electric Drill Presses

Taladro de Prensa Eléctrica
電動卓上ボール盤 电动钻床



Solidly built with the weight and rigidity to maintain the tolerance necessary for metal-working applications.
Variable speed drive allows operation at any speed between the listed range.

Specifications

Drilling Capacity	Watt	Speed R.P.M.	Spindle Taper	Swing mm	Stoke mm
13 mm	300	3,600, 2,400, 1,700, 960, 600	J.T. #6 (2-1/2)	360	80

How to order: CODE

Drill press, electric, DRILLING CAPACITY, POWER SOURCE VOLTAGE, MODEL

Unit Per Set

AC 110V Single Phase		AC 220V Triple Phase	
CODE	Drilling Capacity	CODE	Drilling Capacity
59 11 86	13 mm	**59 11 87**	13 mm

Electric Jet Chisels

Martilleta de Aguja Eléctrica 電動ジェットタガネ　喷射凿子的备用针

For use on scaling jobs. Free rotating handle will be fixed at any position to make operation easier.



Unit Per Set

CODE	59 12 01	59 12 02	59 12 03
Model	EJC-32A		
Power Supply	AC100V 50/60 Hz	AC115V 50/60 Hz	AC230V 50/60 Hz
Power Consumption	300 W		
Rated Current	3.2 A	2.8 A	1.4 A
Stroke Speed	3,000 min^{-1}		
Needle	2 mm × 32 or 3 mm × 15		
Power Cord Length	2.5 mtr	5 mtr	
Weight	4.5 kg		

Name of Mfr.: Nitto Kohki Co., Ltd.

Spare Needles for Jet Chisel

How to order: CODE

Spare needle for jet chisel, DIAM x LENGTH

Unit Per Box

CODE	Needle Diam × Lgth mm	Per Box	CODE	Needle Diam × Lgth mm	Per Box
59 04 67	2 × 180	100	**59 04 68**	3 × 180	100

Comparison Table of Electric Tools

Tabla de Comparación de Herramientas Eléctricas

電動工具主要モデル国際比較　电动工具比较表

Various manufacturers and brands are available from around the world. A few products from different manufacturers are listed here for your reference. Please ask for further information with brochures of various models from manufacturers when ordering.

The standard power source voltage differs according to the model and manufacturer. Please acknowledge that it will require several days for rewinding motor coils to convert the power source voltage when the required voltage is not available in standard.

When ordering: Electric drills

1. Select the drilling capacity required : 6.5 mm for steel
2. Select a manufacturer from one of the columns to the right: Black & Decker
3. List the representative code for that size : 59 10 01
4. List the model number of the tool for the manufacturer: 1046
5. Specify required power source voltage to be used: AC 110 volt

Electric Drills

CODE	Power Source	Drill Capacity	AEG (Germany)	BLACK & DECKER (U.S.A.)	TOSHIBA (Japan)	HiKOKI (Japan)	MAKITA (Japan)
59 10 01 **59 10 11**	110 V 220 V	6.5 mm for Steel	-	-	DR-6A 260 W, 3,200 rpm	D6SH 240 W, 4,500 rpm	DP2010 370 W 4,200 rpm
59 10 02 **59 10 12**	110 V 220 V	10.0 mm for Steel	-	TP555-XD 550 W, 0-2,900 rpm	DRD-10C 390 W, 1,700 rpm	D10VC3 600 W, 2,500 rpm	6412 450 W 3,400 rpm
59 10 03 **59 10 13**	110 V 220 V	13.0 mm for Steel	SBE 750 RZ 750 W 0-3,000 rpm	HD555K-B1 550 W, 0^--2,800 rpm	DR-13B 620W, 780 rpm	D13VL 860W, 1,100 rpm	6305 550 W, 1,450 rpm
59 10 04 **59 10 14**	110 V 220 V	16.0 mm for Steel		-	DR-16B 670 W, 700 rpm	-	DS5000 750 W] 600 rpm
59 10 05 **59 10 15**	110 V 220 V	20.0 mm for Steel	-	-	DR-20S1 730W, 500 rpm	-	-
59 10 06 **59 10 16**	110 V 220 V	25.0 mm for Steel	-	-	DR-25 1,300W, 370 rpm	-	-
59 10 07 **59 10 17**	110 V 220 V	32.0 mm for Steel	-	-	DR-32A 1,600W, 330 rpm	-	-

Angle Grinders

CODE	Power Source	Wheel Diam.	AEG (Germany)	BLACK & DECKER (U.S.A.)	TOSHIBA (Japan)	HiKOKI (Japan)	MAKITA (Japan)
59 10 21 **59 10 31**	110 V 220 V	100 mm	-	G650-B1 (115 mm) 650 W	DGS-100B 680 W, 11,000 rpm	PDA-100K 705 W, 12,000 rpm	9553HB 710 W, 11,000 rpm
59 10 22 **59 10 32**	110 V 220 V	125 mm	WS 10-125S 1,000 W 11,500 rpm		DGS-125B 680 W, 9,500 rpm	-	9565H 1,100 W, 12,000 rpm
59 10 23 **59 10 33**	110 V 220 V	150 mm	-	-	-	-	GA6021 1,050 W, 10,000 rpm
59 10 24 **59 10 34**	110 V 220 V	180 mm	WS 24-230 GEV (230 mm) 2,400 W, 6,600 rpm	-	DGTH-180B 2,000 W, 8,500rpm	G18ST 2,000 W, 8500 rp,m	GA7020 2,200 W, 8,500 rpm

Bench Grinders

CODE	Power Source	Wheel Diam.	AEG (Germany)	BLACK & DECKER (U.S.A.)	TOSHIBA (Japan)	HiKOKI (Japan)	MAKITA (Japan)
59 10 51 **59 10 56**	110 V 220 V	150 mm	-	-	BGB-150 300 W, 3,600 rpm	-	GB602 250 W, 3,450 rpm (60 Hz)
59 10 52 **59 10 57**	110 V 220 V	205 mm	-	-	BGB-205 600 W, 3,600 rpm	-	GB801 550 W, 3,450 rpm (60 Hz)

Straight Grinders

CODE	Power Source	Wheel Diam.	AEG (Germany)	BLACK & DECKER (U.S.A.)	TOSHIBA (Japan)	HiKOKI (Japan)	MAKITA (Japan)
59 10 61 **59 10 66**	110 V 220 V	100 mm	-	-	-	-	-
59 10 62 **59 10 67**	110 V 220 V	125 mm	-	-	-	GP-13 570 W, 4,800 rpm	GS5000 750 W, 5,600 rpm

Die Grinders

CODE	Power Source	Shank Diam. × Maximum Wheel Diam.	AEG (Germany)	BLACK & DECKER (U.S.A.)	TOSHIBA (Japan)	HiKOKI (Japan)	MAKITA (Japan)
59 10 71 **59 10 75**	110 V 220 V	6 × 18 mm	-	-	-	-	GD0603 (6 x 19 mm) 240 W, 28,000 rpm
59 10 72 **59 10 76**	110 V 220 V	6 × 32 mm	-	-	-	LDU4 240 W, 23,000 rpm	GD0601 (6 x 38 mm) 400 W, 25,000 rpm

Sheet Sanders (Orbital Sanders)

CODE	Power Source	Paper Size	AEG (Germany)	BLACK & DECKER (U.S.A.)	TOSHIBA (Japan)	HiKOKI (Japan)	MAKITA (Japan)
59 10 81 **59 10 82**	110 V 220 V	114 × 280 mm	VS 230 (91 × 185 mm) 150 W, 20,000 rpm	KA300-B1 135 W	-	SV 12SD 300 W, 10,000 rpm	9046 600 W 6,000 OPM

OPM denotes Orbits Per Minute

Nibblers

CODE	Power Source	Cutting Capacity	AEG (Germany)	BLACK & DECKER (U.S.A.)	TOSHIBA (Japan)	HiKOKI (Japan)	MAKITA (Japan)
59 11 01 **59 11 05**	110 V 220 V	1.6 mm for Mild Steel	-	-	-	CN16SA 400 W, 2,300 rpm	JN1601 550 W, 2,200 spm
59 11 02 **59 11 06**	110 V 220 V	2.3 mm for Mild Steel	-	-	-	-	-
59 11 03 **59 11 07**	110 V 220 V	3.2 mm for Mild Steel	-	-	-	-	JN-3201 710 W, 1,300 spm
59 11 04 **59 11 08**	110 V 220 V	4.5 mm for Mild Steel	-	-	-	-	-

Hand Shears

CODE	Power Source	Cutting Capacity	AEG (Germany)	BLACK & DECKER (U.S.A.)	TOSHIBA (Japan)	HiKOKI (Japan)	MAKITA (Japan)
59 11 21 **59 11 24**	110 V 220 V	1.6 mm for Mild Steel	-	-	-	CE16SA 400 W, 4,700 rpm	JS-1601 380 W, 4,500 rpm
59 11 22 **59 11 25**	110 V 220 V	2.0 mm for Mild Steel	-	-	-	-	-
59 11 23 **59 11 26**	110 V 220 V	2.9 mm for Mild Steel	-	-	-	-	-

Planers

CODE	Power Source	Planning Width	AEG (Germany)	BLACK & DECKER (U.S.A.)	TOSHIBA (Japan)	HiKOKI (Japan)	MAKITA (Japan)
59 11 36 **59 11 37**	110 V 220 V	82 mm	H500 500 W, 17,000 rpm	-	SP-82 400 W, 20,000 rpm	P20SF 620 W, 17,000 rpm	KP0800 620 W, 17,000 rpm

Circular Saws

CODE	Power Source	Blade Diam.	AEG (Germany)	BLACK & DECKER (U.S.A.)	TOSHIBA (Japan)	HiKOKI (Japan)	MAKITA (Japan)
59 11 41 **59 11 42**	110 V 220 V	160 mm	K55 1,010 W, 5,200 rpm	-	-	-	HS6101 (165 mm) 1,100 W, 5,600 rpm
59 11 44 **59 11 45**	110 V 220 V	185 mm	K66S (190 mm) 1,500 W, 5,200 rpm	CS1004-B1 1,400 W 5,300 rpm	-	-	HS7101, (190 mm) 1,400 W 5,500 rpm

Rod Cutters

CODE	Power Source	Blade Diam.	AEG (Germany)	BLACK & DECKER (U.S.A.)	TOSHIBA (Japan)	HiKOKI (Japan)	MAKITA (Japan)
59 11 51 **59 11 56**	110 V 220 V	305 mm	-	-	-	CC14SF 2,000 W 3,800 rpm	-
59 11 52 **59 11 57**	110 V 220 V	405 mm	-	-	-	-	2416S 1,430 W 2,300 rpm

Jig Saws

CODE	Power Source	Sawing Capacity	AEG (Germany)	BLACK & DECKER (U.S.A.)	TOSHIBA (Japan)	HiKOKI (Japan)	MAKITA (Japan)
59 11 71 **59 11 72**	110 V 220 V	60 mm	ST500 500 W, 3,000 rpm	KS600E 450 W	-	CJ65V3 (65 mm) 400 W, 3,000 rpm	4327, (65 mm) 450 W 3,100 rpm

Blowers

CODE	Power Source	Air Volume	AEG (Germany)	BLACK & DECKER (U.S.A.)	TOSHIBA (Japan)	HiKOKI (Japan)	MAKITA (Japan)
59 11 81 **59 11 82**	110 V 220 V	2.8 m³/min	Powertherm 560 1,500 W,. 400/450 ltr/min	-	-	-	-

17. Chain Hoists

Electric Chain Hoists

Polipastos de Cadena Eléctricos
電動チェーンホイスト　电动链式升降机

ED Series



This electric chain hoist is particularly light and is suitable for engine room on ships and facility maintenance. It's double braking system provides protection with a western-style mechanical load brake and a regenerative brake. Features include a high-performance friction clutch integrated with the load brake designed to slip to prevent overwinding or overtravel and nickel-plated load chain with higher corrosion resistance and lower wear compared to conventional load chains. Operating voltage is 120V or 240V. Dual speed models are also available.

Specifications

Model	Rated Load (kg)	Standard Lift (mtr)	Lifting Speed (m/min.)	Motor Output (kW)	Chain Diam. (mm)	Mass Net Weight (kg)
ED10S	100	3	13	300	4	12
ED24S	240	3	13.5	600	4	16
ED48S	480	3	6.7	600	4	21.5

How to order: CODE

Chain hoist, electric, LIFTING CAPACITY, POWER SOURCE VOLTAGE

Unit Per Set

AC 120V Single Phase		AC 240V Single Phase	
CODE	Rated Load (kg)	CODE	Rated Load (kg)
59 13 01	100	**59 13 06**	100
59 13 02	240	**59 13 07**	160
59 13 03	480	**59 13 08**	240

Pneumatic Chain Hoists

Polipastos de Cadena Neumáticos
エアホイスト　风动链式升降机

TCRH/TCHH Series



Air Hoists TCRH/TCHH Series reduce the lifting burden for operators and supports improved work efficiency. The speed can be adjusted according to how hard the valves are pressed, allowing intuitive operation.

The possibility of catching fire is low because the motor is powered by air, not electricity.

There is no need for adjusting the hoist to the local power voltage and frequency because no electricity is used. A wide variety of capacities are available, from 250 kg up to 25 t.

How to order: CODE

PNEUMATIC CHAIN HOIST, LEFTING CAPACITY

Unit Per Set

CODE	Model	Capacity (Ton)	Standard Lift (mtr)	Lifting Speed (m/min)
59 13 52	TCRH04PS	0.49	3	10.0
54	TCRH09PS	0.98	3	5.8
55	TCRH20PD	2	3	2.9
56	TCHH30PS	3	3	5.4
58	TCHH60PD	5	3	2.7
59 13 59	TCHH1QPD	10	3	1.6
61	TCHH2PPD	25	3	1.4

High Speed Pneumatic Chain Hoists

Elevador de cadena neumático de alta velocidad
高速エアホイスト　高速气动葫芦

TCS Series



Designed to be the fastest speed in this lift capacity class, and have following features.

* Compact and lightweight with aluminium housing.
* Maximum speed limit is independently adjustable on both lifting and lowering.
* Excellent inching on both lifting and lowering movement .
* Unique design of the valve prevents air leakage and malfunction caused by rust when not in operation.
* Over travelling limit system.
* Self Cooling Design.
* Operating air pressure is 0.6 MPa (6kgf/cm^2).

Each capacity model has 3 different types of controllers.

P : Pendant type
PE : Pendant + Emergency Button type
C : Cord Type

How to order: CODE

High speed chain hoist, pneumatic, LIFTING CAPACITY tons and mtr

Unit Per Set

CODE	Model	Lift Capacity		Chain Speed mtr/min.	No of chain falls	Hose Size (mm)	Weight kg
		Kg	Mtr				
59 13 81	TCS-250P	250	3.0	34	1	12.7	19.0
82	TCS-250PE	250	3.0	34	1	12.7	19.0
83	TCS-250C	250	3.0	34	1	12.7	18.0
59 13 84	TCS-500P	490	3.0	17	1	12.7	19.0
85	TCS-500PE	490	3.0	17	1	12.7	19.0
86	TCS-500C	490	3.0	17	1	12.7	18.0
59 13 87	TCS-1000P	990	3.0	8.5	2	12.7	25.0
88	TCS-1000PE	990	3.0	8.5	2	12.7	25.0
89	TCS-1000C	990	3.0	8.5	2	12.7	24.0

TMH Series - 3 & 6 ton capacity



Fastest Lifting Speed in this lifting capacity, operating pressure is 0:4 to 0.6MPa.

High efficient 3 step planet gear and original heat reducing structure provides high class durability. Pin mount type of upper hook is for easy maintenance and convention to trolley hoist. Smallest headroom clearance in this capacity class.

Unit Per Set

CODE	Model	Lift Capacity		Chain Speed mtr/min.	No of chain falls	Hose Size (inch)	Weight (kg)
		Kg	Mtr				
59 13 90	TMH-3000PE	3,000	3.0	5.4	1	3/4	102
91	TMH-3000C	3,000	3.0	5.4	1	3/4	101
92	TMH-6000P2E	6,000	3.0	2.7	2	3/4	133
93	TMH-6000C2	6,000	3.0	2.7	2	3/4	132

*TMH-6000 P2E/C2 – 2 x Hoist Chain

18. Ventilations/Fans

Electric Portable Ventilation Fans

Ventiladores Portátiles Eléctricos
電動ポータブルファン　　电动便携式通风风扇

Highly efficient and portable. Used to ventilate hot air and harmful gases from a tank or work area, and supply fresh air and oxygen. The ideal bell-mouth type casing is highly efficient, creates little noise and is easy to install in an air duct. Related air ducts are sold separately.



Specifications

Casing Diam	142ø	200ø	280ø	400ø	500ø
Electric Source	100 V 1P	100 V 1P 200 V 1P	100 V 1P 200 V 1P	200 V 3P	200 V 3P
Air Volume	20 m^3/min	20 m^3/min	70 m^3/min	110 m^3/min	190 m^3/min
Pressure	40 mm Aq	25 mm Aq	30 mm Aq	50 mm Aq	70 mm Aq
R.P.M.	2,000 7,000	3,000 3,600	3,000 3,600	3,000 3,600	3,000 3,600
Output	96 W	155 W	0.55 kw	1.5 kw	3.7 kw
Weight	2 kg	9 kg	18 kg	35 kg	64 kg
Standard Accessory	Speed Control Switch	Motor Breaker Switch		Unfurnished	
	Cabtyre Cable 1 mtr	Cabtyre Cable 3 mtr			

How to order: CODE

Ventilation fan, portable, electric, CASING DIAM mm, POWER SOURCE VOLTAGE

Unit Per Set

AC 100 volt ± 10%			AC 200 volt ± 10%		
CODE	Case Diam.	Phase	CODE	Case Diam.	Phase
59 14 01	142 mm	Single	**59 14 06**	200 mm	Single
02	200	"	**07**	280	"
03	280	"	**08**	400	Triple
			09	500	"

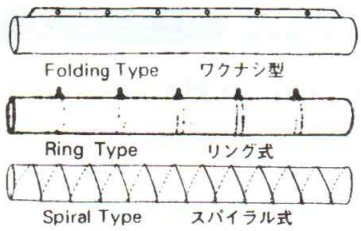
Ventilation Tubes

(Air Ducts)

Tubería de Ventilación (Conductos de Aire)
エアーダクト　风管（通风管道）

Flexible ventilation tubes made of PVC tarpaulin canvas.

A lightweight, highly flexible duct ideal for improving the efficiency of blowers especially in confined areas. When ordering, specify type of tube and length required.



How to order: CODE

Ventilation tube, TYPE, TUBE DIAM, LENGTH

Unit Per Lgh.

CODE	Tube Diam. mm	Length mtr	CODE	Tube Diam. mm	Length mtr
Folding Type					
59 14 61	200	10	**59 14 66**	700	10
62	300		**67**	800	
63	400		**68**	900	
64	500		**69**	1,000	
65	600				
Ring Type					
59 14 71	200	10	**59 14 76**	700	10
72	300		**77**	800	
73	400		**78**	900	
74	500		**79**	1,000	
75	600				
Spiral Type					
59 14 81	200	5	**59 14 91**	700	5
82		10	**92**		10
59 14 83	300	5	**59 14 93**	800	5
84		10	**94**		10
59 14 85	400	5	**59 14 95**	900	5
86		10	**96**		10
59 14 87	500	5	**59 14 97**	1,000	5
88		10	**98**		10
59 14 89	600	5			
90		10			

Portable Ventilation Fans

Explosion Proof

Ventiladores Portátiles / Antideflagrantes
防爆電動ポータブルファン　　防爆便携式通风风扇

Lightweight and robust, non-sparking type electric driven fan. Equipped with an explosion proof switch and 5 meters of cabtyre cable. An explosion proof flexible duct is also available.



How to order: CODE

Ventilation fan, explosion-proof, portable, electric, CASING DIAM mm, POWER SOURCE VOLTAGE

Unit Per Set

CODE	59 14 16	59 14 17	59 14 18	59 14 19
Casing Diam.	200 ø		282 ø	
Voltage	AC-100 V	AC-200 V	AC-100 V	AC-200 V
Phase	Single		Single	
R.P.M.	3,000 / 3,600		3,000 / 3,600	
Air Volume	20 M^3/min		70 M^3/min	
Pressure	25 mm/Aq		30 mm/Aq	
Weight	14.5 kg		25 kg	

Ventilation Tubes for Explosion Proof Ventilation Fan

How to order: CODE

Ventilation tube, explosion proof, SIZE

Unit Per Set

CODE	Size	Suitable Model
59 14 21	200ø x P150 x 5 mtr	200 mm Case Diam.
22	300ø x P150 x 5 mtr	300 mm Case Diam.

Made of Nylon Tarpaulin with earth grip. P denotes pitch of the spiral wire.

Portable Air Movers

Soplador de Aire Portátil　ポータブル送風機　移动式送风机



Lightweight, portable compressed air (or steam) operated flow amplifiers suitable for ventilating crawl areas and confined spaces. Made of single piece cast aluminium inlet housing. Ideal for use in hazardous atmospheres because of no moving parts - important for ventilating hazardous areas - zero maintenance. Typical applications include: diluting or exhausting fumes from tanks, cargo holds, etc. Can be used with or without flexible duct.

Unit Per Set

CODE	**59 14 11**	**59 14 12**
Model	3-HP	6-HP
Inlet Pressure (kg/cm²)	4.2	4.2
Total Air Flow (m³/hr.)	2,595	6,762
Air Consumed (m³/hr.)	80	167
Outlet Dia (mm)	185	305
Length	838	1,123
Name of Mfr.	Coppus Engineering Corp.	

Venturi Type Air Movers

Movedor de Aire tipo Venturi　ヴェンチュリ式送風機　VENTURI 式送风机



Used wherever there is a need to disperse and remove fumes or move air into confined spaces.

- Fast, efficient and economic way to ventilate.
- No moving parts. Means minimal maintenance.
- Operates on compressed air or steam.

Technical Specifications based on Standard European Measurements.

Model	Using 5.5 bar		Using 4.1 bar		Using 2.7 bar	
	Air Con. M³/min	Total Air Flow M³/min	Air Con. M³/min	Total Air Flow M³/min	Air Con. M³/min	Total Air Flow M³/min
TA3AMS (Short)	1.75	33.5	1.42	28	1.02	23
TX3AM	1.75	41.5	1.27	35	0.99	29
TX6AM	3.51	95	2.78	82	2.07	68
TX8AM	5.46	140	4.3	117.5	3.23	89
TX10AM	7.75	207	5.92	175	4.4	139

Unit Per Pc.

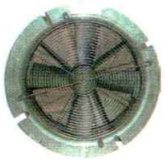
CODE	Model	Size cm		Weight kg
		Length	Dia. Base	
59 14 30	TX3AMS (Short)	42	18	3
32	TX3AM	76	18	4
33	TX6AM	111	28	10
34	TX8AM	115	36	16
35	TX10AM	120	43	19

Name of Mfr.: TXP/Rustibus®

Jet Fan Air Movers

Ventilador de Aire tipo Jet Fan

ジェットファン式送風機　喷流式送风机



For use wherever there is compressed air available. Designed for ventilation of confined areas, tanks, any place with a need to disperse and remove fumes. This unit is reversible so can become an exhauster within minutes. No air motor required.

Technical Features:

- Rated operating pressure 2.75 bar – 7.58 bar.
- Heat treated to T6 Aircraft Aluminium Spec.
- Six guide vanes to eliminate turbulence.
- Four blades, precision balanced propeller.

Technical Specification

Air Pressure		Average	Air IN (Air con.)	Air out
Bar	Kgf/cm²	R.P.M.	M³/min.	M³/min.
		TX-JF20		
2.76	2.81	2,080	1.70	168
4.14	4.22	2,695	3.23	215
5.52	5.62	3,225	5.27	258
6.89	7.03	3,670	8.27	295
		TX-JF24		
2.76	2.81	1,565	2.15	229
4.14	4.22	2,053	4.16	311
5.52	5.62	2,570	6.37	364
6.89	7.03	3,138	9.57	457

Unit Per Set

CODE	**59 14 13**	**59 14 14**
Model	TX-JF20	TX-JF24
Nominal Dia	50 cm	60 cm
Max. Bar	7.58 bar	
Mounting Slot Dia	2.54 cm	
Inlet Size	1.9 cm npt	2.54 cm npt
Bolt Circle Dia	57.2 cm (22.5")	69.85 cm – 77.85 cm (27.5" – 30.25")
Outside Dia	62.23 cm (24.5")	79.4 cm (31.25")

Name of Mfr.: TXP/Rustibus®

Electric Portable Ventilation Fans

Ventilador Eléctrico Portátil

防爆型電動ポータブルファン　移动式防爆电动鼓风机



Designed for use in work environments where non-sparking equipment is an absolute requirement. Hazardous location electric motors meets NEC Class 1, Division 1, Group D; Class II, Division 1, Groups E, F, G ratings.

All housings and main components are molded of special conductive polymers for safe dissipation of static charges.

Unit Per Set

CODE	Model	Vaneaxial Airflow		Voltage	Motor HP	Case Diam mm	Weight kg
		cfm	m³/min				
59 14 23	VEP1	867	24	115V 60HZ	1/2	330	16
24	VEP3	867	24	230V 60HZ	1/2	330	16

Name of Mfr : Coppus Engineering Corp.

Pneumatic Portable Ventilation Fans

Ventiladores Portátiles Neumáticos
エア駆動ポータブルファン　风动便携式通风风扇



Compressed air driven ventilators that can be used with or without a duct in hazardous areas such as cooling tanks or hatches. Provides ventilation of gas, paint fumes and other hazardous fumes.

Unit Per Set

CODE	Model	Case Diam	Capacity m³/hr
59 14 25	RF-12	368 mm	3,636
26	RF-16	416 mm	8,665

Name of Mfr. : Coppus Engineering Corp.

Air Driven Gas Freeing Fans

Conducto de aire para ventiladores para desgasificar
エアー駆動式ガス抜きファン
排气风机用空气导管

A high performance air driven fan constructed from Stainless Steel. These non-sparking (ATEX approved) fans can achieve deep penetration and operate at low pressures. Highly efficient air motors minimize air consumption, supply or extract mode by simple reversal of air supply, and can be supplied for horizontal mounting. High air flow throughput and high static pressure. Integral 'Direct In-Line' drive no gearbox to maintain or fail.

Ancillary equipment is also available (rigid hoses, ducting, fittings, adaptors, transportation trolley) on request.
Class Approved for use in hazardous areas.



VP650A



VP950AS

VP650A

Made of 316 Stainless Steel, designed to be lightweight and therefore extremely portable. Suitable for use on all types of vessels, particularly oil, gas, product, chemical, handysize, SR and LPG vessels.

VP950AS

Made of 316 Stainless Steel, suitable for all types of oil, gas, product, chemical, LR2, LR1, MR and LPG vessels.

Unit Per Set

CODE	**59 15 35**	**59 14 29**
Model	VP650A	VP950AS
Max. Air Flow Requirment m³/hr	6,750	9,000
Static Pressure Max. Pa	1,015	700
Max. Flow Requirment m³/hr	178	220
Operating Pressure Max. kg/cm²	7.0	7.0

(to be continued)

Materials		
Casing	St. St. 316	St. St. 316
Impeller	PAGAS	Aluminium Alloy LM6
Spark Track	N/A	Beryllium Copper
Air Stator	St. St. 316	N/A
Fasteners	St. St. 316	St. St. 316
Couplings	Bronze	Bronze
Motor Type	Air ATEX Approved	Air ATEX Approved
Installation		
Standard Deck Flange	ID 318mm, PCD 389mm	ID 318mm, PCD 389mm
Standard Connections	1" Claw	1" Claw
Envelope Dimensions:	H: 410 ø: 559	H: 368 ø: 580
Weight	17 kg	24 kg

Name of Mfr.: Victor Marine Ltd.

Air Supply Hose - Black - for Gas Freeing Fan

Manguera de Suministro de Aire - Negra - para Ventilador Sin Gas
ガス抜きファン用エアー供給ガス　脱气风机供气



Styrene Butadiene Rubber (SBR) reinforced with multiple rayon braids. Available in 19 mm and 25 mm nominal bore. 20 bar working pressure, compliant to BS EN ISO 2398:2016. Available in lengths of up to 30 metres.

Unit Per Lgh.

CODE	Nom. Dia × Length	CODE	Nom. Dia × Length
59 15 36	19 mm × 10 mtrs	**59 15 41**	25 mm × 10 mtrs
37	19 mm × 15 mtrs	**42**	25 mm × 15 mtrs
38	19 mm × 20 mtrs	**43**	25 mm × 20 mtrs
39	19 mm × 25 mtrs	**44**	25 mm × 25 mtrs
40	19 mm × 30 mtrs	**45**	25 mm × 30 mtrs

Name of Mfr.: Victor Marine Ltd.

Water Driven Gas Freeing Fans

Ventilador Portátil para Desgasificar
水圧駆動式ガス抜きファン　水力驱动便携式除气风扇

VP700W / VP1000W / VP1500W



High performance 316 stainless steel axial flow water driven fans. These non-sparking fans offered as either high or medium throughout, can achieve deep tank penetration. Suitable for all types of crude oil, chemical, product, handysize, SR LPG, Suezmax, UL/ VLCC, LR2, LR1, MR and gas tankers for fast and complete gas freeing. ATEX approved.

VP1400W



Suitable for use on all types of vessels (oil, product, chemical, suezmax, UL/ VLCC, LPG). The VP1400 is specially designed for low pressure systems and large deck openings whilst still maintaining the high static and flow rate for fast and efficient gas freeing. ATEX approved.

VP800W / VP1350W



Non-sparking fans offered as either medium or high flow, can achieve deep penetration suitable for all types of Oil, Gas, Panamax, Aframax, Suezmax, UL/VLCC, and LPG tankers. ATEX approved.

Key Features

* Designed and class approved for use in hazardous areas.
* Supply or extract mode by simple reversal.
* Integral 'Direct In-Line' drive, no gearbox to maintain or fail.
* Alternative deck flanges and fan connections available.
* Ancillary equipment available (layflat hoses, ducting, fittings, adaptors, transport trolley).

Unit Per Set

CODE	59 15 21	59 15 22	59 15 24	59 15 23
Model	VP700W	VP1000W	VP1400W	VP1500W
Max. Air Flow m^3/hr	7,000	10,540	14,000	14,800
Static Pressure Pa	970 Pa	1,790 Pa	1,500 Pa	3,120 Pa
Waterflow Capacity m^3/hr Max	15	27	48	56
Operating Pressure Max. kg/cm^2	12	12	7.0	12
Materials				
Casing	St/St. 316	St/St.316	St./St. 316	St/St.316
Impeller	Pagas	LM6 Alloy	Polymide (PAGAS)	LM6 Alloy
Fastenings	St/St. 316	St/St. 316	St./St. 316	St/St. 316
Connections	St/St. 316	St/St. 316	St./St. 316	St/St. 316
Spark Track	N/A	Beryllium Copper	N/A	Beryllium Copper
Motor Type	N/A	N/A	3D Francis Turbine	N/A
Installation				
To Suite Deck Opening	ID 318mm, PCD 389 mm	ID 318mm, PCD 389 mm	ID 400mm, PCD 480 mm	ID 318mm, PCD 389 mm
Standard Water Connections	1.5" BSP	2" BSP	2" BSP or Nakajima	2" BSP
Envelope Dimensions	H: 465 Ø: 365	H: 572 Ø: 580	H: 514 Ø: 503	H: 572 Ø: 580
Weight	19 kg	27 kg	25 kg	27 kg

Name of Mfr.: Victor Marine Ltd.

Unit Per Set

CODE	59 14 42	59 14 43
Model	VP800W	VP1350W
Max. Air Flow m^3/hr	8,700	14,350
Air Velocity m/s	3.1 @ 25 mtr below deck	5.0 @ 25 mtr below deck
Static Pressure		
Max. Kpa	0.72	1.7
Operational m^3/hr	8,000 @ 250Pa	13,000 @ 500Pa
Waterflow Capacity m^3/hr	13 to 19	47 to 68
Operating Pressure Max. kg/cm^2	10.5	
Materials		
Casing	Aluminium Alloy LM6	
Impeller	Aluminium Alloy LM6	
Spark Track	N/A	
Air Stator	Aluminium Alloy LM6	
Fasteners	St. St. 316	
Couplings	Bronze	
Motor Type	2D Francis Turbine	
Installation		
Standard Deck Flange	ID 318 mm, PCD 389 mm	
Standard Connections	2.5" NPT (BW)	
Envelope Dimensions	H : 690 ø : 580	H : 689 ø : 580
Weight	31 kg	

Name of Mfr.: Victor Marine Ltd.

Layflat Hoses for Gas Freeing Fan

Red Heavy Duty Supply and Blue Medium Duty Exhaust

Perfil plano Mangueras para Gas Liberación Ventilador
ガス抜きファン用平状ホース
用于气体冷却风扇的 Layflat 软管



Reinforced woven polyester encased in polyurethane internal and external liner. Available in 38 mm and 50 mm nominal bore and available in multiples of 5 metres, up to 30 metre lengths. Supplied fitted with an extensive range of various connections.

Unit Per Lgh.

CODE		Nom. Diam x Length
Red – Heavy Duty Supply	Blue – Medium Duty Exhaust	
59 15 51	**59 15 61**	38 mm x 10 metres
52	**62**	38 mm x 15 metres
53	**63**	38 mm x 20 metres
54	**64**	38 mm x 25 metres
55	**65**	38 mm x 30 metres
59 15 56	**59 15 66**	50 mm x 10 metres
57	**67**	50 mm x 15 metres
58	**68**	50 mm x 20 metres
59	**69**	50 mm x 25 metres
60	**70**	50 mm x 30 metres

Name of Mfr.: Victor Marine Ltd.

Water Driven Turbine Fans

Ventiladores de Turbina por Agua
ウオータータービンファン
水力驱动涡轮式风扇



Designed for high performance ventilation of gas from large enclosed areas or other tank openings. Works effectively providing penetration deep into the tank for complete ventilation. Made of a non-spark construction with a line impeller and integral water motor that are coated against corrosion.

Inlet/outlet water hoses are sold separately.

How to order: CODE

Turbine fan, water driven, OUTLET BORE DIAM mm, CAPACITY m^3 /min., MODEL

Unit Per Set

CODE	59 14 36	59 14 37	59 14 40	59 14 41
Model	KWF-300M	KWF-400M	C-12AW	C-15AW
Outlet Bore Dia. mm	300 mm	400 mm	318 mm	387 mm
Capacity $m^3/min.$	70 - 220	100 - 290	83 - 142	123 - 210
Water Pressure kgf/cm^2	1 - 7	1 - 7	MAX 10.5	MAX 10.5
Water Consumption m^3/hr	20 - 43	24 - 58	19.8	27.3
Hose Dia.	65A	65A	1-1/2"	1-1/2"
Weight kg	24	28	18	24
Name of Mfr	Exeno - Yamamizu		Coppus Engineering	

Compressed Air or Steam Driven Turbine Fans

Ventiladores de Turbina por Aire Comprimido o Vapor
エア・スチーム両用タービンファン　压缩空气或蒸汽驱动涡轮式风扇



Powerful turbine fan for efficient drying and ventilating of large areas on tankers and other vessels. These fans are turbine driven by steam pressure or compressed air.

Inlet/exhaust steam hoses, coupling and air duct hoses are sold separately.

How to order: CODE

Turbine fan, compressed air or steam driven, AIR OUTLET DIAM mm, CAPACITY m³ /min., MODEL

Unit Per Set

CODE	59 14 46	59 14 47
Model	KTF-300	KTF-400
Air Outlet Diam mm	300	400
Capacity m³/min.	130	210
Operating Stream Pressure kgf/cm²	8	8
Steam Inlet Diam mm	19	19
Hose Diam	50	50
Weight kg	32	38
Name of Mfr	Exeno - Yamamizu	

Portable Gas Freeing Fans

Jetfan Series

Ventiladores Portátiles de Gas Libre
ポータブルガス抜きファン　便携式除气风扇喷气风扇系列

Jetfan 65



For small to mid tonnage vessels. Totally portable and capable of being used in virtually any location, making it ideally suited to vessels with severely restricted space.

To be used not only for general tank gas freeing but also the ventilation of confined spaces such as cofferdams and double bottoms for inspection and repair work. The air flow can be changed from penetration to extraction in a simple operation.
Available in three drive mediums, compressed air, stream or hydraulic.

Unit Per Set

CODE	59 14 51	59 14 52	59 14 59
Model	Jetfan 65		
Drive Medium	Compressed Air	Steam	Hydraulic
Supply Connection	Claw type	1" BSP	As required
Discharge Connection	2" Plain tube	2" BSP	As required
Deck Opening	318 mm		
Size Height x Width	523 x 394 mm		
Weight	17 kg		

Name of Mfr.: Dasic Marine Ltd.

Jetfan 70



For 'mid' range vessels as a penetration fan. Ideally suited to the environment and can be easily manoeuvred and positioned by one man, a particular advantage on smaller tonnage where deck space is limited. Can choose from water or compressed air as the drive medium. A hand transport trolley is also available.

Unit Per Set

CODE	59 14 53	59 14 54
Model	Jetfan 70	
Drive Medium	Water	Compressed Air
Supply Connection	2" 7-1/2 TPI Male (ASA B26)	3/4" Claw
Discharge Connection	2-3/4" BSP Male	3/4" NB Tube
Deck Opening	Standard 318 mm stud bolt deck opening	
Size Height × Width	520 × 436 mm	
Weight	25 kg	

Name of Mfr.: Dasic Marine Ltd.

Jetfan 125



Most efficient deep penetration or extraction gas freeing fan. Has been used successfully on vessels of up to 550,000 dwt tons, drastically reducing time spent on gas freeing operations.

To change from penetration to extraction is a one-man operation and can take barely 10 minutes to perform. There is a choice of water, compressed air or steam as the driven medium.

A handy transport trolley is also available.

Unit Per Set

CODE	59 14 56	59 14 57	59 14 58
Model	Jetfan 125		
Drive Medium	Water	Compressed Air	Steam
Supply Connection	2" 7-1/2 TPI Male (ASA B26)	3/4" Claw	1" BSP Male
Discharge Connection	2-3/4" BSP Male	3/4" NB Tube	2" BSP Male
Deck Opening size	Standard 318 mm stud bolt deck opening		
Size Height x Width	736 x 500 mm		
Weight	44 kg		

Name of Mfr.: Dasic Marine Ltd.

Gas Freeing Fan Trolley

Carrito con ventilador para desgasificar
ガス抜きファン用トローリー
排气风机用手推车



Fan Trolley manufactured in a lightweight tubular construction, this trolley is available to ease the transportation of fans in restricted areas. Complete with durable wheels and a fan retaining strap for added protection. Also available in 316 stainless steel.

59 14 60	Trolley for gas freeing fan	Pc.

Air Ducting for Gas Freeing Fan

Conductos de aire para ventilador de gas
ガスフリーファン用エアーダクト　气体释放风机的空气管道



Heavy duty, anti-static, flame resistant spiral wound PVC coated, flexible fabric ducting. Produced in standard 300/400 mm diameter nominal bore or special purpose diameters and lengths. These ducts are suitable for both supply and exhaust mode operation and fitted with deck flange to suit 318/400 mm deck opening. Specially designed for marine "hazardous areas". Outlet ducts are available in many sizes ex-stock. Also available as a detachable option.

Unit Per Lgh

CODE	Nom. Diam. × Length	CODE	Nom. Diam. × Length
59 15 15	300 mm × 10 metres	**59 15 20**	400 mm × 10 metres
16	300 mm × 15 metres	**25**	400 mm × 15 metres
17	300 mm × 20 metres	**26**	400 mm × 20 metres
18	300 mm × 25 metres	**27**	400 mm × 25 metres
19	300 mm × 30 metres	**28**	400 mm × 30 metres

Name of Mfr.: Victor Marine Ltd.

Electric Blowers/Exhausters

Soplador/Extractor Eléctrico　電気給排気ファン　电动抽送机

Portable blower/exhauster with turbine blades to deliver a constant source of clean air in even the most difficult to ventilate conditions. These rugged industrial blowers have corrosion and chemical resistant ABS (Acrylonitrile Butadiene Styrene copolymer) housings, cast aluminium turbine fan blades and heavy duty cycle switched motors. Anti-static intrinsically safe models are recommended for use in hazardous atmospheres containing explosive and combustible gases and vapors.

Standard Models　　Intrinsically Safe Models


59 15 01
EFi75


59 15 02
EFi50


59 15 06
EFi75xx


59 15 07
EFi150xx

Standard Models

Unit Per Pc.

CODE	59 15 01	59 15 02
Model	EFi75	EFi50
Fan Size	12"/30 cm × 17 blade impeller	16"/40 cm × 21 blade impeller
Free Airflow	2,500 CFM/ 4,250 m³/hr	3,200 CFM/ 5,440 m³/hr
Motor	3/4 HP	1/2 HP
	115 / 230 V 50 / 60 Hz 1P	
Amps	115V : Start : 37, Run : 7.2 230V : Start : 14, Run : 3	115V : Start : 21, Run : 6 230V : Start : 10, Run : 3
Switch Enclosure	IP65 rain tested	
Housing Material	Glass-reinforced ABS	
Weight	46 lbs / 21 kg	46 lbs / 21 kg
Dimensions H × W × D	16 × 15 × 16 inches 406 × 381 × 406 mm	19 × 18 × 12 inches 480 × 460 × 305 mm
Name of Mfr.	Euramco Safety	

Intrinsically Safe Models

Unit Per Pc.

CODE	59 15 06	59 15 07
Model	EFi75xx	EFi150xx
Fan Size	12"/30 cm × 17 blade impeller	16"/40 cm × 7 blade impeller
Free Airflow	2,500 CFM/ 4,250 m³/hr	4,459 CFM/ 7,580 m³/hr
Motor	3/4 HP	1.5 HP
	115 / 230 V 50 / 60 Hz 1P	
Amps	115V : Start : 37, Run : 7 230V : Start : 14, Run : 3	115V : Start : 57, Run : 15 230V : Start : 32, Run : 7.5
Motor Rating	Totally enclosed hazardous location motor rated UL Class I – Group D, UL Class II – Group E,F,G	
Housing Material	Glass-reinforced, carbon-filled, anti-static ABS	
Weight	44 lbs / 20 kg	61 lbs / 28 kg
Dimensions H × W × D	16 × 15 × 16 inches 406 × 381 × 406 mm	19 × 18 × 12 inches 480 × 460 × 305 mm
Name of Mfr.	Euramco Safety	

Air Driven Blowers

Soplador de Aire　エアー駆動送風機　气动式送风机

These air driven blowers are engineered specifically for hazardous work environments where intrinsically safe equipment is absolutely required. The anti-static, glass-reinforced ABS (Acrylonitrile Butadiene Styrene copolymer) housing is corrosion and chemical resistant. Complete with filter, motor lubricator, exhaust muffler, air control valve and static grounding cord. Motor exhausts outside of duct; compressed air not in air stream.


59 15 11 AFi75xx


59 15 12 AFi50xx

Unit Per Pc.

CODE	59 15 11	59 15 12
Model	AFi75xx	AFi50xx
Fan Size	12"/ 30 cm × 17 blades	16"/40 cm × 21 blades
Free Airflow	2,042 CFM / 3,471 m³/hr	3,200 CFM / 5,440 m³/hr
Air Motor	GAST 4AM-NRV-50C	
Duct Adaptor	Integral 12"	Reversible 16"
Housing Material	Anti-static, glass-reinforced ABS	
Weight	33 lbs / 15 kg	43 lbs / 20 kg
Dimensions H x W x D	16 × 17 × 16 inches 410 × 430 × 410 mm	19 × 21 × 12 inches 480 × 530 × 305 mm
Name of Mfr.	Euramco Safety	

Portable Electric Industrial Fan Heaters

Ventilador calefactor portátil eléctrico de uso industrial
ポータブル電動ファンヒーター　便携式电动暖风机加热器



Used for warming up the cold areas and rooms. They can be also used as drying wet surfaces and atmospheres. Fitted with fan blades that can blow hot air out a few meters away. Heater includes; Overheat protection, Adjustable thermostat control, Cool blows thermostat control (fan blades), Carrying handle and mounting foot and can be wall mounted by own's fabrication. CE certified.

Unit Per Pc.

CODE	59 15 31
Model	CFH-30
Voltage / Phase	230 V/Single
Frequency	50/60 Hz
Power	3,000 Watts
Temperature Range	0 – 40°C continuously
Heater I.D.	200 mm
Size	28 × 39 × 31 cm
Weight	8.8 kg

Name of Mfr.: Cobolt – KM Kinley

19. Pumps/Ejectors

Pneumatic Diaphragm Pumps

Metal range with Plo-flo air valve system (Formerly known as the M series, T series) 气动隔膜泵

Bombas Neumáticas de Diafragma　ダイヤフラムポンプ



An air operated diaphragm pump designed for simplicity in operation and maintenance.

Safe for use in explosive environments.

The Metal pump lines provides the durability, chemical resistance, abrasion resistance, and temperature range required for a variety of process and waste applications.

The standard material combination is composed of aluminium casing and neoprene diaphragm, balls and valve seat for general purpose non aggressive applications such as in oil and petroleum based fluids. Cast iron, 316 stainless steel and hastelloy casing materials are available as well.

Wilden pump features:

- Ease of operation
- Variable speed
- Variable pressure
- Dead head capability
- Plastic Center Block
- Lube-free operation
- Intrinsically safe
- Ability to pass solids
- Ability to run dry
- No dynamic seals
- No-stalling unbalanced spool

Unit Per Set

CODE		59 16 07	59 16 05	59 16 01	59 16 02	59 16 03
Model		P.025	P1	P2	P4	P8
Standard Casing		Aluminium				
Suction Lift	Dry	10.8'	19'	19'	19'	24'
	Wet	30.6'	31'	28'	39'	31'
Air Inlet NPT		1/8"	1/4"	1/4"	1/2"	3/4"
Water	Inlet	1/4"	1/2"	1"	1-1/2"	2"
	BSP/ NPT	Female				
	Outlet	1/4"	1/2"	3/4"	1-1/4"	2"
	BSP/ NPT	Female				
Size	Height	5.8"	8.8"	11"	17.4"	26.3"
	Width	6.5"	8.2"	10.5"	15.4"	15.9"
	Depth	4.5"	7"	7.3"	11.2"	13.5"
Weight Lbs		4	13	26	38	70
Name of Mfr.		Wilden				

Pump casing materials and elastomer selection options

Casing	Diaphragms	P.025	P1	P2	P4	P8
Stainless Steel	TF	O	O	O	O	O
	WFS	O	O	O	O	O
	VTS	X	O	O	O	O
	BNS	O	O	O	O	O
Hastelloy	TF	X	O	X	X	X
	WFS	X	X	X	X	X
	VTS	X	O	X	X	X
	BNS	X	X	X	X	X
Cast Iron	TF	X	X	X	O	O
	WFS	X	X	X	O	O
	VTS	X	X	X	O	O
	BNS	X	X	X	O	O

Ordering other material options by adding suffix letter to the end of the pump code.

Casing		
S	Stainless steel casing.	
W	Cast iron casing.	Unavailable for P.025, P1 & P2 series.
H	Hastelloy casing.	Standard with PTFE elastomers.

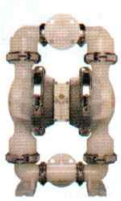
Diaphragms

WFS	Diaphragm :	Wil-Flex (Light chemicals) Low cost alternative to Teflon in acidic and caustic applications. Has long flex life and handle abrasives well.
TF	Diaphragm :	PTFE material for aggressive chemicals. Excellent in acidic & caustic applications with long flex life and handles abrasives well.
VTS	Diaphragm :	Viton. Good flex life at extremely high temperature. Handle aggressive fluids such as acids & chlorinated hydrocarbons well.
BNS	Diaphragm :	Buna-N for oil & petroleum based fluids.

Example:

59 16 02 W/WFS　P4 pump with cast iron casing & Wil-Flex diaphragms, balls, and valve seats.

Plastic range with Proflo air valve system



Plastic pump lines provides the durability, chemical resistance, abrasion resistance, and temperature range required for a variety of process and waste applications.

The standard material combination is composed of polypropylene casing and Teflon diaphragm balls and valve seat. PTFE diaphragm are extremely suitable for aggressive chemicals. Excellent in acidic & caustic applications with long flex life and handles abrasives well.

Unit Per Set

CODE		59 16 10	59 16 11	59 16 12	59 16 13	59 16 14
Model		P.025	P1	P2	P4	P8
Standard Casing		Polypropylene				
Suction Lift	Dry	9'	20'	18'	16'	23'
	Wet	31'	31'	29'	26'	31'
Air Inlet NPT		1/8"	1/4"	3/4"	1/2"	3/4"
Water	Inlet	1/4"	1/2"	1"	1-1/2"	2"
	BSP/ NPT	Female		ANSI 150 Flange		
	Outlet	1/4"	1/2"	1"	1-1/2"	2"
	BSP/ NPT	Female		ANSI 150 Flange		
Size	Height	6.4"	8.6"	14"	20.8"	30.3"
	Width	5.7"	8.2"	11.6"	15.5"	19.3"
	Depth	4.5"	8"	9.1"	11.2"	13.1"
Weight Lbs		3	9	18	37	75
Name of Mfr.		Wilden				

Ordering other materials options by adding suffix letter to the end of the pump code.

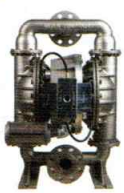
Casing		
K	Kynar (PVDF)	For temperatures up to 107 deg.C

Diaphragms		
WF	Diaphragm :	Wil-Flex (Light chemicals) Low cost alternative to Teflon in acidic and caustic applications. Has long flex life and handle abrasives well.
VT	Diaphragm :	Viton. Good flex life at extremely high temperature. Handle aggressive fluids such as acids & chlorinated hydrocarbons well.
BN	Diaphragm :	Buna-N for oil & petroleum based fluids.

Example:

XX XX XX K/VT
Note: VT (Viton) Unavailable for P.025.

High Pressure Double Diaphragm Pump



The introduction of the H800 expands Wilden's application range to include head pressures up to 250 psig. Wilden's patent pending high pressure technology yields a 250 psig discharge pressure designed for solid laden slurries. Capable of generating 250 psig with only 85 psig air supply.

Standard material composes of stainless steel casing with PTFE backed diaphragm. Suitable for boosting air line pressure over long distances.

Unit Per Set

CODE		59 16 16	59 16 17
Model		H800	
Pressure Ratio		3 : 1	
Standard Casing		Stainless steel	Ductile iron
Suction Lift	Dry	12'	
	Wet	29.5'	
Air Inlet NPT		3/4"	
Water	Inlet	2" ANSI 300# Flanges	
	BSP/NPT	Female	
	Outlet	2" ANSI 300# Flanges	
	BSP/NPT	Female	
Size	Height	29.9"	
	Width	19.3"	
	Depth	21.5"	
Weight Lbs		283	
Name of Mfr.		Wilden	

*Hastelloy Casing is also available upon request.

Unit Per Set

CODE		59 16 18	59 16 19	59 16 20
Model		H400 S		H200
Pressure Ratio		2 : 1		3 : 1
Standard Casing		Stainless steel	Aluminium	Ductile iron
Suction Lift	Dry	10.1'	10.2'	9.1'
	Wet	30.6'	29.5'	29.5'
Air Inlet NPT		3/4"		1/2"
Water	Inlet	1-1/2"		1"
	BSP/NPT	ANSI 300# Flanges		BSP/NPT
	Outlet	1-1/2"		1"
	BSP/NPT	ANSI 300# Flanges		BSP/NPT
Size	Height	23.8"	20.8"	13.5"
	Width	13.6"	15.1"	17.7"
	Depth	12.2"	12.2"	12"
Weight Lbs		60	82	84
Name of Mfr.		Wilden		

Plo-flow SHIFT air valve system



Wilden Pro-Flo Shift Air Distribution System (ADS) is energy-efficient type model and achieves up to 60% savings in air consumption. It delivers more yield per SCFM versus competitive AODD pumps, has fewer operating parts, meaning less downtime and simplified maintenance. Available in a single point exhaust option (for submersible applications), and has drop-in configuration capacity (compatible with M,T, and P models).

Unit Per Set

CODE		59 16 08	59 16 09	59 16 04	59 16 06
Model		PS4	PS8	PS15	PS20
Standard Casing		Aluminium			Cast iron
Suction Lift	Dry	23.3'	23.8'	21.6'	14.4'
	Wet	28.4'	29.5'	28.4'	28.4'
Air Inlet NPT		3/4"			
Water	Inlet	1-1/2"	2"	3"	4"
	BSP/NPT	Female			ANSI Flange
	Outlet	1-1/4"	2"	3"	4"
	BSP/NPT	Female			ANSI Flange
Size	Height	16.9"	26.3"	32.1"	32.5"
	Width	14.5"	15.9"	20.2"	37"
	Depth	12.9"	13.3"	16.7"	13"
Weight Lbs		46	78	121	492
Name of Mfr.		Wilden			

Pump casing materials and elastomer selection options

Casing	Diaphragms	PS4	PS8	PS15	PS20
Stainless Steel	TF	O	O	O	X
	WFS	O	O	O	X
	VTS	O	O	O	X
	BNS	O	O	O	X
Hastelloy	TF	O	X	X	X
	WFS	X	X	X	X
	VTS	X	X	X	X
	BNS	X	X	X	X
Cast Iron	TF	O	O	O	O
	WFS	O	O	O	O
	VTS	O	O	O	O
	BNS	O	O	O	O

Ordering other material options by adding suffix letter to the end of the pump code.

Casing		
S	Stainless steel casing.	Unavailable for PS20 series.
W	Cast iron casing.	
H	Hastelloy casing.	Standard with PTFE elastomers.

Diaphragms		
WFS	Diaphragm :	Wil-Flex (Light chemicals) Low cost alternative to Teflon in acidic and caustic applications. Has long flex life and handle abrasives well.
TF	Diaphragm :	PTFE material for aggressive chemicals. Excellent in acidic & caustic applications with long flex life and handles abrasives well.
VTS	Diaphragm :	Viton. Good flex life at extremely high temperature. Handle aggressive fluids such as acids & chlorinated hydrocarbons well.
BNS	Diaphragm :	Buna-N for oil & petroleum based fluids.

Example:

59 16 04 S/TF PS15 pump with stainless steel casing & PTFE diaphragms, balls, and SS valve seats.
W/WFS PS4 pump with cast iron casing & Wil-Flex diaphragms, balls, and valve seats.

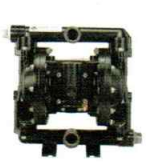
Pneumatic Diaphragm Pumps

Bombas neumáticas de diafragma
空気ダイアフラムポンプ　气动隔膜泵

ARO advanced series with excellent reliability, high efficiency and easy serviceability features. EXP metallic pumps are available from 1/2" to 3" port sizes, including Aluminium, Stainless Steel, Cast Iron and Hastelloy pump body material to optimize fluid compatibility.

For the purpose of making ordering easier, provided the following ordering table composed of the most practical specifications for marine use. For any further detailed information please contact local sales or distributors.

1" Metallic EXP Pump (port size 25 mm)





Seat Material
Same as Housing

Ball
G Nitrile
T PTFE

Diaphragm
G Nitrile
T PTFE

PD10 X - X X X - X X X

Center Section
A Aluminium
P Polypropylene
S Stainless Steel

Connection
A NPTF Thread
B BSP Thread
F 1" ANSI/DIN Flange (Side)
Y 1" ANSI/DIN Flange (Center)

Wetted Material
S Stainless Steel
A Alminium
C Cast Iron
H Hastelloy-C
P Polypropylene
K PVDF

Hardware
S Stainless Steel
P Plated Steel

Unit Per Set

CODE	59 17 01	59 17 02
Recommended Model	PD10X-XXX-XXX	PD10P-XXX-XXX
Description	1" Pump	
Central Section Material	Aluminium/ Stainless Steel	Polypropylene
Connection Thread	BSP / NPT	BSP / NPT /ANSI, DIN Flange
Wetted Material	Aluminium/ Stainless Steel	Polypropylene/PVDF
Hardware	Plated Steel/ Stainless Steel	Stainless Steel
Seat Material	Same as Housing	
Ball Material	Nitrile / PTFE	
Diaphragm Material	Nitrile / PTFE	

Performance Specification

Max. Flow GPM (Liters)	52 (197)	
Max. Operating Pressure psi (bar)	120 (8.3)	
Maximum Dry Suction Lift ft (meter)	19 (5.7)	
Max. Solids Inches (mm)	1/8" (3.3)	
Air Inlet	1/4" – 18 NPT	
Recommended Filter / Regulator	P39124-600	
Pump Weight (kg)	9.4 (AL), 27.8 (SS), 8.78 (PP), 11.72 (PV)	
Air Line Kit	66073-2	
Fluid Service Kit	637401-XX	637396-XX
Air Motor Service Kit	637397	
Manufacturer	Ingersoll Rand ARO	

Remark : If you require another material of pump, please refer to the ordering guide for material selection of components.

1.5" Metallic EXP Pump (port size 40 mm)





Seat Material
Same as Housing

Ball
G Nitrile
T PTFE

Diaphragm
G Nitrile
T PTFE

PD15 X - X X X - X X X

Center Section
A Aluminium
P Polypropylene
S Stainless Steel

Connection
A NPTF Thread
B BSP Thread
F 1" ANSI/DIN Flange (Side)
Y 1" ANSI/DIN Flange (Center)

Wetted Material
S Stainless Steel
A Alminium
C Cast Iron
H Hastelloy-C
P Polypropylene
K PVDF

Hardware
S Stainless Steel
P Plated Steel

Unit Per Set

CODE	59 17 03	59 17 04
Recommended Model	PD15X-XXX-XXX	PD15P-XXX-XXX
Description	1.5" Pump	
Central Section Material	Aluminium/ Stainless Steel	Polypropylene/PVDF
Connection Thread	BSP / NPT	ANSI, DIN Flange
Wetted Material	Aluminium/ Stainless Steel	Polypropylene/PVDF
Hardware	Plated Steel/ Stainless Steel	Stainless Steel
Seat Material	Same as Housing	
Ball Material	Nitrile / PTFE	
Diaphragm Material	Nitrile / PTFE	

Performance Specification

Max. Flow GPM (Liters)	123 (465)	
Max. Operating Pressure psi (bar)	120 (8.3)	
Maximum Dry Suction Lift ft (meter)	14 (4.2)	
Max. Solids Inches (mm)	1/4" (6.4)	
Air Inlet	1/2" – 14 NPT	
Recommended Filter / Regulator	P39344-600	
Pump Weight Lbs (kg)	64.28 (29.2)	
Air Line Kit	66084-1	
Fluid Service Kit	637375-XX	637391-XX
Air Motor Service Kit	637389	
Manufacturer	Ingersoll Rand ARO	

Remark : If you require another material of pump, please refer to the ordering guide for material selection of components.

2" Metallic EXP Pump (port size 50 mm)





Seat Material
Same as Housing

Ball
G Nitrile
T PTFE

Diaphragm
G Nitrile
T PTFE

PD20 X - X X X - X X X - (B)

Center Section
A Aluminium
P Polypropylene
S Stainless Steel

Connection
A NPTF Thread
B BSP Thread
F 2" ANSI/DIN Flange (Side)

Wetted Material
S Stainless Steel
A Alminium
C Cast Iron
H Hastelloy-C
P Polypropylene
K PVDF

Hardware
S Stainless Steel
P Plated Steel

Unit Per Set

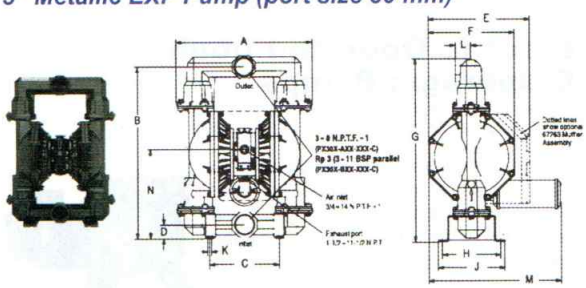
CODE	59 17 06	59 17 07
Recommended Model	PD20X-XXX-XXX-B	PD20P-XXX-XXX
Description	2" Stainless Steel Pump	
Central Section Material	Aluminium/ Stainless Steel	Polypropylene
Connection Thread	BSP / NPT	ANSI, DIN Flange
Wetted Material	Aluminium/ Stainless Steel	Polypropylene/PVDF
Hardware	Plated Steel/ Stainless Steel	Stainless Steel
Seat Material	Same as Housing	
Ball Material	Nitrile/PTFE	
Diaphragm Material	Nitrile/PTFE	

Performance Specification

Max. Flow GPM (Liters)	172 (651)	
Max. Operating Pressure psi (bar)	120 (8.3)	
Maximum Dry Suction Lift ft (meter)	14 (4.2)	
Max. Solids Inches (mm)	1/4" (6.4)	
Air Inlet	3/4" – 14 NPTF	
Recommended Filter / Regulator	P39354-610	
Pump Weight Lbs (kg)	149.8 (68)	
Air Line Kit	66312	
Fluid Service Kit	637309-XX	637373-XX
Air Motor Service Kit	637421	637369
Manufacturer	Ingersoll Rand ARO	

Remark : If you require another material of pump, please refer to the ordering guide for material selection of components.

3" Metallic EXP Pump (port size 80 mm)



Seat Material Same as Housing

Ball G Nitrile, T PTFE

Diaphragm G Nitrile, T PTFE

PD30 X - X X X - X X X - C

Center Section
A Aluminium
S Stainless Steel

Connection
A NPTF Thread
B BSP Thread
F 2" ANSI/DIN Flange

Wetted Material
S Stainless Steel
A Aluminium
C Cast Iron
H Hastelloy-C

Hardware
S Stainless Steel
P Plated Steel

Unit Per Set

CODE	59 17 08
Recommended Model	PD30X-XXX-XXX-C
Description	3" Stainless Steel Pump
Central Section Material	Aluminium / Stainless Steel
Connection Thread	BSP / NPT /ANSI, DIN Flange
Wetted Material	Aluminium / Stainless Steel / Cast Iron / Hastelloy-C
Hardware	Plated Steel / Stainless Steel
Seat Material	Same as Housing
Ball Material	Nitrile / PTFE
Diaphragm Material	Nitrile / PTFE

Performance Specification

Max. Flow GPM (Liters)	275 (1,041)
Max. Operating Pressure psi (bar)	120 (8.3)
Maximum Dry Suction Lift ft (meter)	14 (4.2)
Max. Solids Inches (mm)	3/8" (9.5)
Air Inlet	3/4" – 8 NPTF
Recommended Filter / Regulator	P39354-610
Pump Weight Lbs (kg)	228.8 (103.8)
Air Line Kit	66109
Fluid Service Kit	637303-XX
Air Motor Service Kit	637421
Manufacturer	Ingersoll Rand ARO

Remark : If you require another material of pump, please refer to the ordering guide for material selection of components.

Air Operated Double Diaphragm Pumps

Bombas de Doble Diafragma Operada con Aire

エアー式ダブルダイヤフラムポンプ　气动式双隔膜泵浦



Versa-Matic® pumps deliver non-stalling, non-icing, lubrication free on / off reliability. Available with patented longer-life diaphragm designs and the exclusive Elima-Matic® air valve system. The products are designed with ease of maintenance in mind, for reduced downtime. They are available in a wide array of materials, construction choices, and porting options to handle virtually any requirement.

E1 1" Bolted Metallic Pumps

Unit Per Set

CODE		59 17 15	59 17 16	59 17 17
Body Material		Aluminium	Stainless steel	Hastelloy C
Flow Rate		0-35 gpm (0-132 lpm) adjustable		
Port Size	Inlet	1.0" Female NPT (BSP)		
	Discharge	1.0" Female NPT (BSP)		
Air Inlet		0.375" NPT		
Air Exhaust		0.50" NPT		
Suction Lift		15' dry / 25' wet (4.57 m / 7.62 m)		
Max. Particle Size (Diameter)		0.125" (3.17 mm)		
Weight lbs (kg)		31 (14.07)	42 (19.05)	

Remark : Do not exceed 125 psig (8.5 bars) air supply or liquid pressure.
Name of Mfr. : Versa-Matic Pump Company

E4 1-1/4" Clamped Metallic Pumps

Unit Per Set

CODE		59 17 18	59 17 19	59 17 20	59 17 21
Body Material		Aluminium	Cast iron	Hastelloy C	Stainless steel
Flow Rate		0-70 gpm (0-265 lpm) adjustable			
Port Size	Inlet	1.50" FNPT (BSP)			
	Discharge	1.25" FNPT (BSP)			
Air Inlet		0.50" NPT			
Air Exhaust		0.75" NPT			
Suction Lift		15' dry / 25' wet (4.57 m / 7.62 m)			
Max. Particle Size (Diameter)		0.1875" (4.76 mm)			
Weight lbs (kg)		41 (18.6)	57 (25.85)		

Remark : Do not exceed 125 psig (8.5 bars) air supply or liquid pressure.
Name of Mfr. : Versa-Matic Pump Company

E2 2" Clamped Metallic Pumps

Unit Per Set

CODE		59 17 22	59 17 23	59 17 24	59 17 25
Body Material		Aluminium	Cast iron	Hastelloy C	Stainless steel
Flow Rate		0-155 gpm (0-586 lpm) adjustable			
Port Size	Inlet	2" FNPT (BSP)			
	Discharge	2" FNPT (BSP)			
Air Inlet		0.50" NPT			
Air Exhaust		0.75" NPT			
Suction Lift		20' dry/25' wet (6.10 m / 7.62 m)			
Max. Particle Size (Diameter)		0.25" (6.35 mm)			
Weight lbs (kg)		70 (31.75)	115 (52.16)		

Remark : Do not exceed 125 psig (8.5 bars) air supply or liquid pressure.
Name of Mfr. : Versa-Matic Pump Company

E3 3" Clamped Metallic Pumps

Unit Per Set

CODE		59 17 26	59 17 27	59 17 28	59 17 29
Body Material		Aluminium	Cast iron	Hastelloy C	Stainless steel
Flow Rate		0-230 gpm (0-984 lpm) adjustable			
Port Size	Inlet	3" FNPT (BSP)			
	Discharge	3" FNPT (BSP)			
Air Inlet		0.5" NPT			
Air Exhaust		1.0" NPT			
Suction Lift		20' dry/25' wet (6.10 m / 7.62 m)			
Max. Particle Size (Diameter)		0.375" (9.52 mm)			
Weight lbs (kg)		115 (52.16)	210 (95.25)		

Remark : Do not exceed 125 psig (8.5 bars) air supply or liquid pressure.
Name of Mfr. : Versa-Matic Pump Company

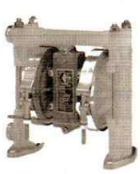
Plastic Diaphragm Pumps

Husky

Bombas con diafragma de plástico
プラスティック製ダイフラムポンプ　塑料隔膜泵

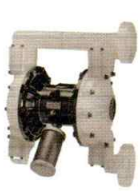
Polypropylene casing pneumatic double diaphragm pumps with polypropylene center section for chemical compatibility.


Husky 205


Husky 307


Husky 515


Husky 1050


Husky 1590

Unit Per Set

CODE	59 17 65	59 17 66	59 17 67
Model	Husky 205	Husky 307	Husky 515
Casing	Polypropylene		
Center	Polypropylene		
Thread Type	NPT or BSP	NPT or BSP	NPT or BSP
Connection Size	1/4 in (6.3 mm)	3/8 in (9.4 mm)	1/2 in (12.7 mm)
Max. Flow Rate	5 gpm (19 lpm)	7 gpm (26 lpm)	15 gpm (57 lpm)
Max. Discharge Pressure	7 bar		
Max. Solids	0.06" (1.5 mm)	0.063" (1.6 mm)	0.094" (2.5 mm)
Dimension	6.0 x 6.8 x 3.7 in	8.13 x 8.12 x 5.3 in	10.63 x 9.71 x 6.25 in
Weight	0.9 kg	2.2 kg	2.9 kg

Name of Mfr. : Graco

Unit Per Set

CODE	59 17 68	59 17 69
Model	Husky 1050	Husky 1590
Casing	Polypropylene	
Center	Polypropylene	
Thread Type	ANSI/DIN Flange	ANSI Flange
Connection Size	1 in (25.4 mm)	1-1/2 in (38.1 mm)
Max. Flow Rate	50 gpm (189 lpm)	100 gpm (379 lpm)
Max. Discharge Pressure	8.6 bar	8.3 bar
Max. Solids	0.125" (3.2 mm)	0.188" (4.8 mm)
Dimension	13.7 x 13.9 x 10.2 in	21.75 x 17.55 x 10.45 in
Weight	8.2 kg	16 kg

Name of Mfr. : Graco

Electric Operated Double Diaphragm Pumps

Bombas de doble diafragma de propulsión eléctrica
電動式ダブルダイアフラムポン　电动双隔膜泵



The electric operated double diaphragm pump uses a new technology that allows the pump to stall under pressure preventing failures from clogged lines or closed valves. The energy efficient electric drive reduces energy consumption up to 5x compared to traditional air operated diaphragm pumps. Seal-less diaphragm pump design eliminates leaking and failures due to run-dry pump conditions.

<Model Range>

Motor	Center Section	Fluid Section	Compressor / Cart
AC	Aluminium	Aluminium	Option
		Polypropylene	
		Stainless Steel	
	Stainless Steel	Aluminium	
		Polypropylene	
		Stainless Steel	
AC Atex	Aluminium	Aluminium	Option
		Polypropylene	
		Stainless Steel	
	Stainless Steel	Aluminium	
		Polypropylene	
		Stainless Steel	
DC Brushless	Aluminium	Aluminium	Option
		Polypropylene	
		Stainless Steel	
	Stainless Steel	Aluminium	
		Polypropylene	
		Stainless Steel	

Unit Per Set

CODE	59 17 70
Model	Husky 1050E
Casing	Aluminium
Center	Aluminium
Connection Size	1" NPT(f) or BSPT
Max. Flow Rate	48 gpm (148 lpm)
Max. Pump Speed	280 cpm
Max. Solids	1/8" (3.2 mm)
AC Motor Power	2 HP
BLDC Motor Power	2.2 HP
Dimension	73.2 x 26.1 x 34.8 cm (AC Motor)
Weight	33.6 kg – 49.7 kg (depending on configuration)

Name of Mfr. : Graco

QUANTM Electric Pumps

Bombas eléctricas QUANTM　QUANTM 電動ポンプ　QUANTM 电动泵

QUANTM features a revolutionary electric motor design that will reduce operational costs and keeps your production lines running. A perfect fit for nearly any fluid applications and a drop-in replacement for existing pumping technologies. Up to 80% less energy, requires no compressed air, enable you to make sustainable operations.



Unit Per Set

CODE	59 17 71	59 17 72	59 17 73
Model	QUANTM i30 (1")	QUANTM i80 (1.5")	QUANTM i120 (2")
Material of Construction	Hastelloy, Aluminium, Polypropylene, Conductive Polypropylene, Stainless Steel, PVDF		Aluminium, Polypropylene, Conductive Polypropylene, S.Steel, Cast Iron, PVDF
Pressure	7 bar (100 psi, 0,7 MPa)		4.2 bar (60 psi, 0.42 MPa)
Flow	115 lpm (30 gpm)	300 lpm (80 gpm)	450 lpm (120 gpm)
Voltage	120 V, 240 V single and 3 phase		

Name of Mfr.: Graco

Cross Reference of Diaphragm Pumps

Inlet / Outlet Port Size	Wilden	Yamada	Aro	Versa-Matic Pump	Warren Rupp	Graco
Air Inlet 1/8" Inlet/Outlet Port Size 1/4" x 1/4"	**P.025** **59 16 07** Aluminium Stainless Steel (BSPT/NPT) **59 16 10** Polypropylene PVDF Flow Rate: 18 LPM	NDP-5 Aluminium Stainless Steel Polypropylene, PVDF (PT/NPT) Max Flow Rate: 11 LPM Air Inlet 1/4" *Cannot be used for slurry liquid	**PD01P** Polypropylene, PVDF (NPT) Flow Rate: 20 LPM	-	-	**Husky 205** **59 17 65** Polypropylene (BSPT/NPT) Flow Rate: 19 LPM
Air Inlet 1/4" Inlet/Outlet Port Size 1/2" x 1/2"	-	G15 Aluminium Stainless Steel Polypropylene, PVDF (PT/NPT) Max Flow Rate: 56 LPM	-	-	-	**Husky 307** Acetal **59 17 66** Polypropylene (BSPT/NPT) Flow Rate: 26 LPM
Air Inlet 1/4" Inlet/Outlet Port Size 1/2" x 1/2"	**P1** **59 16 05** Aluminium Stainless Steel **59 16 11** Polypropylene PVDF (BSPT/NPT) Flow Rate: 57 LPM	-	**PD05X** Aluminium Stainless Steel Polypropylene, PVDF (BSP/NPT) Max Flow Rate 54.5 LPM	-	-	**Husky 515** **59 17 67** Polypropylene (BSPT/NPT) Flow Rate: 57 LPM
Air Inlet 1/4" Inlet/Outlet Port Size 3/4" x 3/4"	-	NDP-20 Aluminium Stainless Steel Polypropylene, (PT/NPT) Max Flow Rate: 110 LPM	-	-	-	**Husky 716** Aluminium Stainless Steel (ANSI Flange) Flow Rate: 61 LPM
Air Inlet 1/4" Inlet/Outlet Port Size 1" x 3/4"	**P2** **59 16 01** Aluminium Stainless Steel **59 16 12** Polypropylene PVDF (BSPT/NPT) Flow Rate: 145 LPM	-	6661XX(1") Aluminium Stainless Steel (BSP/NPT) Polypropylene PVDF (1"ANSI Flange #150)	-	-	**Husky 1050** Aluminium Stainless Steel Polypropylene **59 17 68** (ANSI/DIN Flange) Flow Rate: 189 LPM

(to be continued)

Inlet / Outlet Port Size	Wilden	Yamada	Aro	Versa-Matic Pump	Warren Rupp	Graco
Air Inlet 1/4" Inlet/Outlet Port Size 1" x 1"	**P220** Aluminium Stainless Steel (BSPT/NPT) Polypropylene PVDF (ANSI Flange) Flow Rate: 190 LPM	**NDP-25** Aluminium Stainless Steel Cast Iron Polypropylene, PVDF (PT/NPT) Air Inlet 3/8" Max Flow Rate: 160 LPM	**59 17 01** **PD10X** Aluminium Stainless Steel Cast Iron Hastelloy C (BSP/NPT) **59 17 02** Polypropylene PVDF (BSP/NPT/ ANSI,DIN Flange) Max. Flow Rate 197 LPM	**E1** (BSPT/NPT) **59 17 15** Aluminium **59 17 16** Stainless Steel **59 17 17** Hastelloy C Flow Rate 0-35 GPM (0-132 LPM)	**S1F AL** Aluminium (NPT) Flow Rate: 170 LPM	-
Air Inlet 1/2" Inlet/Outlet Port Size 1-1/2" x 1-1/4"	**P4** **59 16 02** Aluminium Stainless Steel Cast Iron **59 16 13** Polypropylene PVDF (BSPT/NPT) **59 16 08** **PS4** Aluminium Flow Rate: 370 LPM	**NDP-32** Aluminium Air Inlet 1/4" (PT/NPT) Max Flow Rate: 190 LPM	6661XX(1.5") Aluminium Stainless Steel (BSP/NPT) Polypropylene PVDF (1-1/2"ANSI Flange #150)	**E4** (BSPT/NPT) **59 17 18** Aluminium **59 17 19** Cast Iron **59 17 20** Hastelloy C **59 17 21** Stainless Steel Flow Rate 0-70 GPM (0-265 LPM)	-	**Husky 1590** Aluminium Polypropylene **59 17 69** (ANSI Flange) Flow Rate: 379 LPM
Air Inlet 1/2" Inlet/Outlet Port Size 1-1/2" x 1-1/2"	**PS420** Aluminium Stainless Steel Cast Iron Polypropylene PVDF (ANSI Flange) Flow Rate: 450LPM	**NDP-40** Aluminium Stainless Steel Cast Iron (PT/NPT) Polypropylene, PVDF (ANSI/JIS Flange) Max Flow Rate: 400 LPM	**59 17 03** **PD15X** Aluminium Stainless Steel Cast Iron Hastelloy C (BSP/NPT) **59 17 04** Polypropylene PVDF (1-1/2"ANSI Flange #150) Max. Flow Rate 465 LPM	-	**S15 AL** Aluminium (NPT) Flow Rate: 401 LPM	-
Air Inlet 3/4" Inlet/Outlet Port Size 2" x 2"	**P8** **59 16 03** Aluminium Stainless Steel Cast Iron **59 16 14** Polypropylene PVDF **PS8** **59 16 09** Aluminium (BSPT/NPT) Flow Rate: 650LPM	**NDP-50** Aluminium Stainless Steel Cast Iron(PT/NPT) Polypropylene, PVDF (ANSI/JIS Flange) Max Flow Rate: 630 LPM	**59 17 06** **PD20X** Aluminium Stainless Steel Cast Iron Hastelloy C (BSP/NPT) **59 17 07** Polypropylene PVDF (2" ANSI Flange #150) Max. Flow Rate 651 LPM	**E2** (BSPT/NPT) **59 17 22** Aluminium **59 17 23** Cast Iron **59 17 24** Hastelloy C **59 17 25** Stainless Steel Flow Rate 0-155 GPM (0-586 LPM)	**S20 AL** Aluminium (NPT) Flow Rate: 568 LPM	**Husky 2150** Aluminium Stainless Steel Polypropylene (ANSI Flange) Flow Rate: 568 LPM

(to be continued)

Inlet / Outlet Port Size	Wilden	Yamada	Aro	Versa-Matic Pump	Warren Rupp	Graco
Air Inlet 3/4" Inlet/Outlet Port Size 3" x 3"	**PS15** **59 16 04** Aluminium Stainless Steel Cast Iron (BSPT/NPT) Flow Rate: 850 LPM	**NDP-80** Aluminium Stainless Steel Cast Iron(PT/NPT) Polypropylene, (ANSI/JIS Flange) Max Flow Rate: 840 LPM	**PD30X** **59 17 08** Aluminium Stainless Steel Cast Iron Hastelloy C (BSP/NPT)	**E3** (BSPT/NPT) **59 17 26** Aluminium **59 17 27** Cast Iron **59 17 28** Hastelloy C **59 17 29** Stainless Steel Flow Rate 0-230 GPM (0-984 LPM)	**S30 AL** Aluminium (NPT) Flow Rate: 901 LPM	**Husky 3300** Aluminium Stainless Steel Polypropylene (ANSI Flange) Flow Rate: 1,059 LPM
Air Inlet 3/4" Inlet/Outlet Port Size 4" x 4"	**PS20** **59 16 06** Cast Iron (ANSI Flange) Flow Rate: 1,048 LPM	-	-	-	-	-

High Pressure Diaphragm Valve

Inlet/Outlet Port Size	Wilden	Yamada	Aro	Versa-Matic Pump	Warren Rupp	Graco
Air Inlet 3/4" Inlet/Outlet Port Size 2" x 2"	**H800** (250 psig) (ANSI 300#Flanges) Pressure Ratio: 3:1 **59 16 16** Stainless Steel Hastelloy **59 16 17** Ductile Iron Flow Rate: 350 LPM	-	**PH20F** (2:1) Stainless Steel (BSP/NPT/ ANSI,DIN Flange)	-	-	-
Air Inlet 3/4" Inlet/Outlet Port Size 1-1/2" x 1-1/2"	**H400S** (250 psig) (ANSI 300#Flanges) Pressure Ratio: 2:1 **59 16 18** Stainless Steel **59 16 19** Aluminium Flow Rate: 180 LPM	-	**PH15F** (2:1) Stainless Steel (BSP/NPT/ ANSI,DIN Flange)	-	-	-
Air Inlet 1/2" Inlet/Outlet Port Size 1" x 1"	**59 16 20** **H200** (250 psig) Pressure Ratio: 3:1 Ductile Iron Stainless Steel Flow Rate: 90 LPM	-	**PH10A** (3:1) Stainless Steel (BSP/NPT)	-	-	-

*Actual Flow Rate may vary depending on conditions

Electric Sump Pumps

Bombas Eléctricas Sumergibles
電気式排水ポンプ　电动排水泵



For permanent or portable application and ideal for loading anywhere there is an accumulation of water. Furnished for a 100 volt, 200 volt and 440 volt power supply.

How to order: CODE

Sump pump, electric, LIFTING CAPACITY mtr and m³/min., POWER SOURCE VOLTAGE, MODEL

Unit Per Set

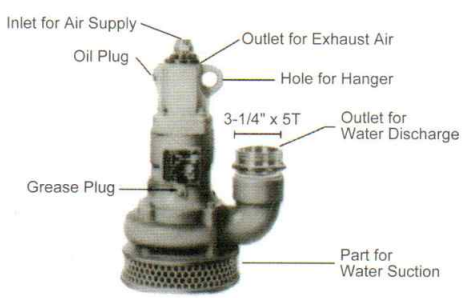
CODE	Lift Capacity		Discharge Diam mm	Weight kg
	Mtr	m³/min.		
AC 100 Volt-Single Phase				
59 16 21	6.5	0.08	40	6.7
22	* 9.3/10.0	0.08	50	6.7
23	8.0	0.13	50	17
AC 200 Volt-Triple Phase				
59 16 26	10.0	0.6	80	34
27	*15.0/16.5	0.25	50	30
28	20.0	0.5	80	63
29	26.0	0.5	80	54
AC 440 Volt-Triple Phase				
59 16 24	26.0	0.5	80	54
30	*35.0/30.0	0.3/0.5	80	89

*Mtr: A/B = 50 Hz/60 Hz

Pneumatic Sump Pumps

Bombas neumáticas sumergibles　エアー式排水ポンプ　气动式潜水泵

Suitable to empty ballast tanks, bilge wells, etc. in emergency cases. Often used for draining cargo holds during and after the washing procedure. Especially preferred where an electric spark may risk ignition or explosion. Required air pressure is 0.59 MPa (6 kgf/cm²).



How to order: CODE

Sump pump, pneumatic, TOTAL HEAD CAPACITY mtr, DISCHARGE CAPACITY m³/hr., MODEL

Unit Per Set

CODE	Capacity		Max. Air Consumptiom	Water Hose Size	Air Hose Size	Weight kg
	Total Head	Dis-charge				
59 16 35	15 mtr	22 m³/H	2.0 m³/min	63.5 mm	3/4	19
36	20	28	3.4	63.5	3/4	22
37	25	38	4.4	63.5	1	32

Sludge Master SMA3-A



Air-powered trash pump handles mud, leaves, twigs, sand, sludge, trash-laden water and soft solids to 1.5" (3.8 cm). High capacity - low head. It weighs only 59 pounds (26 kg), and can fit through an opening as small as 14" (35 cm). Sturdy construction for rough handling and long life. Optional rock screen available.

Unit Per Set

CODE		59 16 38
Model		SMA3-A
Displacement Per Stroke	Max. Flow per Minute	300 gal/1,140 ltr
	Max. Solids Handling	1.5"/38 mm
Air Inlet		1/2" NPT (12.5 mm)
Discharge Pipe Thread		3" (75 mm) NPT female
Weight		59 lbs (26 kg)

Name of Mfr.: Warren Rupp, Inc.

Two Ball Double Acting Pumps

Air Operated

Bomba Neumática de Doble Acción
エアー駆動２ボール複動ポンプ　气动双球型复动泵



For transferring of material from original containers or bulk storage to the point of use, and the two-ball pumps are primarily designed for the high volume transfer of light and medium viscosity fluids. Stainless steel construction offers compatibility with a wide range of fluids.

Unit Per Set

CODE		59 16 41
Type		Air operated two ball double acting pump
Model		AF0810XXXXXXX-XX-X
Ratio		10 : 1
Air Motor Diameter		8" (20.3 cm)
Stroke		6" (15.2 cm)
Air Inlet (Female)		3/4 – 14 N.P.T.F. – 1
Air Exhaust (Female)		1-1/4 – 11-1/2 N.P.T.F. – 1
Lower Pump Material	Inlet (Male)	2 – 11-1/2 N.P.T.F. – 1
	Output (Female)	1-1/4 – 11-1/2 N.P.T.F. – 1
Air Inlet Pressure Range		30 – 120 p.s.i. (2.1 – 8.3 bar)
Fluid Pressure Range		300 – 1,200 p.s.i. (20.7 – 82.8 bar)
Max. Rec'd Cycles / Minute		70
Displacement in 3 per Cycle		59.8
Volume / Cycle		33.1 oz (979.6 ml)
Cycles per Gallon		3.9
Flow at 70 cycles / Minute		18.1 g.p.m. (86.6 l.p.m.)
Noise Level at 60 p.s.i. - 40 c.p.m.		89.8 db
Weight		102 lbs (46.3 kg)
Name of Mfr.		Ingersoll-Rand

Portable Pumps

Battery Powered

Bomba Portátiles con Batería
バッテリー式排水ポンプ　移动式泵浦电池供电



A battery-powered pump operates using any 12-volt car or truck battery. It comes equipped with cables and battery clips. Extremely portable, the pump weights only 33 pounds (15 kg) and can fit through openings as small as 10" (25 cm). Electrically safe and whisper quiet.

Suitable for all of onsite dewatering needs such as ditches, manholes, and caissons. The pump is available with an optional handy carrying case for convenient safe storage. Furnished with remote waterproof controller integrated into the pump cable for simple safe operation. The pump is submersible by the watertight o-ring seals.

Performance

Capacity		Discharge Height	
Gallons/Minute	Liters/Minute	Feet	Meter
41.6	157.4	5	1.5
34.0	128.7	10	3.0
25.0	94.6	15	4.5
21.3	80.6	20	6.0
0.0	0.0	25	7.6

Unit Per Set

CODE	59 16 43	59 16 44
Model	Porta Pump (SPA 1-1/2-E)	
Delivering up to	43 gpm (163 lpm)	
Connections	1-1/2" NPT	1-1/2" BSPT (Tapered thread)
Motor	1/3 hp	
Power Source	12 volt battery	
Weight	33 lbs (14.9 kgs)	

Name of Mfr. : Warren Rupp, Inc.

Diesel Engine Water Pumps

Bomba de agua de motor diésel
ディーゼルエンジンウォーターポンプ　柴油机水泵



Strong and lightweight die-cast aluminium water pump with diesel engine operated. Highly effective mechanical seal made with special carbon ceramics provides extra durability. Entire unit is protected by sturdy rollover pipe frame.

Unit Per Set

CODE	59 16 48	59 16 49	59 16 50
Model	SE-50XD	SE-80XD	SE-100XD
Connecting Dia	50 mm (2")	80 mm (3")	100 mm (4")
Connecting Thread	Outer Pipe Thread BSP		
Delivery Volume	560 L/min	900 L/min	1,100 L/min
Max. Suction Head	8 m (26 ft)		
Exhaust Volume	230 cc	265 cc	
Rated Output	3.1 kW (4.2 PS) / 3,600 rpm	3.7 kW (5.0 PS) / 3,600 rpm	
Max. Output	3.5 kW (4.2 PS) / 3,600 rpm	4.4 kW (5.0 PS) / 3,600 rpm	
Continuous Operating Time	Approx. 3.5 hrs	Approx. 3 hrs	Approx. 2.5 hrs
Weight	47 kg	50 kg	64 kg
Size (L x W x H mm)	573 × 413 x 500	573 × 413 x 500	664 × 445 × 698
Accessories	1 × Strainer, 2 × Hose Couplings, 3 × Hose Bands, 1 × Engine Tool Set		

Name of Mfr.: Koshin

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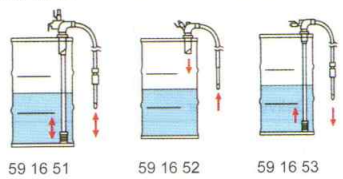
Pneumatic Drum Pumps

Bombas para Bidones Neumáticas
エア式ドラムポンプ　风动式回转泵

Capable of pumping and discharging water, oil and bottom sludge. And also any explosive material can be sucked when the pump is properly grounded. No oil mist is produced and the pumping and discharge action is very speedy (about 2 minutes for 200 ltrs of water). Available in three types.

Furnished with 3 mtrs of oil-resistant hose and 300 mm of discharge nozzle.





59 16 51　59 16 52　59 16 53

Unit Per Set

CODE		59 16 51	59 16 52	59 16 53
Type		QTO	Q	TO
Application		Suction & Discharge	Suction	Discharge
Sucking Performance	Pressure of Compressed Air	5 kgf/cm²	5 kgf/cm²	-
	Vacuum Degree	4,600 mm/ H_2O	4,600 mm/ H_2O	-
	Recovery Time for 100 ltr Clean Water	60 sec	60 sec	-
	Discharge Pressure	0.55 kgf/cm²	-	0.55 kgf/cm²
	Recovery Time for 100 ltr Clean Water	60 sec	-	60 sec
Hose		ø32 mm×3M	ø32 mm×3M	ø32 mm×3M

Name of Mfr. : Blovac Co. Ltd.

Pneumatic Piston Pumps

Bombas de Pistón Neumáticas (Trasvase)
ピストンポンプ　风动式活塞泵



Ideal for delivering fuel to oil burners as well as to take out water or oil from drums or other containers.

Furnished air valve cock and air hose nipple, however, the related drum joint and pipe for the drum can be sold separately.

Specifications

Capacity ltr / min	Piston Dia	Overall Length	Weight kg
40 - 60	50 mm	608 mm	4.6

59 16 61	Pneumatic piston pump complete w/drum joint & pipe for drum can	Set
59 16 62	Piston pump only	Pc.
59 16 63	Drum joint and pipe for drum can	Set

Pneumatic Portable Transfer Pumps

Bombas neumáticas portátiles de transferencia
エアー式ポータブル移送ポンプ　气动式便携传送泵



Suitable for rapid transfer of oil, acid, and solvent fluids (in the stainless steel version). Strongly built, it has the motor body in light ally. Available in turbine or piston version.

Turbine Type

Unit Per Set

CODE	**59 16 66**	**59 16 67**
Model	500-0	500-00
Tubset Material	Steel	Stainless Steel
Max Head	10 – 15 mtr	
Max. Delivery Water	240 ltr/min.	
Max. Delivery Oil	135 ltr/min.	
Tubset Dia x Length	40 mm or 48 mm × 1,000 mm	
Feeding Pressure	7 bar	
Air Consumption	1,200 ltr/min.	
Weight	8 kg	7 kg

Name of Mfr.: I.CO. s.r.l.

Piston Type

Unit Per Set

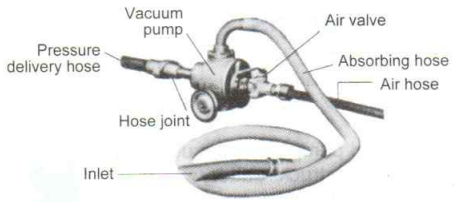
CODE	**59 16 68**	**59 16 69**
Model	17,000-0	17,000-00
Piston Material	Steel	Stainless Steel
Max Head	60 mtr	
Max. Delivery Water	35 ltr/min.	
Max. Delivery Oil	25 ltr/min.	
Tubset Dia x Length	54 mm × 1,000 mm	
Feeding Pressure	7 bar	
Air Consumption	75 ltr/min.	
Weight	8.5 kg	8 kg

Name of Mfr.: I.CO. s.r.l.

Vacuum Pumps Suction & Pressure System

Bombas de Sistema de Aspiración y Vacío
吸引圧送式バキュームポンプ　真空泵吸嘴及压力系统

Using high pressure compressed air this vacuum/boiler pump creates strong suction and diffusion power for all types of materials. Best used for vacuuming or displacing dust, grit, sand, water, oil, paint, etc. A suction hose 50 mmø x 4 mtr and a suction nozzle are furnished as standard accessories.



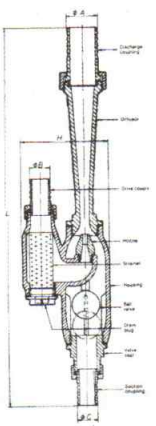
Specifications

Air Pressure		5 -7 kgf/cm²
Vacuum Pressure		4.5 Hg (Mercury) 6,100 m/mAq (Water)
Capacity of Transfering		2,100 kg/hour (Steel grit)
Dimensions		W300 × L750 x H450 mm
Weight		21 kg
Hose	Suction	50 mm ø × 4 mtr
	Dispersion	50 mm ø × 20 mtr
Usual accessories included in set		Suction hose 50 mm ø × 4 mtr - 1 pc Suction nozzle - 1pc

59 16 71	Vacuum Pump, suction and pressure system, 2,100 kg/hour	Set

Portable Ejectors

Eyectores Portátiles　ポータブルイジェクター　便携式喷射器



Portable ejectors have been found to be indispensable on bulk carriers, lube-oil tankers and chemical carriers where it is essential to empty tanks completely.

It is also extremely useful on all other types of ships for mopping up the last few barrels of liquid from tanks, holds, cofferdams or other compartments when stripping is required.
These ejectors are powered either by water or by the liquid which is being pumped. Normally made of bronze with a stainless steel nozzle. One standard nozzle and an extra nozzle for lower driving pressure are attached as standard accessories.

Unit Per Set

CODE	Type	Hose Connections			Dimension		Wgt.
		A	B	C	L	H	Kg
59 16 76	1 x 1 x 1-1/2	1"	1"	1-1/2"	47 cm	10 cm	3.5
59 16 77	1-1/4 x 1-1/4 x 2	1-1/4"	1-1/4"	2"	55 cm	12 cm	6.5
59 16 78	1 -1/2 x 1-1/2 x 2-1/2	1-1/2"	1-1/2"	2-1/2"	70 cm	14 cm	8.5

Name of Mfr. : Teamtec A/S

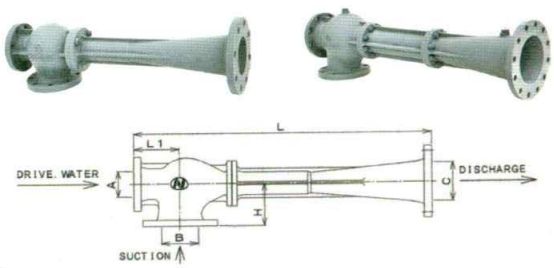
Equipped with standard nozzle :

Type	Suction Capacity	Required driving pressure against various discharge heads					Nozzle Size
		5 m	10 m	15 m	20 m	25 m	
1 x 1 x 1-1/2	3 tons	5.0 kp/cm²	6.5 kp/cm²	8.0 kp/cm²	9.5 kp/cm²	11.0 kp/cm²	6.4 mm
1-1/4 x 1-1/4 x 2	6 tons	5.0 "	6.5 "	8.0 "	9.5 "	11.0 "	8.5 mm
1 -1/2 x 1-1/2 x 2-1/2	9 tons	5.0 "	6.5 "	8.0 "	9.5 "	11.0 "	11.1 mm

Water Jet Eductors

Eductor de chorro de agua
ウォータージェットエダクター　喷水式电感器

Using pressured-water as driving force, jetting it from nozzle at a high-speed, eductor sucks in bilge or ballast-water existing at lower level than body by the vacuum force generated inside and discharges them outside. It belongs to a type of water jet pump. Flange size is JIS 10K.



Unit Per Pc.

CODE	MODEL	A×B×C (mm)	SQ (m^3/h)	DQ (m^3/h)	L	L1	H
59 16 79	FC-ER-065	50 × 65 × 80	20	25- 45	560	100	110
80	FC-ER-080	65 × 80×100	30	35- 65	660	115	130
87	FC-ER-100	80×100×125	40	40- 80	860	135	135
88	FC-ER-125	100×125×150	55	65-105	1000	155	165
89	FC-ER-150	125×150×200	100	110-200	1300	160	200
56 16 90	FC-ER-200S	150×200×250	120	140-250	1700	200	250
97	FC-ER-200	150×200×250	160	170-320	1960	225	275
98	FC-ER-250	200×250×300	240	260-480	2200	290	300

Name of Mfr.: Niikura Kogyo Co., Ltd.

Air Operated Wash Pumps

Bomba Neumática de Limpieza
エアー式洗浄用ポンプ　气动式清洗泵



Designed for heavy duty cleaning with detergents, caustics, and dilute acid type cleaners. May be directly mounted in the two inch bung of a standard 55 gallon drum or, when using the mounting bracket, the pump can be mounted on the wall or in a 55 gallon open head drum. All metal parts in the pumping section are manufactured from 316 stainless steel.

Component

4-1/4" High pressure wall-mounted spray package

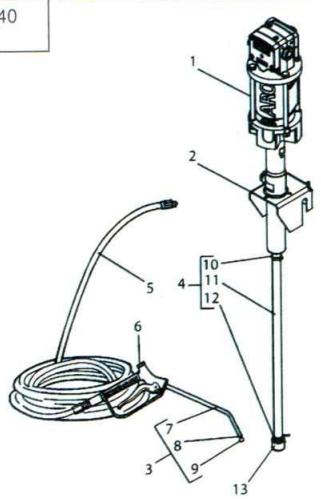
Item	Description	Part No.
1	Basic pump assembly	AF0409C8XXXXX
2	Pump bracket assembly (2" bung)	61113
3	Bent pipe assembly (includes 7, 8 & 9)	61133
4	Suction tube assembly (includes 10, 11, 12 &13)	61139-1
5	Hose assembly (3/8 i.d. 2 fabric)	622427-40
6	Control handle assembly	641523
7	Bent pipe	76821
8	Nozzle cover	76330
9	Spray tip	TP6250-18
10	Hose clamp	76315
11	Tube	92249-26
12	Hose clamp	76315
13	Screen assembly	61138

Unit Per Set

CODE	**59 08 81**
Type	Air operated wash pump (Model : WP0409C8XXXXXXXX)
Ratio	10 : 1
Air Motor Diameter	4-1/4" (10.795 cm)
Stroke (Double Acting)	4" (10.16 cm)
Air Inlet	1/2 – 14 NPTF – 1 (f)
Air Exhaust	1-1/4 – 11-1/2 NPTF – 1 (f)
Material Outlet	3/8 – 18 NPTF – 1 (f)
Material Inlet	Barbed
Pump Construction	Series 316 stainless steel
Air Inlet Pressure Range	0 – 150 p.s.i. (0 – 10.3 bar)
Fluid Pressure Range	0 – 1,500 p.s.i. (0 – 103 bar)
Displacement in^3 per Cycle	11.0 (0.18 ltr)
Cycle per Gallon	21 (5.5 ltr)
Maximum Delivery / Min.	3.9 gallons (14.8 ltr)
Name of Mfr.	Ingersoll-Rand

#WP0409C8XXXXXXXX is assembled with the following components; (4-1/4" High pressure wall-mounted spray package).

#AF0409C8XXXXX : Pump	#641523 : Control handle
#61113 : Wall bracket	#61133 : Spray wand
#61139-1 : 55 gallon suction tube assembly	#TP6250-18 : Spray tip
#622427-40 : Material hose (40 feet)	



Internal Gear Pumps

Bomba de Engranaje Interior　インターナルギアポンプ　内转齿轮泵



Internal gear pumps will handle high viscosity, hot or abrasive fluids, or a combination of all these. Built to extend seal life, improve reliability and prevent leaks by utilizing an internal seal chamber vent and oversized shaft diameters that minimize shaft detection. Back pull-out design provides ease of maintenance. Viscosities to 1,000,000 ssu (220,000 cst).

When order please specify the required seal type selecting from the following applications, in addition to suitable pump capacity.

Application of Seals ;

Tuffseal cartridge lip seals	: for viscous liquids
Hard face seals	: for abrasive or tacky fluids
High pressure cartridge seals	: for handling high system pressure
Double cartridge seals	: for containing potentially hazardous liquids
High temperature seals	: for handling liquids such as hot oil

Cast Iron Construction

How to order: CODE

Pump, Internal gear, cast iron, MODEL, with TYPE OF SEALS

Unit Per Set

CODE		59 17 31	59 17 32	59 17 33	59 17 34	59 17 35
Model		GG015	GG030	GG050	GG070	GG080
Max. Capacity	USGPM	15	30	50	70	80
	LPM	57	114	189	265	303
Max. Pressure		13.8 bar (200 PSI)				
Max. RPM		1,800		1,500		
Weight kg		22.7		49.9		

Name of Mfr. : Tuthill

Unit Per Set

CODE		59 17 36	59 17 37	59 17 38	59 17 39
Model		GG090	GG120	GG130	GG200
Max. Capacity	USGPM	90	120	130	200
	LPM	341	454	492	757
Max. Pressure		13.8 bar (200 PSI)			
Max. RPM		1,500	1,200	1,000	
Weight kg		49.9	78.1		116

Name of Mfr. : Tuthill

Unit Per Set

CODE		59 17 40	59 17 41	59 17 42	59 17 43
Model		GG210	GG250	GG500	GG550
Max. Capacity	USGPM	210	250	500	550
	LPM	795	946	1,968	2,081
Max. Pressure		13.8 bar (200 PSI)		10.3 bar (150 PSI)	
Max. RPM		800	640	520	500
Weight kg		116	125	318.2	

Name of Mfr. : Tuthill

Stainless Steel Construction

How to order: CODE

Pump, Internal gear, stainless steel, MODEL, with TYPE OF SEALS

Unit Per Set

CODE		59 17 45	59 17 46	59 17 47	59 17 48
Model		GG015	GG030	GG050	GG070
Max. Capacity	USGPM	10	20	33	46
	LPM	38	75	125	174
Max. Pressure		10.3 bar (150 PSI)			
Max. RPM		1,200		1,000	
Weight kg		22.7		49.9	

Name of Mfr. : Tuthill

Unit Per Set

CODE		59 17 49	59 17 50	59 17 51	59 17 52
Model		GG080	GG090	GG120	GG130
Max. Capacity	USGPM	53	60	80	86
	LPM	200	227	303	325
Max. Pressure		10.3 bar (150 PSI)			
Max. RPM		1,000		800	640
Weight kg		49.9		78.1	

Name of Mfr. : Tuthill

Unit Per Set

CODE		59 17 53	59 17 54	59 17 55
Model		GG200	GG210	GG250
Max. Capacity	USGPM	133	140	160
	LPM	503	530	632
Max. Pressure		10.3 bar (150 PSI)		6.9 bar (100 PSI)
Max. RPM		640	520	
Weight kg		116		125

Name of Mfr. : Tuthill

Axial Piston Pumps

Bombas de pistones axiales

アキシャルピストンポンプ　軸向柱塞泵



The simple construction of the axial piston pump with fewer parts allows highly reliable operation with long service intervals and easy maintenance. The axial piston pumps are positive displacement pumps with axial pistons that move a fixed amount of water in each cycle. Flow is proportional to the number of input shaft revolutions (rpm). Unlike centrifugal pumps, they produce the same flow at a given speed no matter what the discharge pressure.

Oil lubricants are replaced with the pumped medium, water, so there is no contamination risk from the pump.

Efficient design and all-stainless steel construction ensure exceptionally long life. Service is easy, and can be carried out on-site due to the simple design and few parts. Service intervals of 8,000 hours can be expected.

All parts are made of high corrosion resistant materials e.g. Duplex (EN1.4462/UNS S31803/SAF 2205) and Super Duplex (EN1.4410/UNS S32750/SAF 2207) stainless steel and carbon reinforced PEEK (Poly Ether Ether Keton).

Unit Per Pc.

CODE		59 17 56	59 17 57	59 17 58
Model		APP0.6	APP0.8	APP1.0
Geometric Displacement	cm^3/rev	4.07	5.08	6.30
Max. Outlet Pressure Continuous	barg	83		
	psig	1,200		
Min. Outlet Pressure	barg	20		
	psig	290		
Inlet Pressure Continuous	barg	0.5 - 5		
	psig	7.3 – 72.5		
Max. Inlet Pressure Peak	barg	10		
	psig	145		
Min. Speed Continuous	rpm	700		
Max. Speed Continuous	rpm	3,450		

(to be continued)

Unit Per Pc.

CODE		59 17 56	59 17 57	59 17 58
Typical Flow				
1,000 rpm at Max. Pressure	m³/h	0.22	0.29	0.36
1,500 rpm at Max. Pressure	m³/h	0.34	0.43	0.54
1,200 rpm at Max. Pressure	gpm	1.18	1.52	1.90
1,800 rpm at Max. Pressure	gpm	1.78	2.28	2.84
Weight (Dry)	kg	5.2		
Typical Motor Size				
Max. Speed at Max. Pressure	kW	2.2	3.0	4.0
3,000 rpm at Max. Pressure	HP	3	5	5
Torque at Max. Outlet Pressure	Nm	5.8	7.2	8.9

Name of Mfr. : Danfoss Engineering

Unit Per Pc.

CODE		59 17 59	59 17 60	59 17 62	59 17 63
Model		APP 1.5	APP 1.8	APP 2.2	APP 2.5
Geometric Displacement	cm³/rev	9.31	10.04	12.52	15.35
Max. Outlet Pressure Continuous	barg	83			
	psig	1,200			
Min. Outlet Pressure	barg	20			
	psig	290			
Inlet Pressure Continuous	barg	0.5 – 5			
	psig	7.3 – 72.5			
Max. Inlet Pressure Peak	barg	10			
	psig	145			
Min. Speed Continuous	rpm	700			
Max. Speed Continuous	rpm	3,450			3,000
Typical Flow					
1,000 rpm at Max. Pressure	m³/h	0.53	0.57	0.73	0.90
1,500 rpm at Max. Pressure	m³/h	0.79	0.86	1.09	1.34
1,200 rpm at Max. Pressure	gpm	2.80	3.03	3.83	4.73
1,800 rpm at Max. Pressure	gpm	4.19	4.55	5.75	7.09
Weight (Dry)	kg	8.6			
Typical Motor Size					
Max. Speed at Max. Pressure	kW	5.5		7.5	
3,000 rpm at Max. Pressure	HP	7.5		10.0	15.0
Torque at Max. Outlet Pressure	Nm	13.0	13.9	17.4	21.3

Name of Mfr. : Danfoss Engineering

End Suction Bare Shaft Pumps

Bomba de Extremo de Eje Libre de Succión en el Extremo

ベアシャフトポンプ　端吸式裸轴泵

Volute casing centrifugal end suction pump with Back Pull-Out (BPO) feature, main dimensions and performance according to EN 733/ DIN24255 standards.

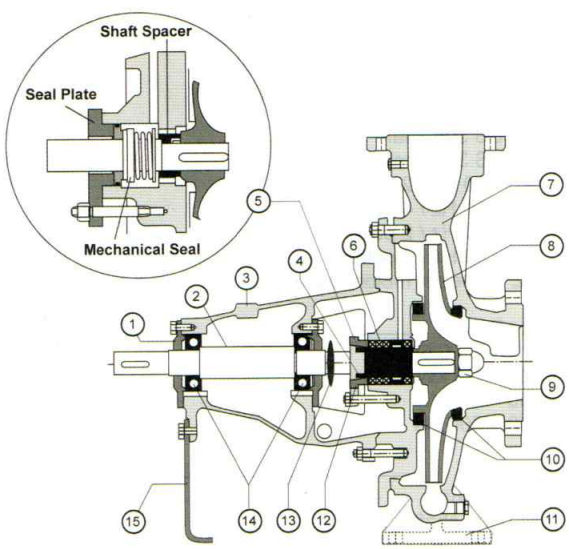


Type	End Suction centrifugal, Black Pull-Out (BPO)
Design	EN733/DIN24255
Flange	DIN2332 PN 10RF
Direction of Rotation	Clockwise as viewed from the drive side
Material :	
Casing	Cast iron, Ductile iron, Bronze and Stainless steel
Impeller	Cast iron, Ductile iron, Bronze and Stainless steel
Shaft	SS420, optional AISI304 & AISI316
Shaft Seal	Mechanical seal and Gland packing
Operating Range :	
Flow Rate (Q)	Up to 1,100 m³/h
Head (H)	up to 150 m
Speed	1,450 – 2,900 rpm (50 Hz) 1,750 – 3,600 rpm (60 Hz)
Operating Temp.	-10 °C to 105 °C standard, optional 140 °C
Operating Pressure	10 bar standard; optional 16 bar

Range of Application:

EUROFLO pumps can be used for the following services in the Commercial, Residential, Agricultural, Industrial, Process, Petroleum and Food & Beverage industries.

Water treatment & supply, Sea water transfer, Fire fighting & protection, Bilging & ballasting, Pressure boosting, Air conditioning, Cooling towers, Refrigeration, Plumbing, Circulating, Transfer, Irrigation, Drainage



Parts;

No.	Name	No.	Name
1	Bearing cover (Shaft end)	8	Impeller
		9	Impeller nut
2	Shaft	10	Casing wear rings
3	Bearing housing	11	Front foot support
4	Shaft protection sleeve (with Gland packing only)	12	Seal plate
		13	Slinger
5	Mechanical seal	14	Ball bearings (Deep groove)
6	Gland packing (option)		
7	Volute casing	15	Rear foot support

How to order: 59 - 17 - 61

Pump, end suction bare shaft,with further information as ordering guide

Ordering Guide;

EU 32 / 13 MBC DB
EUM 100 / 26 MBC A2 – 0110

XXX XX / XX X XX XX – XXXX - X

Series
EU = Bareshaft pumps
EUM = Monoblock pumps

Discharge Size

Impeller Nominal Size

Seal Type
M = Carbon – Ceramic / NBR
*P = Gland packing
M1 = Carbon – SiC/Viton (Optional)
M2 = Carbon – SiC/EPDM

Impeller / Body Casing Material
BC = Bronze impeller and Cast iron body
BD = Bronze impeller and Ductile iron body
BB = Bronze impeller and body
CC = Cast iron impeller and body
CD = Cast iron impeller and Ductile iron body
KK = SS316 impeller and body
KC = SS316 impeller and Cast iron body
SS = SS 304 impeller and body
SC = SS 304 impeller and Cast iron body

Special Code
¹DB = Double bearing – 6307 / 5307
¹HH = Bigger shaft and bearing frame
¹OL = Oil lubricator
S4 = SS 304 shaft
K6 = SS 316 shaft
**A2 = 50 Hz / 2 poles
**A4 = 50 Hz / 4 poles
**B2 = 60 Hz / 2 poles
**B4 = 60 Hz / 4 poles
**ZZ = Special motor / voltage

Motor Rating
Eg.0005 = 0.55 kW
0055 = 5.5 kW
0500 = 50 kW
5000 = 500 kW

Motor Type
Eg.Stub shaft
Extended shaft
Barepump (B)

Note:
* Only for EU series of pump
** Applicable to EUM pumps only
¹ All shaft are in 2Cr13

Sea Water Desalination Machines

Desalinizadoras de agua de mar 造水機 海水淡化机



Simple, direct feed to your current water maker. This machine works with your RO system to convert sea water to double purified water. It's reliable piping connection allows direct feed that activates an automatic operation and produces spot-free water when water is directly fed into the system. Ultra-pure water is 99% free of water solids. Perfect for rinsing hulls, windows, and extends the life of your boating equipment. It gently lifts debris and dries spot-free.

Unit Per Set

CODE	59 17 76
Production per hour	11 Gal/41 ltr
Production per day	264 Gal/1,000 ltr
Number of membranes	1
Voltage	AC 110 – 240V
Frequency	60 Hz
Full Load Amps	5.2 A
Dimensions (mm)	390 × 180 × 280
Weight	83.5 lbs/37.9 kg

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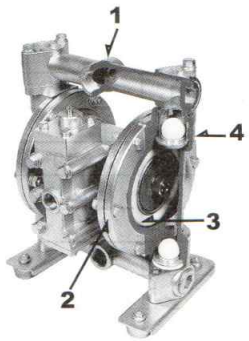
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Double Diaphragm Pumps Series

Basic Model Variations



- Eight sizes of pumps
- Six types of wetted parts as a main body
- Seven types of materials for a diaphragm

Total of 150 or more basic models are provided as a result of combination of the size, wetted part type and diaphragm material type. In addition, the DP-F series for semiconductor manufacturing process and the non-metal pump series all composed of basic components made of resin are added to the conventional models to allow you to transfer various types of solutions and/or handle the various use conditions.

Material of a diaphragm ball valve sheet	Material of the main body (wetted part)						
	A: Aluminium alloy (ADC12)	F: Cast iron (FC250/S45C)	S: Stainless (SCS14/SUS316)	P: Polypropylene (PPG) * See Note.	T: Fluorocarbon resin (PTFE)	V: Polyvinylidene-fluoride (PVDF)	D: Polyacetal (POM)
C: Chloroprene rubber (CR)	Glost Bilge wastewater	Argil agent Ferrite slurry Activated sludge Sewage water	Ammonia water Calcium hydroxide	Ferrous chloride Glost			Methanol Sodium sulfate Ammonium sulfate
N: Nitrile-butadiene rubber (NBR)	Lubricant Kerosene Wax Cutting oil		L.P.G. Ethyl chloride Sodium peroxide	Whisky Sodium silicate Methanol			Ethanol Methanol Ammonium nitrate
H: Thermoplastic elastomer polyester (TPEE)	Lubricant, heavy oil Break oil Naphtha , kerosene Mold lubricant						Ethanol Ammonium chloride Calcium chloride
E: Ethylene propylene (EPDM)	Acetone aqueous solution		Coal slurry CMP	Sulfuric acid (less than 20 %)			Acetaldehyde Butyl nitrile Chromium acid
S: Thermoplastic elastomer polyolefin (TPO)	Acetone bilge wastewater						Acetone Ammonia water Butyl acetate
V: Fluorine contained rubber (FKM)	Ethanol Xylene Jet fuel		Methylene chloride Lactic acid Trichloroethylene	Ethanol Tetrachlorethylene			Copper sulfate (II) Sodium sulfate Barium sulfate
T: Fluorocarbon resin (PTFE)	Latex Paint Ink		Sulfuric acid (98 %) Nitric acid (less than 25%) MEK Acetone	Plating solution Developer Benzene Hydrogen peroxide	Fluorine, nitric acid, hydrochloric acid, sulfuric acid, chromium acid, aqua regalis, CMP	Sodium hypochrolite	Ammonium sulfate Barium sulfate Dimethyl ether

yamada Classification of the model names

- To allow you to select our pump easily, model names of our diaphragm pumps are classified as shown below according to the combination of its "diameter," "material of the main body" and "material of the diaphragm."
- When you are to use a pump at 70 ℃ or higher, the material of the switching mechanism and other parts has to be changed. Contact us for details.

NDP- □ **B** □ □

4 Valve type
- B: Ball valve
- F: Flat valve (NDP-5, NDP-15)

1 Pump size (Bore diameter)
- 5: 5 Series (Bore diameter: 1/4B)
- 10: 10 Series (Bore diameter: 3/8B)
- 15: 15 Series (Bore diameter: 1/2B)
- 20: 20 Series (Bore diameter: 3/4B)
- 25: 25 Series (Bore diameter: 1B)
- 40: 40 Series (Bore diameter: 1-1/2B)
- 50: 50 Series (Bore diameter: 2B)
- 80: 80 Series (Bore diameter: 3B)

2 Main body wetted part
- P: Polypropylene (PPG) (* See ***Note 1***.)
- A: Aluminium alloy (ADC-12/AC4C-T6)
- F: Cast iron (FC250/S45C)
- S: Stainless (SUS14/316)
- T: Fluorocarbon resin (PTFE)
- V: Polyvinylidene-fluoride (PVDF)
- D: Polyacetal (POM)

3 Material of a diaphragm and other parts
- C: Chloroprene rubber (CR)
- N: Nitrile-butadiene rubber (NBR)
- H: Thermoplastic elastomer polyester (TPEE)
- E: Ethylene propylene rubber (EPDM)
- S: Thermoplastic elastomer polyolefin (TPO)
- V: Fluorine-contained rubber (FKM)
- T: Fluorocarbon resin (PTFE)

Note 1: *Glass-reinforced polypropylene*

Temperature range table for various materials

Material of the main body	Solution temperature range
Aluminium Cast iron Stainless	0 to 100℃
Polypropylene	0 to 60℃

Material of a diaphragm	Solution temperature range
NBR CR	0 to 70℃
TPEE EPDM	0 to 80℃
FKM TPO PTFE	0 to 100℃

Conversion Table

[Length]	m	km	in	ft	yd	mile
m	1	1×10^{-3}	39.37	3.28	1.093	6.214×10^{-4}
km	1×10^{3}	1	3.937×10^{4}	3,280	1,093	0.621
in	0.0254	2.54×10^{-5}	1	1/12	1/36	1.58×10^{-5}
ft	0.305	3.048×10^{-4}	12	1	1/3	1.894×10^{-4}
yd	0.914	9.144×10^{-4}	36	3	1	5.682×10^{-4}
mile	1,609	1.609	63,360	5,280	1,760	1

[Mass (Weight)]	g	kg	t	lb	oz
g	1	1×10^{-3}	1×10^{-6}	2.204×10^{-3}	0.0352
kg	1×10^{3}	1	1×10^{-3}	2.204	35.27
t	1×10^{6}	1×10^{3}	1	2,204	35,270
lb	453.6	0.4536	4.536×10^{-4}	1	16
oz	28.35	0.02835	2.835×10^{-5}	1/16	1

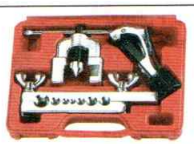
[Volume]	cm^3 (cc or ml)	m^3	l	in^3	qt	pt	fl-oz	ft^3	gal
cm^3 (cc or ml)	1	0.000001	0.001	0.061	0.00088	0.0018	0.035	-	0.00022
m^3	1,000,000	1	1,000	61,024	880	1,760	35,195	35.314	220
l	1,000	0.001	1	61.024	0.880	1.760	35.195	0.035	0.220
in^3	16.387	0.000016	0.016	1	0.014	0.029	0.577	0.00058	0.0036
qt	1,136.52	0.0011	1.137	69.355	1	2	40	0.033	0.25
pt	568	0.00057	0.568	34.677	0.5	1	20	0.017	0.125
fl-oz	28.413	0.000028	0.028	1.734	0.025	0.05	1	0.0008	0.00625
Ft^3	28,316	0.0283	28.316	1,728	29.922	59.844	958	1	7,481
gal	4,546	0.0045	4.546	277	4	8	160	0.134	1

[Pressure]	bar	kgf/cm^2	lbf/cm^2	mmHg (0°C)	Pa (SI)
bar	1	1.020	14.50	750.1	100,000
kgf/cm^2	0.9807	1	14.22	753.6	98,066
lbf/cm^2	0.0689	0.0703	1	51.72	6,895
mmHg (0)	0.00133	0.0013	0.0193	1	133.3
Pa (SI)	1×10^{-5}	1.02×10^{-5}	1.45×10^{-4}	10.2×10^{-4}	1

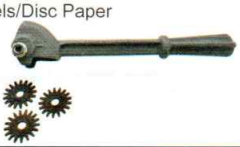
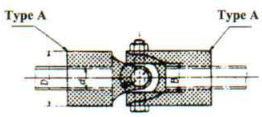
[Stress]	Pa (SI)	MPa	kgf/mm^2	kgf/cm^2
Pa (SI)	1	1×10^{-6}	1.01972×10^{-7}	1.01972×10^{-5}
MPa	1×10^{6}	1	1.01972×10^{-1}	1.01972×10
kgf/mm^2	9.80665×10^{6}	9.80665	1	1×10^{2}
kgf/cm^2	9.80665×10^{4}	9.80665×10^{-2}	1×10^{-2}	1

[Force]	kW	kgf · m/sec	HP
kW	1	102.0	1.341
kgf · m/sec	0.009807	1	0.01315
HP	0.7457	76.04	1

61
Hand Tools

Socket Wrenches  P. 61-1 ~ 9	Wrenches/Spanners  P. 61-9 ~ 19	Torque Tools/Torque Wrenches  P. 61-19 ~ 20
Pliers  P. 61-20 ~ 26	Scissors and Knives  P. 61-26 ~ 27	Cutters/Shears  P. 61-27 ~ 30
Packing Hooks & Pipe Cutters  P. 61-30	Tube Expanders  P. 61-31	Screwdrivers  P. 61-31 ~ 35
Hammers  P. 61-35 ~ 37	Glass Cutters  P. 61-37 ~ 38	Bars/Nail Pullers  P. 61-38
Chisels  P. 61-38 ~ 39	Punches/ Stencils  P. 61-39 ~ 41	Anvils/ Blacksmith's Tongs  P. 61-41
Scrapers/Scribers  P. 61-41 ~ 42	Magnets  P. 61-42	Saws/Hacksaws  P. 61-42 ~ 44
Pin Vises/Hand Drills  P. 61-44	Auger Bits/Gimlets P. 61-44 ~ 45	Planes/ Wood Gauges  P. 61-45
Trowels/Putty Knives  P. 61-45	Shovels  P. 61-45	Tool Belts  P. 61-45 ~ 46
Pipe Benders  P. 61-46	Screw Clamps/ Vises  P. 61-46 ~ 48	Tool Boxes/ Part Cabinets  P. 61-48 ~ 50

61
Hand Tools

Drum Opening Spanners/Drum Cocks  P. 61-50	Drum Pumps  P. 61-50~ 51	Drum Hooks/ Lifting Clamps  P. 61-51
Hose Bands/ Pipe Clamps  P. 61-51 ~ 57	Carborundom Paste  P. 61-57	Files  P. 61-57 ~ 59
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Oilers/Oil Containers  P. 61-100 ~ 101		

1. Socket Wrenches

Llaves de Vaso　ソケットレンチ　套筒扳手套装

These strong socket wrench sets are forged from chrome-vanadium steel, a special alloy chrome plated steel. These sets are very useful for engineers, mechanics and electricians.

Socket Wrench Set Summary

CODE	Drive mm	No. of Socket	Size	No. of Tools	TONE
61 01 01	6.35 (1/4")	12	5-12 mm & 3/16"- 3/8"	18's	146
	12.7 (1/2")	26	8-32 mm		
	19.0 (3/4")	9	26-41 mm		
61 01 07	6.35 (1/4")	8	5-13 mm	4's	1850M
61 01 08		12	5-12 mm & 3/16"– 3/8"	8's	1800
61 01 09		8	3/16"- 7/16"	4's	1850
10		12	4-14 mm	7's	1800M
61 01 14	9.5 (3/8")	13	6-22 mm	4's	1560MS
15		13	5.5-24 mm	4's	1570M
16		13	6-22 mm	4's	1560M
17		13	6-22 mm	8's	1500M
18		17	6-22 mm	8's	1550M
61 01 19		13	1/4"–7/8"	8's	1500
61 01 20	12.7 (1/2")	26	8-32 mm	8's	170M
21		10	8-24 mm	3's	800MISO
22		13	8-27 mm	4's	-
23		13	8-27 mm	5's	750M
41		13	8-27 mm	5's	750MS
24		13	8-32 mm	4's	770M
25		15	8-32 mm	5's	260MISO
26		18	8-32 mm	8's	160M
27		15	9-32 mm	5's	260M
28		15	9-32 mm	8's	-
29		8	10-24 mm	2's	-
30		8	10-26 mm	2's	-
31		10	10-26 mm	3's	800M
32		13	10-26 mm	4's	-
33		13	10-30 mm	4's	713M
42		13	10-32 mm	4's	760M
43		13	10-32 mm	4's	760MS
61 01 34		10	3/8"-15/16"	3's	800
35		13	3/8"-1"	4's	-
36		13	3/8"-1"	5's	750
37		15	7/16"-1-1/4"	5's	260
61 01 39		26	8-32 mm & 3/8"-1"	8's	-
61 01 40		24	10-27 mm & 7/16"-1"	8's	550
61 01 51	19.0 (3/4")	20	19-60 mm	6's	230M
52		10	24-41 mm	2's	210M
53		8	24-50 mm	4's	200MISO
54		8	26-50 mm	4's	200M
56		8	26-50 mm	4's	200MS
61 01 55		13	1-1/16"-2"	4's	200
61 01 61	25.4 (1")	8	32-65 mm	5's	240M
62		12	32-85 mm	5's	250MISO
63		12	35-85 mm	5's	250M

Socket Wrench Sets

Llaves de Vaso　ソケットレンチセット　套筒扳手套装

Square Drive :

6.35 mm (1/4"),
12.7 mm (1/2"),
19.0 mm (3/4")



61 01 01	Socket wrench set, 6.35 mm, 12.7 mm, 19.0 mm sq. drive 47 sockets (5-41 mm) w/18 tools	Set

Contents

6.35 mm (1/4") Square Drive

12 Sockets (6 Point)	5, 5.5 (7/32"), 6, 7, 8 (5/16"), 9, 10, 11 (7/16"), 12, 3/16", 1/4", 3/8"

1 Ratchet Handle (reversible)	115 mm (4-1/2")
1 Nut Spinner Handle (hinged)	150 mm (6")
1 Sliding T Handle	105 mm (4")
1 Driver Handle	140 mm (5-1/2")
1 Extension Bar	50 mm (2")
1 Extension Bar	150 mm (6")
1 Universal Joint	35 mm (1-3/8")
1 Cross Bar	100 mm (4")

12.7 mm (1/2") Square Drive

26 Sockets (12 Point)	8 (5/16"), 9, 10, 11 (7/16"), 12, 13, 14, 14.5 (9/16"), 15 (19/32"), 16 (5/8"), 17 (21/32"), 17.5 (11/16"), 18, 19 (3/4"), 20 (25/32"), 21, 22, 23, 24 (15/16"), 25 (1"), 26,27 (1-1/16"), 28, 29, 30 (1-3/16"), 32 (1-1/4")

1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Nut Spinner Handle (hinged)	380 mm (15")
1 Sliding T Handle	250 mm (10")
1 Extension Bar	75 mm (3")
1 Extension Bar	150 mm (6")
1 Extension Bar	250 mm (10")
1 Universal Joint	75 mm (3")
1 Cross Bar	250 mm (10")

19.0 mm (3/4") Square Drive

9 Sockets (12 Point)	26, 27, 29, 30, 32, 35, 36, 38, 41 mm

1 Ratchet Handle (reversible)	500 mm (20")
1 Extension Bar	200 mm (8")

Socket Wrench Sets

Llaves de Vaso　ソケットレンチセット　套筒扳手套装

6.35 mm 1/4"

Square Drive 6.35 mm (1/4")

How to order: CODE

Socket wrench set, 6.35 mm sq. drive, SOCKET SIZE, NUMBER of SOCKETS, NUMBER of TOOLS

Unit Per Set

CODE	Socket Size		Quantity of Sockets	Quantity of Tools
	mm	Inch		
61 01 07	5-13	-	8	4
08	5-12	3/16-3/8	12	8
09	-	3/16-7/16	8	4
10	4-14	-	12	7

Contents

61 01 07

8 Sockets (6 Point)	5, 5.5, 6, 7, 8, 10, 12, 13 mm

1 Nut Spinner Handle (hinged)	150 mm (6")
1 Ratchet Handle (reversible)	115 mm (4-1/2")
1 Driver Handle	140 mm (5-1/2")
1 Cross Bar	100 mm (4")

61 01 08

12 Sockets (6 Point)	5, 5.5(7/32"), 6, 7, 8(5/16"), 9, 10, 11(7/16"), 12, 3/16", 1/4", 3/8"
1 Ratchet Handle (reversible)	115 mm (4-1/2")
1 Nut Spinner Handle (hinged)	150 mm (6")
1 Sliding T Handle	105 mm (4")
1 Driver Handle	140 mm (5-1/2")
1 Extension Bar	50 mm (2")
1 Extension Bar	150 mm (6")
1 Universal Joint	35 mm (1-3/8")
1 Cross Bar	100 mm (4")

61 01 09

8 Sockets (6 Point)	3/16", 7/32", 1/4", 9/32" 5/16", 11/32", 3/8", 7/16"
1 Ratchet Handle	115 mm (4-1/2")
1 Nut Spinner Handle (hinged)	150 mm (6")
1 Driver Handle	150 mm (6")
1 Cross Bar	100 mm (4")

61 01 10

12 Sockets (6 Point)	4, 5, 5.5, 6, 7, 8 9, 10, 11, 12, 13, 14 mm
1 Ratchet Handle	115 mm (4-1/2")
1 Nut Spinner Handle (hinged)	150 mm (6")
1 Sliding T Handle	105 mm (4")
1 Driver Handle	150 mm (6")
1 Extension Bar	50 mm (2")
1 Extension Bar	150 mm (6")
1 Universal Joint	40 mm (1-9/16")

Socket Wrench Sets

Llaves de Vaso ソケットレンチセット 套筒扳手套装

9.5 mm 3/8"

Square Drive 9.5 mm (3/8")

How to order: CODE

Socket wrench set, 9.5 mm sq. drive, SOCKET SIZE, NUMBER of SOCKETS , NUMBER of TOOLS

Unit Per Set

CODE	Socket Size mm	Socket Size Inch	Quantity of Sockets	Quantity of Tools
61 01 14	6-22	-	13	4
15	5.5-24	-	13	4
16	6-22	-	13	4
17	6-22	-	13	8
18	6-22	-	17	8
19	-	1/4-7/8	13	8

Contents

61 01 14

13 Sockets (6 Point)	6, 7, 8, 9, 10, 11, 12, 13, 14, 17, 19, 21, 22 mm
1 Ratchet Handle (hold Type)	185 mm (7-1/4")
1 Extension Bar	75 mm (3")
1 Extension Bar	150 mm (6")
1 Ball Joint	44 mm (1-3/4")

61 01 15

13 Sockets (6 Point) (12 Point)	5.5, 6, 7, 8 mm 10, 12, 13, 14, 17, 19, 21, 22, 24 mm
1 Ratchet Handle (hold Type)	185 mm (7-1/4")
1 Extension Bar	75 mm (3")
1 Extension Bar	150 mm (6")
1 Ball Joint	44 mm (1-3/4")

61 01 16

13 Sockets (6 Point) (12 Point)	6, 7, 8, 9 mm 10, 11, 12, 13, 14, 17, 19, 21, 22 mm
1 Ratchet Handle (reversible)	190 mm (7-1/2")
1 Extension Bar	75 mm (3")
1 Extension Bar	150 mm (6")
1 Universal Joint	54 mm (2")

61 01 17

13 Sockets (6 Point) (12 Point)	6, 7, 8, 9 mm 10, 11, 12, 13, 14, 17, 19, 21, 22 mm
1 Nut Spinner Handle (hinged)	190 mm (7-1/2")
1 Ratchet Handle (reversible)	190 mm (7-1/2")
1 Sliding T Handle	200 mm (8")
1 Speeder (Brace)	400 mm (16")
1 Extension Bar	75 mm (3")
1 Extension Bar	150 mm (6")
1 Extension Bar	300 mm (12")
1 Universal Joint	50 mm (2")

61 01 18

17 Sockets (6 Point) (12 Point)	6, 7, 8 (5/16"), 9 mm 10, 11 (7/16"), 12, 13, 14, 14.5 (9/16"), 15 (19/32"), 16 (5/8"), 17 (21/32"), 17.5 (11/16"), 19 (3/4"), 21, 22 mm
1 Ratchet Handle (reversible)	190 mm (7-1/2")
1 Nut Spinner Handle (hinged)	190 mm (7-1/2")
1 Sliding T Handle	200 mm (8")
1 Extension Bar	75 mm (3")
1 Extension Bar	150 mm (6")
1 Extension Bar	300 mm (12")
1 Cross Bar	150 mm (6")
1 Universal Joint	54 mm (2")

61 01 19

13 Sockets (6 Point) (12 Point)	1/4", 5/16", 3/8" 7/16", 1/2", 17/32", 9/16", 19/32", 5/8", 11/16", 3/4", 13/16", 7/8"
1 Nut Spinner Handle (hinged)	190 mm (7-1/2")
1 Ratchet Handle (reversible)	190 mm (7-1/2")
1 Sliding T Handle	200 mm (8")
1 Speeder (Brace)	400 mm (16")
1 Extension Bar	75 mm (3")
1 Extension Bar	150 mm (6")
1 Extension Bar	300 mm (12")
1 Universal Joint	50 mm (2")

Socket Wrench Sets

Llaves de Vaso ソケットレンチセット 套筒扳手套装

12.7 mm 1/2"

Square Drive 12.7 mm (1/2")

Socket Set Contents with Metric Sizes

How to order: CODE

Socket wrench set, 12.7 mm sq. drive, SOCKET SIZE, NUMBER of SOCKETS, NUMBER of TOOLS

Unit Per Set

CODE	Socket Size mm	Socket Size Inch	Quantity of Sockets	Quantity of Tools
61 01 20	8-32	-	26	8
21	8-24	-	10	3
22	8-27	-	13	4
23	8-27	-	13	5
41	8-27	-	13	5
61 01 24	8-32	-	13	4
25	8-32	-	15	5
26	8-32	-	18	8
27	9-32	-	15	5
28	9-32	-	15	8
61 01 29	10-24	-	8	2
30	10-26	-	8	2
31	10-26	-	10	3
32	10-26	-	13	4
33	10-30	-	13	4
61 01 42	10-32	-	13	4
43	10-32	-	13	4

Contents

61 01 20

26 Sockets (12 Point)	8, 9, 10, 11, 12, 13, 14, 14.5, 15, 16, 17, 17.5, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 32 mm
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Nut Spinner Handle (hinged)	362 mm (14-1/4")
1 Sliding T Handle	250 mm (10")
1 Extension Bar	75 mm (3")
1 Extension Bar	150 mm (6")
1 Extension Bar	250 mm (10")
1 Universal Joint	70.5 mm (3/4")
1 Cross Bar	250 mm (10")

61 01 21

10 Sockets (12 Point)	8, 10, 11, 12, 13, 14, 17, 19, 22, 24 mm
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Sliding T Handle	250 mm (10")
1 Extension Bar	150 mm (6")

61 01 22

13 Sockets (12 Point)	8, 10, 11, 12, 13, 14, 17, 19, 21, 22, 24, 26, 27 mm
1 Nut Spinner Handle (hinged)	300 mm (12")
1 Extension Bar	150 mm (6")
1 Cross Bar	250 mm (10")
1 Universal Joint	75 mm (3")

61 01 23

13 Sockets (12 Point)	10, 11, 12, 13, 14, 17, 19, 21, 22, 24, 26, 27, 30 mm
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Nut Spinner Handle (hinged)	300 mm (12")
1 Extension Bar	150 mm (6")
1 Cross Bar	250 mm (10")

61 01 41

13 Sockets (6 Point)	8, 10, 11, 12, 13, 14, 17, 19, 21, 22, 24, 26, 27 mm
1 Ratchet Handle (hold Type)	250 mm (10")
1 Nut Spinner Handle (hinged)	300 mm (12")
1 Extension Bar	150 mm (6")
1 Ball Joint	60 mm (2-3/8")
1 Cross Bar	250 mm (10")

61 01 24

13 Sockets (12 Point)	8, 10, 11, 12, 13, 14, 17, 19, 22, 24, 27, 30, 32 mm
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Nut Spinner Handle (hinged)	300 mm (12")
1 Extension Bar	150 mm (6")
1 Cross Bar	250 mm (10")

61 01 25

15 Sockets (12 Point)	8, 10, 11, 12, 13, 14, 17, 19, 21, 22, 24, 26, 27, 30, 32 mm
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Nut Spinner Handle (hinged)	380 mm (15")
1 Sliding T Handle	250 mm (10")
1 Extension Bar	150 mm (6")
1 Cross Bar	250 mm (10")

61 01 26

18 Sockets (12 Point)	8, 9, 10, 11, 12, 13, 14, 17, 19, 21, 22, 23, 24, 26, 27, 29, 30, 32 mm
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Nut Spinner Handle (hinged)	380 mm (15")
1 Sliding T Handle	250 mm (10")
1 Extension Bar	75 mm (3")
1 Extension Bar	150 mm (6")
1 Extension Bar	250 mm (10")
1 Universal Joint	75 mm (3")
1 Cross Bar	250 mm (10")

61 01 27

15 Sockets (12 Point)	9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 21, 23, 26, 29, 32 mm
1 Nut Spinner Handle (hinged)	380 mm (15")
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Sliding T Handle	250 mm (10")
1 Extension Bar	150 mm (6")
1 Cross Bar	250 mm (10")

61 01 28

15 Sockets (12 Point)	9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 21, 23, 26, 29, 32 mm
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Nut Spinner Handle (hinged)	380 mm (15")
1 Sliding T Handle	250 mm (10")
1 Offset Handle	275 mm (11")
1 Speed T Handle	300 mm (12")
1 Speeder	395 mm (16")
1 Extension Bar	150 mm (6")
1 Universal Joint	75 mm (3")

61 01 29

8 Sockets (12 Point)	10, 12, 13, 14, 17, 19, 22, 24 mm
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Extension Bar	150 mm (6")

61 01 30

8 Sockets (12 Point)	10, 12, 14, 17, 19, 21, 23, 26 mm
1 Sliding T Handle	250 mm (10")
1 Extension Bar	150 mm (6")

61 01 31

10 Sockets (12 Point)	10, 12, 13, 14, 15, 17, 19, 21, 23, 26 mm
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Sliding T Handle	250 mm (10")
1 Extension Bar	150 mm (6")

61 01 32

13 Sockets (12 Point)	10, 11, 12, 13, 14, 14.5, 16, 17, 17.5, 19, 21, 23, 26 mm
1 Nut Spinner Handle (hinged)	300 mm (12")
1 Universal Joint	75 mm (3")
1 Extension Bar	150 mm (6")
1 Cross Bar	250 mm (10")

61 01 33

13 Sockets (12 Point)	10, 11, 12, 13, 14, 17, 19, 21, 22, 24, 26, 27, 30 mm
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Nut Spinner Handle (hinged)	300 mm (12")
1 Extension Bar	150 mm (6")
1 Cross Bar	250 mm (10")

61 01 42

13 Sockets (12 Point)	10, 12, 13, 14, 17, 19, 21, 22, 24, 26, 27, 30, 32 mm
1 Ratchet Handle (hold Type)	250 mm (10")
1 Nut Spinner Handle (hinged)	300 mm (12")
1 Extension Bar	150 mm (6")
1 Ball Joint	60 mm (2-3/8")

61 01 43

13 Sockets (6 Point)	10, 12, 13, 14, 17 19, 21, 22, 24, 26, 27, 30, 32 mm
1 Ratchet Handle (hold Type)	250 mm (10")
1 Nut Spinner Handle (hinged)	300 mm (12")
1 Extension Bar	150 mm (6")
1 Ball Joint	60 mm (2-3/8")

Socket Set Contents with Inch Sizes

How to order: CODE

Socket wrench set, 12.7 mm sq. drive, SOCKET SIZE, NUMBER of SOCKETS, NUMBER of TOOLS

Unit Per Set

CODE	Socket Size		Quantity of Sockets	Quantity of Tools
	mm	Inch		
61 01 34	-	3/8 - 15/16	10	3
35	-	3/8 - 1	13	4
36	-	3/8 - 1	13	5
37	-	7/16 -1-1/4	15	5

Contents

61 01 34

10 Sockets (12 Point)	3/8", 7/16", 1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16"
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Sliding T Handle	250 mm (10")
1 Extension Bar	150 mm (6")

61 01 35

13 Sockets (12 Point)	3/8", 7/16", 1/2", 9/16", 19/32", 5/8", 11/16", 3/4", 25/32", 13/16", 7/8", 15/16", 1"
1 Nut Spinner Handle (hinged)	300 mm (12")
1 Extension Bar	150 mm (6")
1 Universal Joint	75 mm (3")
1 Cross Bar	250 mm (10")

61 01 36

13 Sockets (12 Point)	3/8", 7/16", 1/2", 9/16", 19/32", 5/8", 11/16", 3/4", 25/32", 13/16", 7/8", 15/16", 1"
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Nut Spinner Handle (hinged)	300 mm (12")
1 Extension Bar	150 mm (6")
1 Universal Joint	75 mm (3")
1 Cross Bar	250 mm (10")

61 01 37

15 Sockets (12 Point)	7/16", 1/2", 9/16", 19/32", 5/8", 11/16", 3/4", 25/32", 13/16", 7/8", 15/16", 1, 1-1/16", 1-1/8", 1-1/4"
1 Nut Spinner Handle (hinged)	380 mm (15")
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Sliding T Handle	250 mm (10")
1 Extension Bar	150 mm (6")
1 Cross Bar	250 mm (10")

Socket Set Contents in Metric & Inch Sizes

How to order: CODE

Socket wrench set, 12.7 mm sq. drive SOCKET SIZE, NUMBER of SOCKETS, NUMBER of TOOLS

Unit Per Set

CODE	Socket Size		Quantity of Sockets	Quantity of Tools
	mm	Inch		
61 01 39	8 - 32	3/8 - 1	26	8
40	10 - 26	7/16 - 1	24	8

Contents

61 01 39

26 Sockets (12 Point)	8(5/16"), 9, 10, 11(7/16"), 12, 13, 14, 14.5(9/16"), 15(19/32"), 16(5/8"), 17(21/32"), 17.5(11/16"), 19(3/4"), 20(25/32"), 21, 22, 23, 24(15/16"), 26, 27(1-1/16"), 29, 30(1-3/16"), 32(1-1/4"), 3/8"(9.5), 1/2"(12.7), 1"(25.4)
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Nut Spinner Handle (hinged)	380 mm (15")
1 Sliding T Handle	250 mm (10")
1 Extension Bar	75 mm (3")
1 Extension Bar	150 mm (6")
1 Extension Bar	250 mm (10")
1 Universal Joint	75 mm (3")
1 Cross Bar	250 mm (10")

61 01 40

24 Sockets (12 Point)	10, 11, 12, 13, 14, 17, 19, 21, 22, 23, 24, 26 7/16", 1/2", 9/16", 19/32", 5/8", 11/16", 3/4", 25/32", 13/16", 7/8", 15/16", 1"
1 Ratchet Handle (reversible)	270 mm (10-1/2")
1 Nut Spinner Handle (hinged)	380 mm (15")
1 Sliding T Handle	250 mm (10")
1 Extension Bar	75 mm (3")
1 Extension Bar	150 mm (6")
1 Extension Bar	250 mm (10")
1 Universal Joint	75 mm (3")
1 Cross Bar	250 mm (10")

Socket Wrench Sets

Llaves de Vaso ソケットレンチセット 套筒扳手套装

Square Drive 19.0 mm (3/4")



How to order: CODE

Socket wrench set, 19.0 mm sq. drive, SOCKET SIZE, NUMBER of SOCKETS, NUMBER of TOOLS

Unit Per Set

CODE	Socket Size		Quantity of Sockets	Quantity of Tools
	mm	Inch		
61 01 51	19-60	-	20	6
52	24-41	-	10	2
53	24-50	-	8	4
54	26-50	-	8	4
56	26-50	-	8	4
55	-	1-1/16-2	13	4

Contents

61 01 51

20 Sockets (12 Point)	19, 21, 22, 23, 24, 26, 27, 29, 30, 32, 35, 36, 38, 41, 46, 50, 54, 55, 58, 60 mm
1 Ratchet Handle (reversible)	500 mm (20")
1 Nut Spinner Handle (hinged)	500 mm (20")
1 Sliding T Handle	500 mm (20")
1 Extension Bar	200 mm (8")
1 Extension Bar	400 mm (16")
1 Universal Joint	97 mm (3-7/8")

61 01 52

10 Sockets (12 Point)	24, 26, 27, 29, 30, 32, 35, 36, 38, 41 mm
1 Sliding T Handle	500 mm (20")
1 Extension Bar	200 mm (8")

61 01 53

8 Sockets (12 Point)	24, 27, 30, 32, 36, 41, 46, 50 mm
1 Ratchet Handle (reversible)	500 mm (20")
1 Sliding T Handle	500 mm (20")
1 Extension Bar	200 mm (8")
1 Extension Bar	400 mm (16")

61 01 54

8 Sockets (12 Point)	26, 29, 32, 35, 38, 41, 46, 50 mm
1 Ratchet Handle (reversible)	500 mm (20")
1 Sliding T Handle	500 mm (20")
1 Extension Bar	200 mm (8")
1 Extension Bar	400 mm (16")

61 01 56

8 Sockets (6 Point)	26, 29, 32, 35, 38, 41, 46, 50 mm
1 Ratchet Handle	500 mm (20")
1 Sliding T Handle	500 mm (20")
1 Extension Bar	200 mm (8")
1 Extension Bar	400 mm (16")

61 01 55

13 Sockets (12 Point)	1-1/16", 1-1/8", 1-3/16", 1-1/4", 1-5/16", 1-3/8", 1-7/16", 1-1/2", 1-5/8", 1-3/4", 1-13/16", 1-7/8", 2"
1 Ratchet Handle (reversible)	500 mm (20")
1 Sliding T Handle	500 mm (20")
1 Extension Bar	200 mm (8")
1 Extension Bar	400 mm (16")

Socket Wrench Sets

Llaves de Vaso ソケットレンチセット 套筒扳手套装

25.4 mm 1"

Square Drive 25.4 mm (1")

How to order: CODE

Socket wrench set, 25.4 mm sq. drive, SOCKET SIZE, NUMBER of SOCKETS, NUMBER of TOOLS

Unit Per Set

CODE	Socket Size		Quantity of Sockets	Quantity of Tools
	mm	Inch		
61 01 61	32-65	-	8	5
62	32-85	-	12	5
63	32-85	-	12	5

Contents

61 01 61

8 Sockets (12 Point)	32, 36, 41, 46, 50, 55, 60, 65 mm
1 Ratchet Head	165 mm (6-1/2")
1 Sliding Head	80 mm (3-1/8")
1 Extension Bar	150 mm (6")
1 Extension Bar	400 mm (16")
1 Cross Bar	660 mm (26")

61 01 62

12 Sockets (12 Point)	32, 36, 41, 46, 50, 55, 60, 65, 70, 75, 80, 85 mm
1 Ratchet Head	165 mm (6-1/2")
1 Sliding Head	80 mm (3-1/8")
1 Extension Bar	150 mm (6")
1 Extension Bar	400 mm (16")
1 Cross Bar	660 mm (26")

61 01 63

12 Sockets (12 Point)	35, 38, 41, 46, 50, 54, 58, 63, 67, 71, 77, 85 mm
1 Ratchet Head	165 mm (6-1/2")
1 Sliding Head	80 mm (3-1/8")
1 Extension Bar	150 mm (6")
1 Extension Bar	400 mm (16")
1 Cross Bar	660 mm (26")

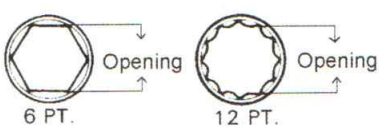
Socket Wrenches

Llaves de Vaso ソケットレンチ 套筒扳手套装



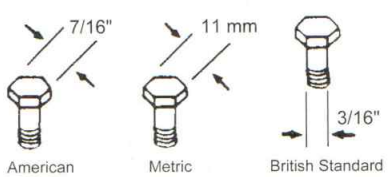
These socket wrenches are made of a special chromed alloy steel. The socket walls are made thin to make it easier to fit to bolts or nuts that are set in narrow, difficult to reach spots. The nominal sizes of the sockets are determined by the socket opening, not the bolt size.

When ordering, please indicate the size of the square drive opening at the back of the socket : 6.35 mm (1/4"), 9.5 mm (3/8"), 12.7 mm (1/2"), 19.0 mm (3/4"), 25.4 mm (1"). Also specify the number of points in the socket and the size of the opening. The following illustrations show how to measure the opening of the socket sizes properly.



Careful When Ordering!!

American and Metric wrench sizes are taken across the flats of the bolt head, British Standard size is taken from the outside diameter of threads.



How to order: CODE

Socket wrench, SQUARE DRIVE mm or inch, OPENING SIZE mm, TYPE OF OPENING POINT

6.35 mm (1/4") Drive 6 Point

Unit Per Pc.

CODE	Opening mm	Opening inch	Overall Length mm	CODE	Opening mm	Opening inch	Overall Length mm
61 01 81	5	-	22	**61 01 90**	13	-	22.5
82	5.5	7/32	22	**91**	14	-	22.5
83	6	-	22	**92**	-	3/16	22
84	7	9/32	22	**93**	-	1/4	22
85	8	5/16	22	**94**	-	9/32	22
61 01 86	9	11/32	22	**61 01 95**	-	11/32	22
87	10	-	22.5	**96**	-	3/8	22.5
88	11	7/16	22.5				
89	12	15/32	22.5				

9.5 mm (3/8") Drive 6 Point

9.5 mm (3/8") Drive 12 Point

Unit Per Pc.

CODE	Opening mm	Opening inch	Overall Length mm	CODE	Opening mm	Opening inch	Overall Length mm
61 02 01	6	-	27	**61 02 21**	10	-	29
02	7	9/32	27	**22**	11	7/16	29
03	8	5/16	27	**23**	12	15/32	29
04	9	11/32	29	**24**	13	-	29
05	10	-	29	**25**	14	-	31.5
61 02 06	11	7/16	29	**61 02 26**	14.5	-	31.5
07	12	15/32	29	**27**	15	19/32	31.5
08	13	-	29	**28**	16	5/8	31.5
09	14	-	31.5	**29**	17	21/32	31.5
10	17	21/32	31.5	**30**	17.5	11/16	31.5
61 02 11	19	3/4	35	**61 02 31**	19	3/4	35
12	21	13/16	35	**32**	21	13/16	35
13	22	-	35	**33**	22	-	35
14	-	1/4	27	**34**	23	-	35
15	-	9/32	27	**35**	-	1/2	31
61 02 16	-	11/32	29	**61 02 36**	-	17/32	31.5
17	-	3/8	29	**37**	-	13/16	35
				38	-	7/8	35

12.7 mm (1/2") Drive 6 Point

12.7 mm (1/2") Drive 12 Point

Unit Per Pc.

CODE	Opening mm	Opening inch	Overall Length mm	CODE	Opening mm	Opening inch	Overall Length mm
61 02 41	8	5/16	35	**61 02 66**	8	5/16	36
42	9	11/32	35	**67**	9	11/32	36
43	10	-	35	**68**	10	-	36
44	11	7/16	35	**69**	11	7/16	36
45	12	15/32	35	**70**	12	15/32	36
61 02 46	13	-	35	**61 02 71**	13	-	36
47	14	-	35	**72**	14	-	36
48	15	19/32	35	**73**	14.5	-	36
49	16	5/8	36	**74**	15	19/32	36
50	17	21/32	37	**75**	16	5/8	36
61 02 51	18	-	37	**61 02 76**	17	21/32	38
52	19	3/4	38	**77**	17.5	11/16	38
53	20	25/32	38	**78**	18	-	38
54	21	13/16	39	**79**	19	3/4	38
55	22	-	40	**80**	20	25/32	38
61 02 56	23	-	41	**61 02 81**	21	13/16	38
57	24	-	41	**82**	22	-	40
58	26	-	44	**83**	23	-	40
59	27	1-1/16	44	**84**	24	15/16	40
60	28	-	44	**85**	26	-	42.5

(to be continued)

Unit Per Pc.

61 02 61	29	1-1/8	44	**61 02 86**	27	1-1/16	42.5
62	30	-	47	**87**	28	-	43
63	32	1-1/4	47	**88**	29	1-1/8	44
				89	30	-	46
				90	32	1-1/4	46
				61 02 91	33	-	46
				92	-	11/32	35
				93	-	3/8	35
				94	-	1/2	35
				95	-	13/16	39
				61 02 96	-	7/8	40
				97	-	1	44
				98	-	1-1/8	44

Careful When Ordering!!

American and Metric wrench sizes are taken across the flats of the bolt head, British Standard size is taken from the outside diameter of the threads.

19 mm (3/4") Drive 6 Point

19 mm (3/4") Drive 12 Point

Unit Per Pc.

CODE	Opening mm	Opening inch	Overall Length mm	CODE	Opening mm	Opening inch	Overall Length mm
61 03 01	19	3/4	50	**61 03 21**	19	3/4	50
02	21	13/16	50	**20**	20	-	47.5
03	22	-	50	**22**	21	13/16	50
04	23	-	50	**23**	22	-	50
05	24	-	50	**24**	23	-	50
61 03 06	26	-	53	**61 03 25**	24	-	50
07	27	1-1/16	53	**26**	26	-	53
08	29	1-1/8	56	**27**	27	1-1/16	53
09	30	-	56	**28**	29	1-1/8	56
10	32	1-1/4	56	**29**	30	1-3/16	56
61 03 11	35	1-3/8	58	**61 03 30**	32	1-1/4	56
12	36	-	58	**31**	35	1-3/8	58
13	38	1-1/2	60	**32**	36	-	58
14	41	-	63	**33**	38	1-1/2	60
15	46	1-3/16	65	**34**	41	-	63
61 03 16	50	-	70	**61 03 35**	46	1-3/16	65
				36	50	-	58
				37	54	2-1/8	58
				38	55	-	60
				39	58	-	63
				61 03 40	60	-	65
				41	-	1-5/16	56
				42	-	1-7/16	58
				43	-	1-5/8	63
				44	-	1-3/4	65
				61 03 45	-	1-7/8	67
				46	-	2	70

25.4 mm (1") Drive 12 Point

Unit Per Pc.

CODE	Opening mm	Opening inch	Overall Length mm	CODE	Opening mm	Opening inch	Overall Length mm
61 03 51	32	1-1/4	67	**61 03 61**	60	-	90
52	35	1-3/8	67	**62**	63	-	95
53	36	-	67	**63**	65	-	95
54	38	1-1/2	70	**64**	67	-	100
55	41	-	73	**65**	70	-	105
61 03 56	46	1-13/16	78	**61 03 66**	71	-	105
57	50	-	82	**67**	75	-	110
58	54	2-1/8	85	**68**	77	-	110
59	55	-	85	**69**	80	-	115
60	58	-	88	**70**	85	-	120

Deep Socket Wrenches

Llaves de Vaso Largo
ディープソケットレンチ　深套筒扳手



Deep sockets made of a special alloy steel. The socket walls are made thin for easy access to nuts and bolts set in narrow spots. The nominal size of the socket is determined by measuring the opening of the socket, not the bolt size. Only supplied in a 12.7 mm sized square drive attachment. 12 point sockets and sockets in metric sizes are available. A hole is located at the top of the socket for use with a cross bar.



12.7 mm (1/2") Drive 12 Point

Unit Per Pc.

CODE	Opening		Overall Length mm	CODE	Opening		Overall Length mm
	mm	inch			mm	inch	
61 03 76	10	-	83	**61 03 84**	22	-	83
77	11	7/16	83	**85**	23	-	83
78	12	15/32	83	**86**	24	-	83
79	13	-	83	**87**	26	-	83
80	14	-	83	**88**	27	1-1/16	83
61 03 81	17	21/32	83	**61 03 89**	29	1-1/8	83
82	19	3/4	83	**90**	30	-	83
83	21	13/16	83	**91**	32	1-1/4	83

Ratchet Handles

for Socket Wrenches

Carracasçpara Llaves de Vaso　ラチェットハンドル　棘轮手柄

6.35 mm (1/4")-25.4mm (1")

Drop forged from selected steel with 24 teeth in the ratcheting-gear instead of the usual 16 to 20. Turning shift lever reverses action instantly.





Unit Per Pc.

CODE	Square Drive	Male or Female	Overall Length mm	Weight grm
61 04 01	6.35 mm	Male	115	100
02		Female	115	80
61 04 03	9.5 mm	Male	190	280
04		Female	190	250
61 04 05	12.7 mm	Male	270	490
06		Female	270	420
61 04 07	19.0 mm	Male	500	1,925
08		Female	500	1,780
61 04 09	25.4 mm	Male	755	4,500
10		Male Head	165	1,300

Nut Spinner Handles

for Socket Wrenches

Mango Llave de Vaso
ナットスピーナーハンドル　套筒板手用绞装手柄

Made from selected alloy steel. Flexible head, knurled grip and a cross hole in the end for use with sliding bars.



Unit Per Pc.

CODE	Square Drive	Overall Length mm	Weight grm
61 04 15	6.35 (1/4")	150	100
16	9.5 (3/8")	250	365
17	12.7 (1/2")	300	690
18	12.7 (1/2")	380	820
19	19.09 (3/4")	500	1,550

Sliding T Handles

for Socket Wrenches

Mango Llave de Vaso Corredizo
スライディングTハンドル　滑动T形杆

Made from selected alloy steel. Specify only the size of the square drive fitting of the sockets to be used.



Unit Per Pc.

CODE	Square Drive	Description	Overall Length mm	Weight grm
61 04 21	6.35 (1/4")	Adaptor & Handle Bars	105	60
22	9.5 (3/8")		200	190
23	12.7 (1/2")		250	320
24	19.0 (3/4")		550	1,765
25	25.4 (1")		660	3,820

Cross Bar Handles

for Socket Wrenches

Mango Llave de Vaso
クロスバーハンドル　横杆把手



Cross bars or sliding handle for use with the nut spinner and the deep sockets.

Unit Per Pc.

CODE	For	Overall Length mm	Weight grm
61 04 29	6.35 mm (1/4") Square Drive	100	25
30	9.5 mm (3/8") "	150	85
31	12.7 mm (1/2") "	250	225
32	19.0 mm (3/4") "	330	500
33	25.4 mm (1") "	660	3,200

Offset Handles

for Socket Wrenches

Mago Acodado, Llaves de Vaso
オフセットハンドル　套筒辅助手柄



Made from selected alloy steel with a nonrevolving knurled grip.

Unit Per Pc.

CODE	Square Drive	Overall Length mm	Weight grm
61 04 36	12.7 mm (1/2")	275	465
37	19.0 mm (3/4")	313	1,110

Speed T Handles
for Socket Wrenches

Mago T, Llave de Vaso　スピードTハンドル　T型套筒扳手

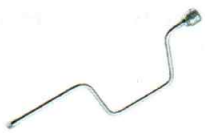
12.7 mm (1/2") square drive, length 300 mm. Made from selected alloy steel with a revolving knurled grip in the middle.



61 04 41	Speed T Handle 12.7 mm sq drive x L 300 mm	Pc.

Speeder Handles
for Socket Wrenches

Berbiqui Llave de Vaso
スピーダーハンドル 滑动T型手柄



Selected alloy steel with knurled revolving grips.

Unit Per Pc.

CODE	Square Drive	Overall Length mm	Weight grm
61 04 42	9.5 mm (3/8")	395	510
43	12.7 mm (1/2")	395	650

Extension Driver Handles
for Socket Wrenches

Atornillador para Llave de Vaso
ドライバー型ハンドル　扩展驱动程序句柄的套筒扳手

Driver has a plastic grip with a 6.35 mm (1/4") square drive fitting. Total length : 140 mm.



61 04 46	Driver handle, extension 6.35 mm sq drive x L 140 mm	Pc.

Extension Bars
for Socket Wrenches

Barra de Extensión para Llave de Vaso
エキステンションバー　长杆的套筒扳手延长杆

Made from selected alloy steel. Has a square drive fitting for attaching a socket at one end and a receptacle fitting for attaching the ratchet handle at the other.



Unit Per Pc.

CODE	Square Drive	Overall Length mm	Weight grm
61 04 48	6.35 mm (1/4")	50	30
49		150	70
61 04 50	9.5 mm (3/8")	75	70
51		150	120
52		300	225
61 04 53	12.7 mm (1/2")	75	135
54		150	225
55		250	350
61 04 56	19.0 mm (3/4")	200	800
57		400	1,570
61 04 58	25.4 mm (1")	150	870
59		400	1,820
61 04 60	25.4 mm (1")	250	1,250

Universal Joints
for Socket Wrenches

Articulación para Llave de Vaso
ユニバーサルジョイント　万向节



Made from selected alloy steel with approximately a 140° operating range.

Unit Per Pc.

CODE	Square Drive	Overall Length mm	Weight grm
61 04 65	6.35 mm (1/4")	35	30
66	9.5 mm (3/8")	54	65
67	12.7 mm (1/2")	75	145
68	19.0 mm (3/4")	97	465
69	25.4 mm (1")	128	890

Socket Adapters
for Socket Wrenches

Adaptadores para Llaves de Vaso
ソケットアダプター　套筒接头



Adapters used to fit ratchet handles to sockets which have larger or smaller square drive fittings.

Unit Per Pc.

CODE	Male SQ Drive	x	Female SQ Drive	Overall Length mm	Weight grm
61 04 71	9.5 (3/8")	x	6.35 (1/4")	23	15
72	6.35 (1/4")	x	9.5 (3/8")	25	25
73	12.7 (1/2")	x	9.5 (3/8")	32	40
74	9.5 (3/8")	x	12.7 (1/2")	33	50
75	19.0 (3/4")	x	12.7 (1/2")	42	115
61 04 76	12.7 (1/2")	x	19.0 (3/4")	46	170
77	25.4 (1")	x	19.0 (3/4")	58	340
78	19.0 (3/4")	x	25.4 (1")	63	420
79	38.1 (1-1/2")	x	25.4 (1")	77	780

Driver Sockets
for Socket Wrenches

Puntas para Llave de Vasos
ドライバーソケット　驱动套筒



These attachments allow you to drive screws with socket wrenches. Only 12.7 mm (1/2") square drive sockets available.

How to order: CODE

Driver socket for socket wrench, 12.7 mm square drive x BLADE WIDTH mm

Unit Per Pc.

CODE	Square Drive	Blade Width		Weight grm
		mm	Inch	
61 04 81	12.7 mm (1/2")	19	3/4	70
82	12.7 mm (1/2")	24	1	95
83	12.7 mm (1/2")	30	13/16	110

Stud Remover Wrenches
Roller Type

Extractor de Espárragos
スタッドボルトリムーバー　滚筒式拆螺栓板手

This roller type stud bolt remover can be used for bolts of 8 – 19 mm. If used in connection with a 12.7 mm (1/2") square drive ratchet wrench, the work can be carried out more quickly and easily.



61 04 86	Wrench stud remover 1/2 sq. drive for bolt size 8-19 mm	Pc.

Power Wrenches

Llaves Crraca　パワーレンチ　动力扳手

Best for loosening tight bolts and nuts without effort. Even stubborn (frozen-jammed-corroded) bolts and nuts loosen in an easy and quick way. Tightens in the same easy way.



Features
- Power input is increased up to 4 times.
- Hand operated.
- Compact design for work in close quarters.

Advantages
- No air or electric power is required.
- Portable, can be used anyplace.
- Easy to operate.
- Can be used with 25.4 mm drive sockets from any manufacturer.

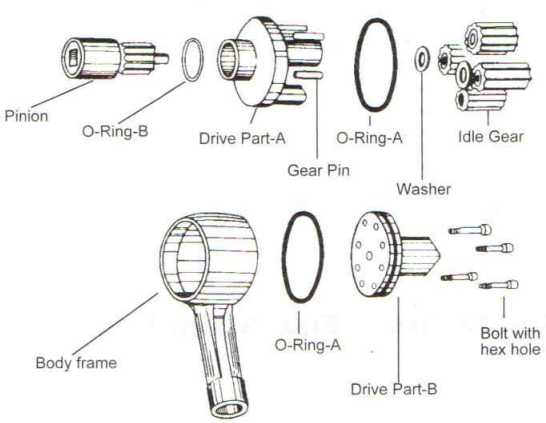
How to order: CODE

Power wrench, POWER INPUT SQ. DRIVE x POWER OUTPUT SQ. DRIVE

Unit Per Set

Description \ CODE		61 04 88	61 04 89
Square Drive	Input Power	19.0 mm (3/4")	12.7 mm (1/2")
	Output Power	25.4 mm (1")	19.0 mm (3/4")
Ratchet Overall Length		121 mm	86 mm
Power	Input	850 N.m	400 N.m
	Output	2,550 N.m	1,200 N.m
Handle Size		26 x 590 mm	19 x 436 mm
Metal Case Size		625 x 190 x 120 mm	505 x 120 x 100 mm
Weight		7.2 kg	2.5 kg

Power Wrench Spare Parts



2. Wrenches/Spanners

Double Open End Wrench Sets

Double Head 15° Angle

Juegos de Llaves Planas/Ángulo de 15°
両口スパナー 6 丁組　扁角双头开口板手

Chrome vanadium steel with head polished and clipped into a metal clip. Set consists of 6 wrenches with the opening size stamped at both ends.



How to order: CODE

Wrench set, double open end, SIZE (MINIMUM to MAXIMUM) mm, 6's/set

Unit Per Set

CODE	Contents & Opening
61 05 01	mm.....6x7, 8x9, 10x12, 11x13, 12x14, 14x17, 6' s
61 05 02	mm.....8x9, 10x12, 12x14, 14x17, 17x19, 21x23, 6's
61 05 03	mm.....8x9, 10x12, 12x14, 14x17, 19x21, 23x26, 6's
61 05 04	mm ISO .....6x7, 8x10, 11x13, 12x14, 17x19, 22x24, 6's
61 05 05	inch.....5/16x3/8, 13/32x7/16, 1/2x9/16, 19/32x5/8, 11/16x3/4, 25/32x7/8, 6's
61 05 06	inch.....3/8x7/16, 1/2x9/16, 19/32x5/8, 11/16x3/4, 25/32x7/8, 15/16x1, 6's

Double Open End Wrench Sets

Long Type 15° Angle

Juegos de Llaves Planas/Ángulo de 15° Tipo Largo
両口スパナー 6 丁組ロングタイプ　长扳手组件

A long wrench specially designed for hard-to-reach nuts. There is a different sized opening at each wrench head.



How to order: CODE

Wrench set, double open end, long handle, SIZE (MINIMUM to MAXIMUM), 6's/set

Unit Per Set

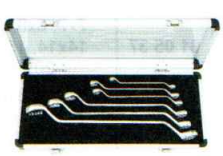
CODE	Contents & Opening
61 05 10	mm ... 8x9, 10x12, 12x14, 14x17, 17x19, 21x23, 6's
61 05 11	mm ... 8x9, 10x12, 12x14, 14x17, 19x21, 23x26, 6's
61 05 12	mm ... 6x7, 8x9, 10x12, 11x13, 12x14, 14x17, 6's
61 05 13	mm ... 6x7, 8x10, 11x13, 12x14, 17x19, 22x24, 6's

12 Point Double Offset Wrench Sets

45° Double Offset

Juegos de Llaves Planas/Ángulo de 45° Doble Acodada
45 度オフセット両口メガネセット
45 度扁颈 12 角双头板手

For use in awkward places and connecting rods, main bearings, cylinder head and spring clips, etc.



How to order: CODE

Wrench set, 12 point double offset, SIZE (MINIMUM to MAXIMUM), 6's/set

Unit Per Set

CODE	Contents & Opening	Q' ty
61 05 16	mm Opening ... 10 × 12, 12 × 14, 14 × 17, 17 × 19, 19 × 21, 23 × 26 in Metal Case	6' s
61 05 17	mm Opening ... 8 × 10, 11 × 13, 12 × 14, 14 × 17, 19 × 22, 24 × 27 in Metal Case	6' s
61 05 18	mm Opening ... 10 × 12, 12 × 14, 14 × 17, 17 × 19, 19 × 21, 23 × 26 in Metal Case, Long Handle	6' s
61 05 19	mm Opening ... 8 × 10, 11 × 13, 12 × 14, 14 × 17, 19 × 22, 24 × 27 in Metal Case, Long Handle	6' s
61 05 20	mm Opening ... 10 × 12, 14 × 17, 19 × 21, in Vinyl Bag, Long Handle	3' s
61 05 21	mm Opening ... 8 × 9, 10 × 12, 11 × 13, 14 × 17, 19 × 21, 22 × 24, 23 × 26 24 × 27 in Metal Case, Long Handle	8' s
61 05 26	inch Opening ... 3/8 × 7/16, 1/2 × 9/16, 5/8 × 11/16, 3/4 × 25/32, 13/16 × 7/8, 15/16 × 1 in Metal Case	6' s
61 05 27	inch Opening ... 3/8 × 7/16, 1/2 × 9/16, 5/8 × 11/16 in Vinyl Bag, Long Handle	3' s

Open & 12 Point Box Wrench Sets

15° Angle Open End-12 Point Opening Box End

Juegos de Llaves Combinadas

片目片口スパナーセット　　开口和 12 角筒板手



How to order: CODE

Wrench set, open & 12 point, SIZE (MINIMUM to MAXIMUM), NUMBER of WRENCHES/set

Unit Per Set

CODE	Contents & Opening mm	Q' ty
61 05 31	8x8, 10x10, 12x12, 13x13, 14x14, 17x17, 19x19, 21x21, 22x22, 24x24	10's
61 05 32	10x10, 11x11, 12x12, 13x13, 14x14, 17x17	6's
61 05 33	6x6, 7x7, 8x8, 9x9, 10x10, 11x11, 12x12, 13x13, 14x14, 17x17, 19x19	11's
61 05 34	8x8, 10x10, 12x12, 13x13, 14x14, 17x17, 19x19, 22x22, 24x24, 27x27, 30x30, 32x32	12's
61 05 35	8x8, 9x9, 10x10, 11x11, 12x12, 13x13, 14x14, 17x17, 19x19, 22x22, 24x24, 27x27, 30x30, 32x32	14's
61 05 36	6x6, 7x7, 8x8, 9x9, 10x10, 11x11, 12x12, 13x13, 14x14, 17x17, 19x19, 22x22, 24x24, 27x27, 30x30, 32x32	16's
61 05 37	7x7, 8x8, 9x9, 10x10, 11x11, 12x12, 13x13, 14x14, 15x15, 16x16, 17x17, 18x18, 19x19, 20x20, 21x21, 22x22, 23x23, 24x24	18's
61 05 38	6x6, 7x7, 8x8, 9x9, 10x10, 11x11, 12x12, 13x13, 14x14, 15x15, 16x16, 17x17, 18x18, 19x19, 20x20, 21x21, 22x22, 23x23, 24x24, 25x25, 26x26, 27x27, 28x28, 29x29, 30x30, 32x32	26's

Double Open End Wrenches

15° Angle

Llaves Planas/Ángulo de 15°　　両口スパナー　　双头开放式扳手



Jaws are long, thin, and pointed. With the 15° angle of the openings, a hex nut can be rotated completely by turning the wrench in a range of only 30°. Forged from selected alloy steel, heat treated and finished in industrial black with the heads buffed bright.

Unit Per Pc.

CODE	Opening mm	Overall Length	For Bolt Size	
			Metric	Whitworth
61 05 51	5.5x7	100 mm	M3 x M4	-
52	6x7	100	M3.5 x M4	-
53	6x8	105	M3.5 x M5	-
54	7x8	105	M4 x M5	-
55	8x9	110	M5 x -	-
61 05 56	8x10	120 mm	M5 x M6	-
57	8x11	120	M5 x M7	-
58	9x10	120	- x M6	-
59	10x11	130	M6 x M7	-
60	10x12	130	M6 x -	W3/16 x W1/4
61 05 61	10x13	140 mm	M6 x M8	-
62	10x14	140	M6 x -	W3/16 x W5/16
63	11x12	140	M7 x -	- x W1/4
64	11x13	140	M7 x -	-
49	12x13	140	-	W1/4 x -
61 05 65	12x14	140 mm	-	W1/4 x W5/16
66	13x17	165	- x M10	-
50	14x15	165	-	W5/16 x -
67	14x17	165	- x M10	W5/16 x W3/8
68	17x19	180	M10 x M12	W3/8 x W7/16
61 05 69	17x21	200 mm	M10 x -	W3/8 x W1/2
70	19x21	210	M12 x -	W7/16 x W1/2
71	19x22	210	M12 x M14	-
72	19x24	220	M12 x M16	-
73	21x23	220	-	W1/2 x W9/16
61 05 74	21x26	230 mm	-	W1/2 x W5/8
75	22x24	220	M14 x M16	-
76	23x26	240	-	W9/16 x W5/8
77	24x27	240	M16 x M18	-
78	24x30	270	M16 x M20	-
61 05 79	26x29	270 mm	-	W5/8 x W11/16
80	26x32	270	- x M22	W5/8 x W3/4
81	27x30	270	M18 x M20	-
82	29x32	280	- x M22	W11/16 x W3/4
83	30x32	280	M20 x M22	-
61 05 84	32x35	310 mm	M22 x -	W3/4 x W7/8
85	32x36	310	M22 x M24	-
86	32x41	330	M22 x M27	-
87	35x41	350	- x M27	W7/8 x W1
88	36x41	350	M24 x M27	-
61 05 89	41x46	410 mm	M27 x M30	W1 x W1-1/8
90	41x50	410	M27 x M33	W1 x W1-1/4
91	46x50	430	M30 x M33	W1-1/8 x W1-1/4
92	50x54	430	M33 x M36	W1-1/4 x W1-3/8
93	50x55	430	M33 x M36	W1-1/4 x -
61 05 94	50x58	475 mm	M33 x M39	W1-1/4 x W1-1/2
95	50x60	475	M33 x M39	W1-1/4 x -
96	54x58	475	M36 x M39	W1-3/8 x W1-1/2
97	55x60	475	M36 x M39	-

Single Open End Wrenches

15° Angle

Llaves Planas Simple/Ángulo de 15°

片口スパナー　　单头开放式扳手

Milled surface and smoothed edge, opening size is stamped on the head. Hardened and finished in industrial black, head has a polished finish. For check-jam-lock nuts, etc.



Unit Per Pc.

CODE	Opening mm	Overall Length	For Bolt Size	
			Metric	Whitworth
61 06 01	5.5	82 mm	M 3	-
02	6	82	M 3.5	-
03	7	92	M 4	-
04	8	92	M 5	-
05	9	105	-	-
61 06 06	10	105 mm	M 6	W 3/16
07	11	122	M 7	-
08	12	122	-	W 1/4
09	13	135	M 8	-
10	14	140	-	W 5/16
61 06 11	17	165 mm	M 10	W 3/8
12	19	180	M 12	W 7/16
13	21	200	-	W 1/2
14	22	210	M 14	-
15	23	210	-	W 9/16
61 06 16	24	220 mm	M 16	-
17	26	245	-	W 5/8
18	27	245	M 18	-
19	29	270	-	W 11/16
20	30	270	M 20	-
61 06 21	32	285 mm	M 22	W 3/4
22	35	315	-	W 7/8
23	36	315	M 24	-
24	38	320	-	W 15/16
25	41	360	M 27	W 1
61 06 26	46	400 mm	M 30	W 1-1/8
27	50	430	M 33	W 1-1/4
28	54	470	-	W 1-3/8
29	55	470	M 36	-
30	58	510	-	W 1-1/2
61 06 31	60	510 mm	M 39	-
32	63	550	M 42	W 1-5/8
33	65	550	-	-
34	67	575	M 47	W 1-3/4
35	70	575	-	-
61 06 36	71	575 mm	M 48	W 1-7/8
37	75	645	-	-
38	77	645	M 52	W 2
39	80	645	M 54	-
40	85	715	M 56	W 2-1/4
61 06 41	90	715 mm	-	-
42	95	770	M 64	W 2-1/2
43	100	770	-	-
44	105	825	M 72	W 2-3/4
45	110	825	M 76	W 3
61 06 46	115	870 mm	-	-
47	120	870	M 85	-

12 Point Single End Wrenches

40° Bent

Llaves Estrella Simple/40° Curvada (Una Boca)
片目スパナー　十二角单头梅花板手（40° 弯角）

Made of selected alloy steel with the opening size stamped on the head. Hardened and chrome plate finished. Each head is bent 40° for easier leveraging.



Unit Per Pc.

CODE	Opening mm	Overall Length	For Bolt Size	
			Metric	Whitworth
61 06 51	10	165 mm	M 6	-
52	11	165	M 7	-
53	12	165	-	W 1/4
54	13	186	M 8	-
55	14	186	-	W 5/16
61 06 56	17	203 mm	M 10	W 3/8
95	18	-	-	-
57	19	215	M 12	W 7/16
58	21	232	-	W 1/2
59	22	232	M 14	-
61 06 60	23	243 mm	-	W 9/16
61	24	248	M 16	-
62	26	265	-	W 5/8
63	27	265	M 18	-
64	29	282	-	W 11/16
61 06 65	30	282 mm	M 20	-
66	32	289	M 22	W 3/4
67	35	311	-	W 7/8
68	36	311	M 24	-
69	38	345	-	W 15/16
61 06 70	41	345 mm	M 27	W 1
71	46	378	M 30	W 1-1/8
72	50	412	M 33	W 1-1/4
73	54	450	-	W 1-3/8
74	55	450	M 36	-
61 06 75	58	484 mm	-	W 1-1/2
76	60	484	M 39	-
77	63	522	M 42	W 1-5/8
78	65	522	-	-
79	67	552	M 45	W 1-3/4
61 06 80	70	552 mm	-	-
81	71	552	M 48	W 1-7/8
82	75	616	-	-
83	77	616	M 52	W 2
84	80	663	M 54	-
61 06 85	85	663 mm	M 56	W 2-1/4
86	90	704	-	-
87	95	704	M 64	W 2-1/2
88	100	704	-	-
89	105	740	M 72	W 2-3/4
61 06 90	110	740 mm	M 76	W 3
91	115	776	-	-
92	120	776	M 85	-
93	125	812	-	-
94	130	812	M 90	-

12 Point Double End Wrenches

Both Heads 40° Bent

Llaves Estrella/40° Curvada
S 型両口メガネスパナー　十二角双头板手

For use in close quarters. Thin head walls permit use where the clearance is limited. Made of selected alloy steel, heat treated and chrome plated. Opening sizes are stamped on each neck.



Unit Per Pc.

CODE	Opening mm	Overall Length	For Bolt Size	
			Metric	Whitworth
61 07 01	10 x 11	179 mm	M6 x -	-
02	10 x 12	179	M6 x -	- x W1/4
03	10 x 13	179	M6 x M8	-
04	11 x 13	179	- x M8	-
05	12 x 14	186	-	- x W5/16
61 07 06	13 x 17	210 mm	M8 x M10	- x W3/8
07	14 x 17	210	- x M10	- x W3/8
08	17 x 19	230	M10 x M12	W3/8 x W7/16
09	17 x 21	230	M10 x -	W3/8 x W1/2
10	19 x 21	262	M12 x -	W7/16 x W1/2
61 07 11	19 x 22	262 mm	M12 x M14	W7/16 x -
12	19 x 24	286	M12 x M16	W7/16 x -
13	21 x 23	286	-	W1/2 x W9/16
14	21 x 26	286	-	W1/2 x W5/8
15	22 x 24	286	M14 x M16	-
61 07 16	23 x 26	303 mm	-	W9/16 x W5/8
17	24 x 27	303	M16 x M18	-
18	24 x 30	324	M16 x M20	-
19	26 x 32	324	- x M22	W5/8 x W3/4
20	27 x 30	324	M18 x M20	-

12 Point Double Offset Wrenches

45° Double Offset

Llaves Estrella/40° Doble Curvada

45 度オフセット両口メガネスパナー 十二角双头扁颈板手

Adapted to work in close quarters. Drop forged from selected alloy steel. Heat treated and chrome plated with bright heads. Different opening at each head. Opening size stamped on each neck.



Unit Per Pc.

CODE	Opening mm	Overall Length	For Bolt Size	
			Metric	Whitworth
61 07 26	6 x 7	128	M3.5 x M4	-
27	8 x 9	174	M5 x -	-
28	8 x 10	174	M5 x M6	- x W3/16
29	10 x 11	189	M6 x M7	W3/16 x -
30	10 x 12	189	M6 x -	W3/16 x W1/4
61 07 31	10 x 13	198	M6 x -	W3/16 x
32	11 x 13	198	M7 x -	-
33	12 x 14	214	-	W1/4 x W5/16
24	12 x 13	214	-	W1/4 x -
34	13 x 17	243	- x M10	-
61 07 25	14 x 15	243	-	W5/16 x -
35	14 x 17	243	- x M10	W5/16 x W3/8
36	17 x 19	276	M10 x M12	W3/8 x W7/16
37	17 x 21	293	M10 x -	W3/8 x W1/2
38	19 x 21	314	M12 x -	W7/16 x W1/2
61 07 39	19 x 22	314	M12 x M14	- -
40	19 x 24	317	M12 x M16	- -
41	21 x 23	333	- -	W1/2 x W9/16
42	21 x 26	364	- -	W1/2 x W5/8
43	22 x 24	333	M14 x M16	-
61 07 44	23 x 26	366	- -	W9/16 x W5/8
45	24 x 27	366	M16 x M18	-
46	24 x 30	392	M16 x M20	-
47	26 x 29	392	- x -	- x W11/16
48	26 x 32	392	- x M22	W5/8 x W3/4
61 07 49	27 x 30	392	M18 x M20	-
50	29 x 32	428	- x M22	W11/16 x W3/4
51	30 x 32	428	M20 x M22	- x W3/4
52	32 x 35	428	M22 x -	W3/4 x W7/8
53	32 x 36	428	M22 x M24	W3/4 x -
61 07 54	35 x 41	454	- x M27	W7/8 x W1
55	36 x 41	454	M24 x M27	W7/8 x W1

Open & 12 Point Box Wrenches

15° Angle Open End-12 Point Opening Box End

Llaves Combinadas 片目片口スパナー 开口和十二角套筒板手

For use in close quarters. The open end is pointed with slim jaws. The other end is a thin walled 12 point box head. Both heads have the same size opening. Drop forged from tough, selected alloy steel, heat-treated and chrome plated.



Metric

Unit Per Pc.

CODE	Opening mm	Overall Length mm	CODE	Opening mm	Overall Length mm
61 07 61	6	99	**61 07 95**	25	333
62	7	105	**77**	26	330
63	8	105	**78**	27	360
64	9	110	**96**	28	390
65	10	118	**97**	29	390
61 07 66	11	134	**61 07 79**	30	387
67	12	140	**80**	32	420
68	13	150	**81**	35	465
69	14	170	**82**	36	490
92	15	198	**83**	41	520
61 07 70	16	190	**61 07 84**	43	550
71	17	215	**85**	45	550
93	18	245	**86**	46	580
72	19	235	**87**	50	580
94	20	268	**88**	54	635
61 07 73	21	265	**61 07 89**	55	635
74	22	280	**90**	58	710
75	23	310	**91**	60	710
76	24	310			

Inch

Unit Per Pc.

CODE	Opening mm	Overall Length mm	CODE	Opening mm	Overall Length mm
61 08 01	1/4	99	**61 08 13**	1	330
02	5/16	105	**14**	1- 1/16	360
03	3/8	118	**15**	1- 1/8	387
04	7/16	134	**16**	1- 1/4	420
05	1/2	150	**17**	1-11/16	550
61 08 06	9/16	170	**61 08 18**	1- 3/4	550
07	5/8	190	**19**	1- 7/8	580
08	11/16	215	**20**	2	580
09	3/4	235	**21**	2- 1/8	635
10	13/16	265	**22**	2- 1/4	635
61 08 11	7/8	280	**61 08 23**	2- 3/8	710
12	15/16	310			

Open & Ratchet Type 12 Point Box Wrenches

Llavas Combinadas Tipo Carraca

ラチェット式片目／片口スパナー

开口及棘输式 12 角梅花扳钳

One standard open end, but the other end has ratchet type 12 point wrenches which can fasten the bolt or nut using a ratchet mechanism at only 5° handles swinging space. Both heads have the same size opening.



Unit Per Pc.

CODE	Opening mm	Overall Length mm	CODE	Opening mm	Overall Length mm
61 08 31	8	140	**61 08 36**	13	180
32	9	150	**37**	14	190
33	10	160	**38**	15	200
34	11	165	**39**	17	220
35	12	170	**40**	19	246

Open & Ratchet Type 12 Point Box Wrench Sets

Juegos de Llaves Combinadas Tipo Carraca y Fija Abierta
ラチェット式片目／片口スパナーセット
开口及棘输式 12 角梅花扳钳组

Unit Per Set

CODE	Size mm	Pcs/Set
61 08 45	10 - 14	4's (10, 12, 13, 14)
46	8 - 17	6's (8, 10, 12, 13, 14, 17)

6 Point T-Type Wrenches

Handles Fixed (Not Removable)

Llaves Hexagonales Tipo-T/Mangos Fijos
T 型六角ボックスレンチ　六角 T 型套筒板手

Broached and chrome plated with a smoothed surface. Made of selected alloy steel. The size of the opening for this 6 point wrench is determined by measuring the length between two parallel flat sides.



Unit Per Pc.

CODE	Opening mm	Overall Length	For Bolt Size	
			MM	WW
61 08 51	6	110 mm	M 3	-
52	7	110	M 3.5	-
53	8	110	M 4	-
54	9	110	M 5	-
55	10	150	M 6	W 3/16
61 08 56	11	150 mm	-	-
57	12	165	-	W 1/4
58	13	165	M 8	-
59	14	165	-	W 5/16
60	17	180	M 10	W 3/8
61 08 61	19	200 mm	M 12	W 7/16
62	21	210	-	W 1/2
63	22	210	M 14	-
64	23	220	-	W 9/16
65	24	220	M 16	-
61 08 66	26	240 mm	-	W 5/8
67	27	240	M 18	-
68	29	250	-	W 11/16
69	30	250	M 20	-
70	32	250	-	W 3/4
61 08 71	35	280 mm	M 22	W 7/8
72	36	280	M 24	-
73	41	300	M 27	W 1
74	46	320	M 30	W 1-1/8
75	50	360	M 33	W 1-1/4
61 08 76	54	380 mm	M 36	W 1-3/8
77	55	380	-	-

4 Point T-Type Wrenches

Handle Fixed (Not Removable)

Llaves Cuadrangulares Tipo-T/Mangos Fijos (Llave de Vaso en Cruz)
固定型角ボックスレンチ　四角 T 型套筒板手

Fixed handle and square opening. Broached, hardened and chrome plated.



Unit Per Pc.

CODE	Opening mm/in.	Overall Length
61 08 86	6 (1/4)	60 mm
87	8 (5/16)	67
88	9 (3/8)	85
89	10 (-)	85
90	11 (7/16)	100
61 08 91	12 (1/2)	110 mm
92	14 (9/16)	120
93	16 (5/8)	130
94	19 (3/4)	140

6 Point T-Type Wrenches

Handles Detachable

Llaves Tubulares con Volvedores
強力型六角ボックスレンチハンドル付　六角 T 型套筒板手

Broached, surface smoothed and chrome plated, 6 point extra heavy wrenches with detachable handles. The size of the openings are measured between two parallel sides of the socket.



Unit Per Pc.

CODE	Opening mm	Overall Length	For Bolt Size	
			MM	WW
61 09 01	10	145 mm	M 6	W 3/16
02	11	145	-	-
03	12	150	-	W 1/4
04	13	155	M 8	-
05	14	160	-	W 5/16
61 09 06	17	180 mm	M 10	W 3/8
07	19	190	M 12	W 7/16
08	21	200	-	W 1/2
09	22	205	M 14	-
10	23	210	-	W 9/16
61 09 11	24	220 mm	M 16	-
12	26	230	-	W 5/8
13	27	235	M 18	-
14	30	245	M 20	-
15	32	250	-	W 3/4
61 09 16	35	280 mm	M 22	W 7/8
17	36	285	M 24	-
18	41	300	M 27	W 1
19	46	320	M 30	W 1-1/8
20	50	340	M 33	W 1-1/4
61 09 21	55	365 mm	-	-
22	60	375	-	-
23	65	390	-	-
24	70	405	-	-
25	71	410	M 48	W 1-7/8
61 09 26	75	415 mm	-	-

Flex 6 Point T-Type Wrenches

Llave T vaso Articulado
T 型フレックスレンチ
T 型万向接头六角套筒板手

Flexible head, fixed handle.



Unit Per Pc.

CODE	Opening mm	Overall Length
61 09 31	10	320 mm
32	11	320
33	12	320
34	13	320
35	14	320
61 09 36	17	350 mm
37	19	350

6 Point L-Type Wrenches

Offset Wrenches

Llave de Pipa Simple Acodada
L 型六角ボックスレンチ　六角 L 型套筒板手

Broached, surface smoothed, hardened and chrome plated.



Unit Per Pc.

CODE	Opening mm	Overall Length	For Bolt Size	
			MM	WW
61 09 41	6	110 mm	M 3	-
42	7	110	M 3.5	-
43	8	110	M 4	-
44	9	110	M 5	-
45	10	182	M 6	W 3/16
61 09 46	11	182 mm	-	-
47	12	193	-	W 1/4
48	13	194	M 8	-
49	14	209	-	W 5/16
50	17	226	M 10	W 3/8
61 09 51	19	228 mm	M 12	W 7/16
52	21	258	-	W 1/2
53	22	260	M 14	-
54	23	270	-	W 9/16
55	24	271	M 16	-
61 09 56	26	278 mm	-	W 5/8
57	27	278	M 18	-
58	30	296	M 20	-
59	32	296	-	W 3/4
60	35	343	M 22	W 7/8
61 09 61	36	344 mm	M 24	-
62	41	354	M 27	W 1
63	46	369	M 30	W 1-1/8
64	50	392	M 33	W 1-1/4
65	55	415	-	-

6 Point Y-Type Wrenches

3 Different Opening Selected Alloy Steel

Llave en Y con 3 Differentes Vasos
Y 型ボックススパナー　六角 T 型套筒板手

Made from selected alloy steel and heat-treated. This one tool has 3 openings for 3 different nut sizes. The vacant two bars may be used as a handle when nutting. Adapted for close corner nutting work.



Unit Per Pc.

CODE	Opening Size mm	Length of Handle mm
61 09 71	8 x 9 x 10	80 x 80 x 80
72	10 x 12 x 14	80 x 85 x 85
73	10 x 14 x 17	85 x 85 x 85
74	12 x 14 x 17	95 x 95 x 95
75	13 x 17 x 19	100 x 100 x 100
61 09 76	14 x 17 x 19	100 x 100 x 100
77	14 x 17 x 21	105 x 105 x 105
78	17 x 19 x 21	110 x 110 x 110
79	19 x 21 x 23	120 x 120 x 120
80	21 x 23 x 26	130 x 130 x 130

12 Point & Spud End Wrenches

60° Offset

Llave Estrella Acodada 1 Boca
組立用メガネスパナー　2 点铲形扳手　60 度偏移

Adapted for heavy industrial and automotive work where unusual leverage is necessary. The 12 point box head insures a firm hold on the nut and it is offset to give maximum clearance. The long sturdy tapered handle provides ample strength and leverage, and can be easily inserted into bolt holes to bring them into line. Drop forged from selected alloy steel, heat-treated.



Unit Per Pc.

CODE	Opening mm	Overall Length	For Bolt Size	
			MM	WW
61 10 01	13	220 mm	M8	-
02	14	230	-	W5/16
03	17	300	M10	W3/8
04	19	320	M12	W7/16
05	21	335	-	W1/2
61 10 06	22	335 mm	M14	-
07	23	335	-	W9/16
08	24	355	M16	-
09	26	370	-	W5/8
10	27	370	M18	-
61 10 22	29	-	-	-
11	30	390 mm	M20	-
12	32	405 mm	-	W3/4
23	34	-	-	-
13	35	440 mm	M22	W7/8
61 10 14	36	440 mm	M24	-
24	38	-	-	-
15	41	475 mm	M27	W1
43	42	-	-	-
44	43	-	-	-
61 10 45	44	-	-	-
16	46	510 mm	M30	W1-1/8
46	48	-	-	-
17	50	545 mm	M33	W1-1/4
18	54	560 mm	M36	W1-3/8
61 10 19	55	560 mm	-	-
20	58	575 mm	M39	W1-1/2
21	60	575 mm	-	-
47	65	-	-	-

Wrenches, Double or Single Head Ratchet 12 Point

Llaves, Carraca Sencilla o Doble
シノ付ラチェット スパナー　十二角单头棘轮套筒板手

Made from selected alloy steel. All the critical parts are heat-treated.



Single Head

Unit Per Pc.

CODE	Opening mm	Overall Length	For Bolt Size	
			Metric	Whitworth
61 10 26	10	195	M 6	W 3/16
27	12	195	-	W 1/4
28	13	210	-	-
29	14	210	-	W 5/16
30	17	250	M10	-
61 10 31	19	270	M12	W 7/16
32	21	290	-	W 1/2
33	22	290	M14	-
34	24	310	M16	-
35	26	330	-	W 5/8
61 10 36	27	330	M18	-
37	30	350	M20	-
38	32	370	-	W 3/4
39	35	410	M22	W 7/8
40	36	410	M24	-
61 10 41	41	450	M27	W 1
42	46	460	M30	W 1-1/8

Double Head

Unit Per Pc.

CODE	Opening mm	Overall Length	For Bolt Size	
			Metric	Whitworth
61 10 51	10 x 12	195	M6 x -	W3/16 x W1/4
52	10 x 13	210	M6 x -	W3/16 x -
53	10 x 14	210	M6 x -	W3/16 x W5/16
54	12 x 14	210	-	W1/4 x W5/16
55	13 x 17	250	- x M10	-
61 10 56	14 x 17	250	- x M10	W5/16 x -
57	17 x 19	290	M10 x M12	- x W7/16
58	17 x 21	290	M10 x -	- x W1/2
59	19 x 22	290	M12 x M14	W7/16 x -
60	19 x 24	330	M12 x M14	W7/16 x -
61 10 61	21 x 26	330	-	- x W5/8
62	21 x 27	330	- x M18	-
63	22 x 24	330	M14 x M16	-
64	22 x 27	330	M14 x M18	-
65	24 x 27	330	M16 x M18	-
61 10 66	24 x 30	370	M16 x M20	-
67	26 x 32	370	-	W5/8 x W3/4
68	27 x 30	370	M18 x M20	-
69	30 x 32	370	M20 x -	- x W3/4

Striking Wrenches 12 Point Ring

(Slogging Wrenches 12 Point Ring)

Llaves Estrella de Golpe
打撃メガネスパナー　　敲击式单头十二角梅花板手

Adapted for heavy industrial work at close quarters where large nuts must be set-up tight or frozen nuts must be loosened. Drop forged from selected alloy steel and properly heat-treated to withstand shocks.



Unit Per Pc.

CODE	Opening mm	Overall Length	For Bolt Size		Weight kg
			MM	WW	
61 11 01	30	196 mm	M20	-	0.53
02	32	196	M22	W3/4	0.53
03	35	210	-	W7/8	0.67
04	36	210	M24	-	0.67
05	41	223	M27	W1	0.92
61 11 06	46	250 mm	M30	W1-1/8	1.13
07	50	250	M33	W1-1/4	1.13
08	54	273	-	W1-3/8	1.75
09	55	273	M36	-	1.75
10	58	282	-	W1-1/2	2.10
61 11 11	60	282 mm	M39	-	2.10
12	63	302	M42	W1-5/8	2.50
13	65	302	-	-	2.50
14	67	327	M45	W1-3/4	3.20
15	70	327	-	-	3.20
61 11 16	71	327 mm	M48	W1-7/8	3.20
17	75	353	-	-	4.40
18	77	353	M52	W2	4.40
19	80	353	M54	-	4.40
20	85	397	M56	W2-1/4	7.0
61 11 21	90	397 mm	-	-	7.0
22	95	418	M64	W2-1/2	8.50
23	100	418	-	-	8.50
24	105	441	M72	W2-3/4	11.20
25	110	441	M76	W3	11.20
61 11 26	115	441 mm	-	-	11.20
27	120	480	M85	-	13.30
28	125	490	-	-	15.80
29	130	492	M90	-	15.80
30	135	512	M95	-	16.60
61 11 31	145	553	M100	-	18.0

Striking Wrenches 12 Point Ring

with Spring Washer

Llaves de Golpe 12 Puntas Anillo con arandela elástica
スプリングワッシャー付き打撃メガネスパナー
带弹簧垫圈的敲击式巨型隔板

A drop forged steel safety striking wrench adapted two spring washers inside the 12 point ring, which enable the wrench to remain in place without having to hold it for free hand hammer striking.



Unit Per Pc.

CODE Steel	Opening mm	Overall Length (mm)	For Bolt Size	
			MM	WW
61 11 76	24	160	M16	-
77	27	180	M18	-
78	30	190	M20	-
79	32	190	M22	W3/4
80	36	205	M24	-
61 11 81	41	225	M27	W1
82	46	240	M30	W1-1/8
83	50	255	M33	W1-1/4
84	55	272	M36	-
85	60	272	M39	-
61 11 86	65	300	-	-
87	70	330	-	-
88	75	330	-	-

Name of Mfr.: Ampco Safety Tools

Striking Wrenches Single Open End

(Slogging Wrenches Single Open End)

Llaves Fija de Golpe
打撃片口スパナー　敲击式单头开口板手

This open end slogging wrench is designed for the same purpose as the 12-point slogging wrench. Drop forged from selected alloy steel and heat-treated.



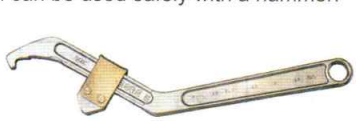
Unit Per Pc.

CODE	Opening mm	Overall Length	For Bolt Size MM	For Bolt Size WW	Weight kg
61 11 41	30	222	M 20	-	0.83
42	32	222	M 22	W3/4	0.83
43	35	222	-	W7/8	0.83
44	36	222	M 24	-	0.83
45	41	238	M 27	W1	1.15
61 11 46	46	266	M 30	W1-1/8	1.45
47	50	266	M 33	W1-1/4	1.45
48	54	303	M 36	W1-3/8	2.20
49	55	303	M 36	-	2.20
50	58	303	M 39	W1-1/2	3.50
61 11 51	60	324	M 39	-	3.50
52	63	324	M 42	W1-5/8	4.10
53	65	324	M 42	-	4.10
54	67	350	M 45	W1-3/4	5.40
55	70	350	M 45	-	5.40
61 11 56	71	350	M 48	W1-7/8	5.40
57	75	381	M 48	-	7.00
58	77	381	M 52	W2	7.00
59	80	381	M 54	-	7.00
60	85	499	M 56	W2-1/4	10.00
61 11 61	90	429	M 60	-	10.00
62	95	429	M 64	W2-1/2	10.00
63	100	451	M 68	-	13.70
64	105	469	M 72	W2-3/4	14.50
65	110	487	M 76	W3	16.00
61 11 66	115	507	M 80	-	17.90
67	120	521	M 85	-	20.20
68	125	532	-	-	23.60
69	130	537	M 90	-	23.90
70	135	560	M 95	-	24.50
61 11 71	145	606	M 100	-	29.00

Adjustable Hook Spanner Wrenches

Llave Gancho Ajustable　アジャストフックスパナー　钩形活络板手

This spanner has the advantage of strength and adjustability. One wrench can be used for bolts of a variety of sizes by simply adjusting the jaw. The handle is strengthened so that the wrench can be used safely with a hammer.



Unit Per Pc.

CODE	Circle Diam. mm	Overall Length
61 12 01	35 to 105	270 mm
02	95 to 165	370 mm

Hook Spanner Wrenches

Llaves Gancho　引掛けスパナー　钩形板手

A tool to tighten and loosen round nuts with notches. Sizes fit to the outer diameter of round nuts. Made from selected alloy steel, hooks are hardened and tempered.



Unit Per Pc.

CODE	Circle Diam mm	Overall Length
61 12 06	12 to 14	108 mm
07	16 to 20	108
08	25 to 28	136
09	30 to 32	136
10	34 to 38	160
61 12 11	40 to 42	173 mm
12	45 to 50	196
13	52 to 55	208
14	58 to 62	232
15	68 to 75	247
61 12 16	80 to 90	271 mm
17	92 to 100	286
18	110 to 115	333
19	120 to 130	333
20	135 to 145	385
61 12 21	150 to 165	385 mm
22	175 to 195	466
23	200 to 220	466
24	230 to 250	567
25	260 to 280	567

Valve Wheel Wrenches

Claw Type

Llaves de Válvula/Tipo Uña
バルブホイールレンチ爪型　阀盘板手

For opening and closing cargo valves. Claw type wrenches made of manganese bronze. Specify the overall length when ordering.



Unit Per Pc.

CODE	Overall Length mm.	For Valve size mm.
61 12 31	460	Up to 130
32	560	100 ~ 300
33	660	200 ~ 450
34	915	360 and over

Allen Hexagon Wrenches

Llaves Allen (Hexagonal)
六角棒スパナー　L 型内六角板手

Made from selected steel. A tool wrench for tightening and loosening hexagon head cap screws.



Unit Per Pc.

CODE	Across Flats	CODE	Across Flats
	mm		
61 12 41	1.4	**61 12 52**	9.0
42	1.5	**85**	9.5
43	2.0	**53**	10
44	2.4	**54**	12
45	2.5	**55**	14
61 12 46	3.0	**61 12 56**	16
77	3.5	**57**	17
47	4.0	**58**	19
78	4.5	**59**	21
48	5.0	**60**	22
61 12 79	5.5	**61 12 61**	23
49	6.0	**62**	24
80	6.5	**63**	26
50	7.0	**64**	27
83	7.5	**65**	32
61 12 51	8.0	**61 12 66**	36
84	8.5		
	Inch		
61 12 67	1/8	**61 12 72**	5/16
68	5/32	**73**	3/8
69	3/16	**74**	7/16
70	7/32	**75**	1/2
71	1/4	**76**	9/16

Hexagon Allen Wrench Sets

Juegos de Llaves Allen (Hexagonal)
六角棒スパナセット　　内六角板手



How to order: CODE
Wrench set, allen hexagon,
SIZE (MINIMUM to MAXIMUM), 8's/set

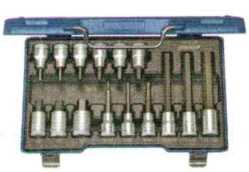
Unit Per Set

CODE	Contents	Pcs/Set
61 12 81	mm ... Across Flats ... 2.5, 3, 4, 5, 6, 8, 10, 12	8' s
82	in ... Across Flats ... 1/8, 3/16, 7/32, 1/4, 5/16, 3/8, 7/16, 1/2	8' s

Hexagon Bit Sets

Juegos de Puntas Hexagonales
六角ビットセット　　全套的六角板手

A handy tool kit to tighten and loosen hexagon head cap screws.



How to order: CODE
Hexagon bit set, 6 bits, SIZE, NUMBER of TOOLS

Unit Per Set

CODE	Hexagon Bit		Number of Tools	Case
	Size	Quantity		
61 12 86	2 - 6	6' s	3' s	Plastic
87	3 - 10	6' s	6' s	"
88	6 - 17	6' s	6' s	"
89	14 - 27	6' s	3' s	Steel

Contents

61 12 86

6 Hexagon bits	2, 2.5, 3, 4, 5, 6 mm
1 x Extension bar (6")	1 x Nut handle
1 x Ratchet handle	

61 12 87

6 Hexagon bits	3, 4, 5, 6, 8, 10 mm
1 x Extension bar (6")	1 x Ratchet handle

61 12 88

6 Hexagon bits	6, 8, 10, 12, 14, 17 mm
2 x Extension bar (5" / 10")	1 x Ratchet handle
1 x T type handle	

61 12 89

6 Hexagon bits	14, 17, 19, 22, 24, 27 mm
2 x Extension bar (100mm/200mm)	1 x Ratchet handle
1 x T type handle	

Hexagon Sockets

Llaves hexagonales　六角ソケット　六角套筒

Standard hexagonal sockets for tighten or loosen the hexagon head cap screws. Socket part is treated with nickel-chrome plated surface.



Unit Per Pc.

CODE	Square Drive mm	Size mm	Overall Length (mm)
61 12 91	12.7	4	60
92		5	60
93		6	60
94		8	60
95		10	60
61 12 96		12	60
97		14	60
98		17	70

Pipe Wrenches

(Stillson Wrenches)

Llaves Stillson　パイプレンチ　重型直形管板钳

Straight, Heavy Duty

Powerful all alloy housing and handle. Housing guaranteed not to break or warp. Chrome molybdenum steel jaws will not slip or lock on pipes. The adjusting nut spins smoothly on frames of all sizes.



Unit Per Pc.

CODE	Length mm	For Pipe Size in	CODE	Length mm	For Pipe Size in
61 13 01	150	1/4 - 5/8	**61 13 06**	450	1/2 - 2
02	200	1/4 - 3/4	**07**	600	1/2 - 2-1/2
03	250	1/4 - 1	**08**	900	1/2 - 4
04	300	3/8 - 1-1/4	**09**	1,200	1 - 5
05	350	1/2 - 1-1/2			

45°

45° angle jaws with offset teeth in opposite direction. Teeth are additionally induction hardened. Made of chrome vanadium steel, oil-hardened and tempered.



Unit Per Pc.

CODE	Nom. Capacity	Working Capacity mm	Length mm	Weight grm
61 13 11	1"	0 - 42	320	810
12	1-1/2"	0 - 60	430	1,490
13	2"	0 - 70	570	2,820

Ref. : Knipex Model No. 83 20 010 / 015 / 020

S-Type 45°

S type and 45° angled jaws with offset teeth in opposite direction. Teeth are additionally induction hardened. Made of chrome vanadium steel, oil-hardened and tempered.



Unit Per Pc.

CODE	Nom. Capacity	Working Capacity mm	Length mm	Weight grm
61 13 15	1/2"	0 - 35	245	500
16	1"	0 - 42	320	870
17	1-1/2"	0 - 60	420	1,570
18	2"	10 - 70	540	2,540
19	3"	10 - 120	680	4,295

Ref. : Knipex Model No. 83 30 005 / 010 / 015 / 020 / 030

Motor Wrenches

Llaves de Motor モーターレンチ 马达板手

Well adapted for industrial use. Natural, polished finish, rustproof with tight grip jaws.



Unit Per Pc.

CODE	**61 13 21**	**61 13 22**
Length	230 mm	280 mm

Speed Wrenches, Adjustable

Llaves Auto-ajustable スピードレンチ 可调整式快速扳手

A tool, that serves as an adjustable wrench and a pipe wrench. The jaws are milled extra deep for speedy operations.



Unit Per Pc.

CODE	Length mm	Maximum Open mm
61 13 26	150 mm	13 mm
27	200 mm	24 mm
28	250 mm	30 mm
29	300 mm	35 mm

Adjustable Wrenches

Heavy Duty (Shifting Spanners)

Llaves Ajustables/Servicio Pesado
モンキースパナ
活动扳手重载荷用（活动扳手）

Drop forged from special alloy steel with thin tapered jaws. A square shoulder on the sliding jaw shank prevents it from loosening during use. The head has a polished finish and the handle is chromed.



Unit Per Pc.

CODE	Length	Maximum Jaw Opening	CODE	Length	Maximum Jaw Opening
61 13 31	100 mm	13 mm	**61 13 35**	300 mm	34 mm
32	150	20	**36**	375	44
33	200	24	**37**	450	53
34	250	29	**38**	600	62

Single Jaw Chain Pipe Wrenches

Llaves de Cadena para Tubo
片顎式チェーントング 单爪链条式管板钳



Drop forged from vanadium alloy steel with a chain made of nickel chrome molybdenum steel. Will fit to objects of any shape: round, square, hexagon, etc. Can be used in close quarters where it would be difficult to use a pipe or wrench. This wrench has ratchet action which enables it to tighten and free up without being removed from the pipe.

Unit Per Pc.

CODE	Nominal Pipe Size	Capacity Pipe mm	Overall Length mm
Chain Pipe Wrench			
61 13 71	8A - 40A	12 - 50	230
72	8A - 80A	14 - 89	305
73	10A - 100A	17 - 120	425
74	20A - 150A	25 - 170	510
75	25A - 200A	34 - 230	700
61 13 76	25A - 250A	35 - 270	745
77	25A - 300A	35 - 320	745
78	50A - 500A	60 - 510	745
Extra Chain For Pipe Wrench			
61 13 81	8A - 40A	12 - 50	243
82	8A - 80A	14 - 89	438
83	10A - 100A	17 - 120	514
84	20A - 150A	25 - 170	685
85	25A - 200A	34 - 230	860
61 13 86	25A - 250A	35 - 270	984
87	25A - 300A	35 - 320	1,111
88	50A - 500A	60 - 510	1,867

Internal Pipe Wrenches

"Pipe Buster"

Llave para Limpiar el interior de Tubos "Pipe Buser"
差し込み式パイプレンチ 插入式扳手

Reduces pipe assembly and disassembly time by 80%. A self-locking, reversible, internal pipe wrench can be used with ratchets, extensions and impact/air wrenches. Suitable for installing or removing pipes located in tight spots, extremely hot and rusted tight. It won't create busted knuckles, broken pipes or ruined walls, and won't scar chromed pipe, can't damage threads and can remove the most stubborn nipples.



Unit Per Pc.

CODE	For Pipe Size	CODE	For Pipe Size
For Schedule 40		For Schedule 80	
61 13 91	1/2"	**61 13 95**	3/4"
92	3/4"	**96**	1" & 1-1/4"
93	1" & 1-1/4"	**97**	1-1/2" & 2"
94	1-1/2" & 2"		

3. Torque Tools/Torque Wrenches

Torque Tools/Torque Wrenches

Herramientas Dinamométricas/Llavas Dinamométricas

トルクツール　转矩工具 / 转矩扳手

A device which shows the force of torque with which a screw or nut is being tightened. It allows one to set screws exactly at a predetermined torque without any effort.

A wide range of models from different manufacturers are available. The most common models are listed below.

Direct Reading Beam Type

For quality control inspection and production. Pivotted handle concentrates load position. For use with a socket wrench.



How to order: CODE

Torque wrench, direct reading beam type, CAPACITY (MINIMUM to MAXIMUM) kgf-cm

Unit Per Pc.

CODE	Model	Capacity min.-max. kgf-cm	Scale kgf-cm	Sq. Drive	Overall L mm	Wgt. kg
61 14 01	F23N	3 - 23	0.5	9.5	295	0.40
02	F46N	5 - 46	1	9.5	355	0.60
03	F92N	10 - 92	2	12.7	400	0.95
04	F130N	20 - 130	2	12.7	445	1.20
05	F190N	30 - 190	5	12.7	490	1.50
61 14 06	F280N	50 - 280	5	19.0	565	2.20
07	F420N	70 - 420	10	19.0	820	3.50
08	F560N	100 - 560	10	19.0	945	4.00
09	F700N	100 - 700	10	19.0	1,175	6.00
10	F850N	100 - 850	20	25.4	1,410	7.80
61 14 11	F1000N	100 - 1,000	20	25.4	1,640	8.80

Dial Type

Ideal for quality control and inspection, and rugged enough for production work. With stay-set indicator model available. For use with a socket wrench.



How to order: CODE

Torque wrench, dial type, CAPACITY (MINIMUM to MAXIMUM) kgf-cm

Unit Per Pc.

CODE	Model	Capacity min.-max. kgfcm	Scale kgf-cm	Sq. Drive	Overall L mm	Wgt. kg
61 14 16	DB6N	0 - 6	0.1	6.3	230	0.40
17	DB12N	1 - 12	0.2	6.3	230	0.40
18	DB25N	3 - 25	0.5	9.5	245	0.40
19	DB50N	5 - 50	0.5	9.5	320	0.60
20	DB100N	10 - 100	1	12.7	400	0.70
61 14 21	DB200N	20 - 200	2	12.7	500	1.00
22	DB280N	30 - 280	5	19.0	690	1.65
23	DB420N	40 - 420	5	19.0	890	2.50

Preset Type

Suitable for high efficiency mass production. By presetting the wrench you can tighten bolts to a desired torque every time. To operate, you first pull the handle until it clicks to the set position. Then you tighten the bolt until the resistance of the wrench stops. When you release the wrench, it is automatically set for the next operation. No need to refer to a dial or meter during use allowing you to increase work speed substantially. For use with a socket wrench.



How to order: CODE

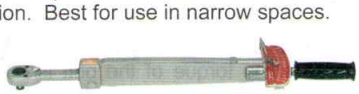
Torque wrench, preset type, CAPACITY (MINIMUM to MAXIMUM) kgf-cm

Unit Per Pc.

CODE	Model	Capacity min.-max. kgf-cm	Scale kgf-cm	Sq. Drive	Overall L mm	Wgt. kg
61 14 26	QL6N	2 - 6	0.1	6.3	175	0.12
27	QL12N	4 - 12	0.2	6.3	185	0.18
28	QL25N	5 - 25	0.25	9.5	220	0.23
29	QL50N	10 - 50	0.5	9.5	250	0.43
30	QL100N	20 - 100	1	12.7	330	0.67
61 14 31	QL200N	40 - 200	2	12.7	475	1.40
32	QL280N	40 - 280	2	19.0	675	1.80
33	QL420N	60 - 420	2	19.0	975	3.20

Direct Reading Beam Type with Ratchet

High efficient torque wrench with ratchet for quality control and production. Best for use in narrow spaces.



How to order: CODE

Torque wrench, direct reading beam with ratchet, CAPACITY (MINIMUM to MAXIMUM) kgf-cm

Unit Per Pc.

CODE	Model	Capacity min.-max. kgf-cm	Scale kgf-cm	Sq. Drive	Overall L mm	Wgt. kg
61 14 36	QF60N	6 - 60	1	9.5	455	0.80
37	QF120N	10 - 100	2	12.7	520	1.20
38	QF220N	30 - 220	5	12.7	580	1.80
39	QF320N	40 - 320	5	19.0	655	2.60
40	QF420N	70 - 420	5	19.0	830	3.40
61 14 41	QF560N	100 - 560	10	19.0	950	4.30
42	QF700N	100 - 700	10	19.0	1,165	6.50
43	QF850N	100 - 850	20	25.4	1,400	8.50

Preset Type Torque Driver

For high efficient mass production. Incorporated with a device utilizing a toggle joint. When the set torque is reached, the movement of the toggle joint can be felt by hand. No need to read the scale.



How to order: CODE

Torque driver, preset type, CAPACITY (MINIMUM to MAXIMUM) kgf-cm

Unit Per Pc.

CODE	Model	Capacity min.-max. kgf-cm	Scale kgf-cm	Overall L mm	Wgt. grm
61 14 46	LTD15CN	2 - 15	0.1	100	50
47	LTD30CN	4 - 30	0.2	100	50
48	LTD60CN	10 - 60	0.5	105	80
49	LTD120CN	20 - 120	1.0	120	125
50	LTD260CN	60 - 260	1.2	140	215
61 14 51	LTD500CN	100 - 500	2.5	150	320
52	LTD1000CN	200 - 1,000	5.0	180	580
53	LTD2000CN	300 - 2,000	5.0	255	1,150

Preset Type Torque Watch Driver

Torque drivers for the highly efficient tightening of small screws such as in watches and cameras. When the set torque is reached, the movement of the toggle joint is felt on the finger. There is no need to read the dial.



How to order: CODE

Torque watch driver, preset type, CAPACITY (MINIMUM to MAXIMUM) kgf-cm

Unit Per Pc.

CODE	Model	Capacity min.-max. kgf-cm	Scale kgf-cm	Overall L mm	Wgt. grm
61 14 56	BMLD15CN	2 - 15	0.1	114	50
57	BMLD30CN	4 - 30	0.2	114	50

Bolt Tension Machine

Used for measuring the axile force of bolts by oil pressure. Use this machine to determine whether the bolt is good or not as well as whether the tightening torque of the bolt is adequate or not by tightening the bolt with the torque wrench. Accuracy: ± 3%.



How to order: CODE

Bolt tension measurer, CAPACITY (MINIMUM to MAXIMUM) ton

Unit Per Pc.

CODE	Model	Capacity min.-max. Ton	Scale Ton	Dimension W x T x H	Wgt. kg
61 14 61	B-BTM13K	1.2 - 13	0.2	106 x 78 x 217	7.7
62	B-BTM40K	4 - 40	0.5	134 x 82 x 241	9.8
63	B-BTM130K	12 - 130	2	188 x 106 x 287	17.5
64	B-BTM400K	40 - 400	5	280 x 126 x 369	31.0
65	BTM400K	40 - 400	5	260 x 64 x 280	12.6

4. Pliers

Combination Pliers, Slip Joint

Alicates Ajustable　コンビネーションプライヤー　鯉魚鉗

Designed to have the maximum capacity for gripping round objects. The jaws are set close to the hinge for better leverage and the handle is curved for better gripping.



Unit Per Pr.

CODE	61 16 01	61 16 02	61 16 03
Length	150 mm	200 mm	250 mm

Thin Bent Nose Pliers

Alicate de Punta Curva　ベントノーズプライヤー　弯嘴鉗

The head of these pliers is bent at a 30° angle and the plier jaws are thinner for easier use in confined areas.



Unit Per Pr.

CODE	61 16 11	61 16 12
Length	175 mm	200 mm

Long Nose Straight Pliers

Alicate de Boca Plana Larga
ロングノーズプライヤー　尖嘴鉗

Designed with a thin and pointed nose for precision work in close quarters.



Unit Per Pr.

CODE	61 16 16	61 16 17
Length	160 mm	200 mm

Plier Wrenches

Plastic Coated Handle

Tenazas Llave, Mango de Plástico Reverstido
プライヤーレンチ　膠柄扳手鉗



Plier and wrench in a single tool. Excellent for gripping, holding, pressing and bending workpieces. Fast adjustment directly on the workpiece by pushing a button, and no unintentional shift of the gripping jaws and no slipping of the joint. The action of the jaws allows screwed connections to be tightened and released quickly using the ratchet principle.

Unit Per Pr.

CODE	Working Capacities		Length mm	Weight grm
	Inch	mm		
61 16 21	1-3/8"	to 35	180	260
22	1-3/4"	to 46	250	540
23	2-3/8"	to 60	300	725

Ref. : Knipex Model No. 86 03 180 / 250 / 300

Water Pump Pliers w/Positions

Five Adjustment (Channel Locks)

Tenacilla de Canal　ウォーターポンププライヤー　水泵鉗子

Designed with narrow angled jaws for work in confined spaces.



Unit Per Pr.

CODE	61 16 26	61 16 27
Length	250 mm	300 mm

Heavy Water Pump Pliers

Five Adjustment

Tenacilla Canal 'P.V.C.'
ヘビーウォーターポンププライヤー　重型水泵钳

Provides strong gripping power in all set positions. Jaw opens to a maximum size of 45 mm.



Unit Per Pr.

CODE	Length	CODE	Length
61 16 29	165 mm	**61 16 31**	300 mm
33	200 mm	**32**	400 mm
30	250 mm		

Gripping Pliers for Plastic Pipe

Plastic Coated Handle

Alicates para Manejar Tobos de Plástico, Mango de Plástico Reverstido
プラスチックパイプ用グリッピングプライヤー
塑膠管用膠柄夾鉗

Ideal for tightening and releasing plastic pipe joints, round union nuts, etc. from 25 up to 80 mm diam. 25-position adjustable slip joint and made of chrome vanadium electric steel, oil-hardened and tempered. Model No.81 13 250 is furnished with plastic jaws for careful installation up to 75 mm diam.





With Plastic Jaws

Unit Per Pr.

CODE	Working Capacity Diam. mm	Length mm	Weight grm	Remark
61 16 35	25 - 80	250	355	-
36	10 - 75	250	355	w/jaws

Ref. : Knipex Model No. 81 03 250 / 81 13 250

Vise Grip Combination Pliers

(Mole Grip Wrenches)

Mordaza Grip Bacos curvas
バイスプライヤー　虎钳式手钳

A universal tool which serves as an adjustable end wrench, locking wrench, pipe wrench, vise, clamp, plier and toggle press. Has a double lever action that locks jaws to the work. Locks with a grip that holds until the lever is snapped open. Works in close quarters at any angle.



Unit Per Pr.

CODE	Length	CODE	Length
61 16 41	125 mm	**61 16 43**	200 mm
42	175 mm	**44**	250 mm

Small Water Pump Pliers

with Groove Joint, Plastic Coated Handle

Tenacillas para Bombas de Agua con Groove Joint, Mango de Plástico Revestido
小型ウォーターポンププライヤー
凹槽結合式小型膠柄幫浦鉗



Non-slip joint and easy, convenient engagement in 4 different positions. Made of forged from chrome vanadium electric steel, oil-hardened and tempered.

Unit Per Pr.

CODE	Capacities		Length mm	Weight grm
	For Pipes Diam. mm	For Nuts Across Flats mm		
61 16 46	17	14	125	100

Ref. : Knipex Model No. 90 01 125

Side Cutting Pliers

Alicate Universal　ペンチ　侧剪钳（无绝缘手柄）

A belt or pocket tool developed for difficult working situations. (For example : overhead electric work in masts, etc.) Forged high grade tool steel with powerful leverage and keen cutting blades. Insulated handles tested to withstand 1,000 volts.



Non-Insulated Handle



Insulated Handle

Unit Per Pr.

Non-Insulated Handle		Insulated Handle	
CODE	Length	CODE	Length
61 16 50	125 mm	**61 16 56**	125 mm
51	150	**57**	150
52	175	**58**	175
53	200	**59**	200
54	250	**60**	250

Flat Nose Pliers

Insulated Plastic Body

Alicates planos, agarre con aislamiento plástico
プラスチック製絶縁プライヤー
塑料绝缘扁嘴钳



Made of plastic material, fibreglass-reinforced, handles with soft plastic zone. Fully insulating to reduce risk of short circuit up to AC 1,000V and DC 1,500V. Insulation standard: IEC 60900 DIN EN 60900. Length : 180 mm.

61 16 61	Pliers, flat nose, insulated, plastic body, length 180 mm	Pr.

Ref. : Knipex Model #98 62 01

Side Cutting Pliers with Spring

Plastic Covered Handle

Alicate Universal con Reorte/Magos en P.V.C.
スプリング付ペンチ　弹簧式侧剪钳

A side cutting plier with a built-in spring to open the jaws easily when pressure on the handle is relaxed. Useful tool for electricians.



Unit Per Pr.

CODE	61 16 66	61 16 67	61 16 68
Length	150 mm	175 mm	200 mm

Side Cutting & Reamer Pliers

Plastic Covered Handle

Alicate Universal "Americano"/Magos en P.V.C.
面取りペンチ　　側剪钳（塑料绝缘手柄）



This tool combines the qualities of a side cutting plier with a reaming blade for lead, conduit or vinyl tubes.

Unit Per Pr.

CODE	61 16 71	61 16 72	61 16 73
Length	150 mm	175 mm	200 mm

Mini Combination Pliers

Plastic Covered Handle

Alicate Tamaño Pequeño/Mangos en P.V.C.
ミニペンチ　　迷你大力钳



Jaw opening springs, full polished head. Induction hardened cutting edges, slip resistant PVC handle. Material: Hardened and tempered CrV steel.

61 16 75	Pliers, combination, mini, plastic covered handle, 115 mm	Pr.

Round Nose Pliers

Plastic Covered Handle

Alicate de Boca Redonda/Magos en P.V.C.
丸ペンチ　圆嘴钳（绝缘手柄）



Designed for quick wiring jobs and detailed wiring where a small round tipped wire is essential. Made from a special alloy steel.

Unit Per Pr.

CODE	61 16 81	61 16 82
Length	125 mm	150 mm

Mini Long Round Nose Pliers

Plastic Covered Handle

Alicate de Boca Redonda Medio Largo/Mangos en P.V.C.
ミニ丸ペンチ　　迷你长圆鼻钳



Jaw opening springs, full polished head. Induction hardened cutting edges, slip resistant PVC handle, flat-square jaws for gripping and forming. Material: Hardened and tempered CrV steel.

61 16 84	Pliers, round nose, mini long, plastic covered handle, 115 mm	Pr.

Long Needle Nose Pliers

Plastic Covered Handle

Alicate de Boca Redonda Largo/Mangos en P.V.C.
先長細口ペンチ　　细口尖嘴钳（塑料绝缘手柄）



With a long, half-round, tempered nose for very fine work in assembling electric apparatus, etc.

Unit Per Pr.

CODE	61 16 86	61 16 87
Length	125 mm	150 mm

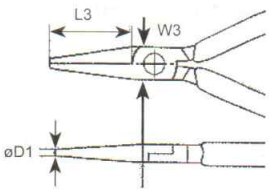
Insulated Round Nose Pliers

Resistance up to 1,000 Volts
Conformed to IEC 60900/DIN EN 60900

Tenazas de Punta Redonda Aisladas Resistantes hasta Mil Voltios
絶縁型丸ペンチ（耐電 1,000V）
高絕緣圓口鉗　耐電壓 1000V

For forming wire loops by precision ground, short, round jaws. Made of special tool steel, oil-hardened and tempered.





Unit Per Pr.

CODE	Dimensions			Length mm	Weight grm
	L3	W3	D1		
61 16 89	30.0	18.0	3.0	160	175

Ref.: Knipex Model No. 22 06 160

Snipe Nose Pliers

Insulated Plastic Body

Alicates en punta, agarre con aislamiento plástico
プラスチック製絶縁プライヤー　　塑料绝缘尖嘴钳



Made of plastic material, fibreglass-reinforced, handles with soft plastic zone. Fully insulating to reduce risk of short circuit up to AC 1,000V and DC 1,500V. Insulation standard: IEC 60900 DIN EN 60900. Length: 220 mm.

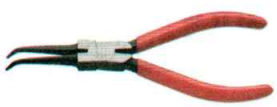
61 16 90	Pliers, snipe nose, insulated, plastic body, length 220 mm	Pr.

Ref.: Knipex Model #98 62 02

Bent Nose Pliers

Plastic Covered Handle

Alicates de Punta Curvada　先曲りペンチ　弯嘴钳



Curved needle spring tempered nose pliers for use in narrow places. Can be used without having to turn or twist your hand in close quarters.

61 16 91	Pliers, bent nose plastic covered handle 150 mm	Pr.

Long Nose Side Cutting Pliers

Plastic Covered Handle

Alicates de corte lateral de nariz larga, manija cubierta de plástico
ラジオペンチ　　长鼻侧切钳，塑料覆盖手柄



Long thin tip for work in narrow confined areas. An ideal tool for quick repair and electronic works.

Unit Per Pr.

CODE	Length	CODE	Length
61 16 94	125 mm	**61 16 96**	200 mm
95	150 mm		

Insulated Long Nose Pliers

Resistance up to 1,000 Volts

Alicates de punta larga con aislamiento, hasta 1.000 voltios de resistencia
絶縁先長ペンチ（耐電圧 1,000V）
绝缘耐压尖嘴钳（可耐电压 1000V）



The essential pliers for electrical installation work in narrow confined areas. Made of VDE insulated handle which can withstand 1,000 volts.

61 16 97	Pliers, long nose, insulated, L: 150 mm	Pr.
61 16 98	Pliers, long nose, insulated, L: 200 mm	Pr.

Duckbill Pliers

Plastic Covered Handle



Alicate Boca Pato/Magos en P.V.C.
ダックビルペンチ　鸭嘴钳（塑料绝缘手柄）

Made from chrome-molybdenum steel. Long handle provides powerful leverage.

61 17 01	Pliers, duckbill plastic covered handle 200 mm	Pr.

Flat Nose Pliers

Plastic Covered Handle



Alicate Boca Plana/Magos en P.V.C.
リードペンチ　扁嘴钳（塑料绝缘手柄）

Designed with flat narrow jaws for holding or bending wires, etc. inside narrow and restricted places.

Unit Per Pr.

CODE	Length	CODE	Length
61 17 05	125 mm	**61 17 07**	175 mm
06	150 mm		

Mini Long Flat Nose Pliers

Plastic Covered Handle

Alicate de Boca Plana Medio Largo/Mangos en P.V.C.
ミニリードペンチ　长平嘴钳



Jaw opening springs, full polished head. Induction hardened cutting edges, slip resistant PVC handle, flat-square jaws for gripping and forming. Material: Hardened and tempered CrV steel.

61 17 09	Pliers, flat nose, mini long, plastic covered handle, 115 mm	Pr.

Diagonal Cutting Pliers

Plastic Covered Handle

Cortante Oblicuo/Magos en P.V.C.
斜ニッパー　对剪钳（塑料绝缘手柄）



Sharp, hardened edges with narrow jaws enable you to cut wires inside tight places.

Unit Per Pr.

CODE	Length	CODE	Length
61 17 10	100 mm	**61 17 12**	150 mm
11	125 mm		

Heavy Duty Diagonal Cutting Pliers

Plastic Covered Handle

Cortante Oblicuo Reforzado/Magos en P.V.C.
強力ニッパー
强力对剪钳（塑料绝缘手柄）



A tool to cut heavy wire with little effort. Made from high quality alloy steel.

Unit Per Pr.

CODE	**61 17 16**	**61 17 17**	**61 17 18**
Length	125 mm	150 mm	175 mm

Mini Diagonal Cutting Pliers

Plastic Covered Handle

Cortante oblicuo tamaño Pequeño/Mangos en P.V.C.
ミニ斜めニッパー　斜嘴钳



Jaw opening springs, full polished head. Induction hardened cutting edges, slip resistant PVC handle. Designed to cut wire with ease. Material: Hardened and tempered CrV steel.

61 17 21	Pliers, diagonal cutting, mini, plastic covered handle, 115 mm	Pr.

Insulated Diagonal Strippers

Resistance up to 1,000 Volts
Conformed to IEC 60900 / DIN EN 60900

Pelacales Aislados de Corte Diagonal Resistentes hasta Mil Voltios
絶縁型ストリッパー（耐電圧 1,000V）
高絕緣斜口剝線鉗耐電壓 1000V

The essential plier for electrical installation work, and furnished with precision stripping holes for single (solid) conductors of 1.5 and 2.5 mm². Induction hardened precision blades for soft wire up to 4.0 mm diam., cutting edge hardness approx. 60 HRC. Made of high grade special tool steel, oil-hardened and tempered.



Unit Per Pr.

CODE	Cutting Capacities		Length	Weight
	mm2	AWG	mm	grm
61 17 23	1.5 + 2.5	15 + 13	160	210

Ref. : Knipex Model No. 14 26 160

Insulated Diagonal Cutters

Resistance up to 1,000 Volts
Conformed to IEC 60900 / DIN EN 60900

Pinzas de Corte Diagonal aisladas Resistantes hasta Mil Voltios
絶縁先ニッパー（耐電 1,000V）
高絕緣斜口鉗　耐電壓 1000V

Furnished with precision cutting edges for soft and hard wire, and creates clean cutting at cutting edge tips, also in case of thin copper wires. Cutting edges are additionally induction hardened, cutting edge hardness approx. 62 HRC. Narrow head style for use in confined areas. Made of vanadium electric steel, oil-hardened and tempered.



Unit Per Pr.

CODE	Cutting Capacities			Length mm	Weight grm
	Copper / Plastics	Nail / Wire pin	Wire rope strand/ Steel wire		
61 17 25	3.0	2.3	1.5	125	120
26	4.0	2.5	1.8	140	160
27	4.0	2.8	2.0	160	210
28	4.0	3.0	2.5	180	255

Ref.: Knipex Model No. 70 06 125 / 140 / 160 / 180

Cable Shoe Pliers

Alicates para Terminales　圧着ペンチ　电缆端子压钳



A tool for pressing cable shoes on electric cables of sizes 1.25, 2.0, 5.5 and 8 mm/sq. An essential tool for radio repairers and electricians. Length 250 mm.

61 17 30	Pliers, cable shoe 1.25 mm - 8 mm sq.	Pr.

Cable Shoe Clamping Tool Kits

Estuches de Herramientas para Terminales
ケーブルシューキット　电缆端子压钳



Specially designed for marine use. A steel kit with a clamping pliers and 1,000 cable shoes of 10 different sizes.

61 17 32	Cable shoe and its clamping tool kit	Set

Crimping Pliers
with Changer Magazine

Alicates de engarzar con cambiador de herramienta
交换式ダイス付き圧着ペンチ　带可更换压模的压线钳



Just one tool for the most common crimping applications. Made of chrome vanadium electric steel in special quality, oil-hardened. Crimping dies changed quickly and easily without any additional tool. Length: 250 mm.

Five interchangeable dies in round magazine :

* for non-insulated open plug type connectors (plug width 4.8 + 6.3 mm) from 0.5 - 6 mm².
* for insulated terminals, plug connectors and butt connectors from 0.5 - 6 mm².
* for insulated and non-insulated end sleeves (ferrules) from 0.25 - 6 mm².
* for insulated and non-insulated end sleeves (ferrules) with 10 / 16 / 25 mm².
* for non-insulated crimp terminals. Tube and compression cable lugs in accordance with DIN 46234 and DIN 46235 and non-insulated crimp, butt and press connectors in accordance with DIN 46341 and DIN 46267.

61 17 33	Pliers, crimping, with changer magazine, length 250 mm	Set

Ref. : Knipex Model No. 97 33 02

Hydraulic Cable Shoe Pliers

Tenaza Hidráulica para Terminales
油圧ケーブルシューペンチ　液压电缆端子压钳



For non-insulated terminals. The following four sizes are available. Please specify the size required when ordering.

Specifications

Applicable Cable Shoe Size	Wire mm² (AWG)	Weight grm
14	10.52 - 16.78 (6)	2,000
22	16.78 - 26.66 (4)	
38	26.66 - 42.42 (2)	
60	42.42 - 60.57 (1/0)	

61 17 34	Pliers, cable shoe hydraulic for 10.52 - 60.57 mm² wire size	Pr.

Electric Cable Strippers

Alicates Pelacables　ワイヤーストリッパー　剥线钳



Strips the outer vinyl cover from electric wires without damaging the copper wire underneath. These strippers come with an insulated handle. A very useful tool for engineers and electricians.

How to order: CODE

Electric cable stripper, KIND of CABLE, CABLE SIZE (MINIMUM - MAXIMUM)

Unit Per Pr.

CODE	Kind of Cable	Cable Size
61 17 36	Single	0.5, 1.2, 1.6, 2.0 mm
37	"	1.0, 1.6, 2.0, 2.6, 3.2 mm
38	Strand	0.9, 1.25, 2.0, 3.5, 5.5 mm²
39	Parallel	0.75 mm² x 2C, 1.25 mm² x 2C

Weicon Cable & Wire Strippers

Herramienta peladora de cables y alambres
ケーブル & ワイヤーストリッパー　电缆和剥线钳

Accurate, fast and safe stripping of all common round cables and wires with variety of performance ranges.

Unit Per Pc.

CODE	Model	Application	Performance Range
61 17 29	Cable Stripper 4-28H 	Accurate, fast and safe stripping of all common round cables of 4-28 mm Ø. No damage of the inner conductors due to infinitely variable adjustment of the cutting depth.	4 - 28 mm Ø with Hook knife
61 17 31	Cable Stripper S4-28 Multi 	Accurate, fast and safe stripping of all common round cables of 4-28 mm Ø. Stripping of all standard flexible and solid cables with a cross-diameter between 0.5 and 6 mm².	4 - 28 mm Ø 0.5 - 6 mm²

Unit Per Pc.

CODE	Model	Application	Performance Range
61 17 35	Cable Scissors No. 35 	For cutting and stripping of Cu/Al conductors as well as for crimping of terminals from 0.5 to 4 mm². The blades are equipped with micro-toothing. This achieves a flush cut and the slipping of the cable is prevented.	Cu/Al conductors 35 mm²
61 17 40	Coax Stripper No. 2 	Working range 4.8 - 7.5 mm Ø, adjusting the cutting depth not required. Also suitable for flexible cables Length scale (0 - 17 mm) integrated in the housing Two-level stripping of all common coaxial cables.	Coaxial 4.8 - 7.5 mm Ø NYM 3 x 0.75 mm² Flexible 10+16 mm²
61 17 55	Duo-Crimp No. 300 	Three tools in one: Wire Stripper for inner insulations from 0.5-6.0 mm², crimping of terminals with two crimping ranges: 0.5 mm² - 2.5 mm² (18-15 AWG) and 4 mm - 6.0 mm²(14-10 AWG). According to DIN 46228-2 Integrated, well-accessible side cutter up to 6 mm²	0.5 - 6.0 mm²
61 17 61	Multi-Stripper No. 400 	Multifunctional with 4 functions. Working range 0.5 - 6 mm² / 8 - 13 mm Ø Flush stripping even in locations difficult to reach. Secure and space-saving storage thanks to interlock Round cutting - longitudinal cutting - stripping - cutting	8 - 13 mm Ø 0.5 mm² - 6.0 mm²
61 17 62	Wire Stripper No.5 	Automatic wire stripper for all common stranded and solid conductors (0.2 – 6.0 mm²), very easy to operate, integrated, well-accessible side cutter up to 2 mm Ø, precise working thanks to adjustable length stop (5 - 12 mm), space-saving due to locking of the stripper, low weight ensures fatigue-free working, replaceable blades.	0.2 - 6.0 mm² (24 - 10 AWG)

Name of Mfr : Weicon GmbH & Co. KG

Wire Strippers

Plastic Coated Handle



Pelacables, Mango de Plástico Revestido
ワイヤーストリッパー　膠柄剥線鉗

For single, multiple and fine stranded conductors with plastic or rubber insulation max. 5.0 mm diam. or respondent 10.0 mm² cable cross section. Easy adjustment to the required diameter of solid or stranded wire with knurled screw and lock nut. Made of special tool steel, oil-hardened and tempered.

Unit Per Pr.

CODE	Length mm	Stripping Capacities			Weight grm
		Diam. mm	mm²	AWG	
61 17 41	160	5.0	10.0	7	135

Ref.: Knipex Model No. 11 01 160

Insulated Wire Strippers

Resistance up to 1,000 Volts
Conformed to IEC 60900 / DIN EN 60900

Palacables Aislados Resistentes hasta Mil Vatios
絶縁型ワイヤーストリッパー（耐電 1,000V）
高絕緣剝線鉗　耐電壓 1000V



For single, multiple and fine strand conductors with plastic or rubber insulation max. 5.0 mm diam. or respondent 10.0 mm² cable cross section. Easy adjustment to the required diameter of the solid or stranded wire with knurled screw and lock nut. Made of special tool steel, oil-hardened and tempered.

Unit Per Pr.

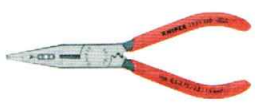
CODE	Stripping Capacities			Length mm	Weight grm
	Diam. mm	mm²	AWG		
61 17 42	5.0	10.0	7.0	160	165

Ref. : Knipex Model No. 11 06 160

Electricians' Pliers

Plastic Coated Handle

Pinzas de Electricista, Mango de Plástico Revestido
電工プライヤー　膠柄電工鉗



The ideal pliers for cable work, for gripping and bending wire, and for cutting soft, medium and hard wire. Precision cutting edges additionally induction hardened, cutting edge hardness approx. 60 HRC. Furnished with precision stripping holes, and for crimping end sleeves (ferrules). Made of high grade special tool steel, oil-hardened and tempered.

Unit Per Pr.

CODE	Stripping Capacities	Length mm	Weight grm
61 17 43	0.5 - 0.75 / 1.5 / 2.5 mm²	160	110
44	AWG 10 / 12 / 14	160	110

Ref.: Knipex Model No. 13 01 160 / 13 01 614

Automatic Insulation Strippers

Cortador de aislamiento automático
自動剥離径調整式絶縁ストリッパー
自调式绝缘剥线钳

Fully automatic adjustment to all single-, multi- and fine-stranded conductors with standard insulation throughout the entire capacity range from 0.03 to 10.0 mm². With recessed

wire cutter for Cu and Al conductors, stranded up to 10 mm² and single wire up to 6 mm². Handle with soft-plastic zone for a steady grip, body: plastic, fibreglass-reinforced, and blade: special tool steel, oil-hardened. Length: 195 mm.



61 17 45	Stripper, insulation, automatic, 0.03 – 10 mm², length 195 mm	Pr.

Ref. : Knipex Model No. 12 42 195

Insulation Strippers

with Opening Spring, Plastic Coated Handle

Pelacables de Aislación con Muelle de Apertura, Mango de Plástico Revestido
補助バネ付絶縁ストリッパー
膠柄剝線鉗　附彈簧



Insulation stripper for stripping thin wires, furnished with opening spring. Made of special tool steel, oil-hardened and tempered.

Unit Per Pr.

CODE	Stripping Capacities Diam. mm	Length mm	Weight grm
61 17 46	0.5	160	110
47	0.6	160	110
48	0.8	160	110

Ref.: Knipex Model No. 15 51 160 / 15 61 160 / 15 81 160

Electronics Wire Strippers

with Opening Spring, Plastic Coated Handle

Pelacables para Electrónica con Muelle de Apertura, Mango de Plástico Revestido
エレクトロニックワイヤーストリッパー
电动剥线钳



For single, multiple and fine stranded cables with 0.1 up to 0.8 mm diam. with plastic or rubber insulation. Easy adjustment to the required diameter of solid or stranded wire with knurled screw and lock nut. Made of special tool steel, oil-hardened and tempered.

Unit Per Pr.

CODE	Stripping Capacities Diam. mm	Length mm	Weight grm
61 17 49	0.1 - 0.8	140	100

Ref.: Knipex Model No. 11 92 140

Bulldog End Cutting Pliers

Alicates de Corte Frontal　喰切　扭头钳



Drop forged and heat-treated in industrial finish. Stout jaws and wide cutting edges are adapted for various carpentry tasks.

Unit Per Pr.

CODE	Length	CODE	Length
61 17 50	120 mm	**61 17 53**	175 mm
51	150 mm	**54**	240 mm
52	180 mm		

Flat Nose Japanese Type Pliers

Alicates con Punta Plana Tipo Japonés
ヤットコ平口　日式扁嘴钳



Unit Per Pr.

CODE	Length	CODE	Length
61 17 56	150 mm	**61 17 59**	240 mm
57	180 mm	**60**	300 mm
58	210 mm		

Razor Wire Clip Pliers

Alicates de corte para alambre
レーザーワイヤークリップ・プライヤー　剃须刀夹线钳



Clip Pliers





61 17 65	Razor wire clip pliers	Pr.

5. Scissors and Knives

Hand Snips

Straight or Curved Edge

Tijeras de Chapa, Recta o Cirvada
プリキ鋏　直式手剪

Forged of special steel for cutting tin plate. The blades have a smooth, strong edge that will retain their sharpness. The straight edge blades are for straight cutting and the curved blades are for cutting curved lines or intricate patterns.



Straight Edge



Curved Edge

Unit Per Pr.

Straight		Curved	
CODE	Length mm	CODE	Length mm
61 17 70	180	**61 17 81**	180
71	210	**82**	210
72	240	**83**	240
73	270	**84**	270
74	300	**85**	300
61 17 75	330	**61 17 86**	330
76	360	**87**	360
77	390	**88**	390
78	420	**89**	420
79	450	**90**	450

Tweezers

Pinzas　ピンセット　镊子组

Made from stainless steel, and used for picking up small objects that are not easily handled with the hands. Overall length 125 mm.



Sharp　Rounded　Curved

Unit Per Pr.

CODE	Tip Style	Grip Style
61 17 91	Sharp	Smooth
92	Rounded	Serrated
93	Curved	Smooth

Snap Ring Pliers

Alicates de presión　スナップリングプライヤー　卡环钳

These snap ring pliers are used for inserting or removing external/internal snap rings. They automatically open or close just by gripping the handles. There are two types of pliers, one for external, the other for internal use.

For External Use



Straight Nose　Bent Nose

For Internal Use



Straight Nose　Bent Nose

External Ring Pliers

How to order: CODE

Plier, snap ring, external, STRAIGHT or BENT nose, RING SIZE

Unit Per Pr.

CODE	For External Ring Size	Overall Length
Straight Nose		
61 18 01	3 - 15 mm	125 mm
02	10 - 25	140
03	19 - 40	175
04	32 - 80	236
05	50 - 100	270
06	100 - 130	400
07	130 - 200	500
Bent Nose		
61 18 11	3 - 15 mm	135 mm
12	10 - 25	135
13	19 - 40	165
14	32 - 80	220
15	50 - 100	270
16	100 - 130	400
17	130 - 200	500

Internal Ring Pliers

How to order: CODE

Plier, snap ring, internal, STRAIGHT or BENT nose, RING SIZE

Unit Per Pr.

CODE	For Internal Ring Size	Overall Length
Straight Nose		
61 18 21	6 - 15 mm	140 mm
22	15 - 25	140
23	19 - 65	180
24	32 - 80	246
25	50 - 100	270
26	100 - 130	400
27	130 - 200	500
Bent Nose		
61 18 31	6 - 15 mm	135 mm
32	12 - 25	135
33	19 - 65	170
34	32 - 80	230
35	50 - 100	270
36	100 - 130	400
37	130 - 200	500

Cloth Scissors

Tijeras para Juntas
ラシヤ切鋏　布剪子



Made of cutlery steel, hardened and tempered. Individually tested by hand.

Unit Per Pr.

CODE	Overall Length mm	CODE	Overall Length mm
61 18 41	210	**61 18 44**	255
42	225	**45**	270
43	240	**46**	300

Electricians Knives

Navajas de Electricista
電工ナイフ　电工刀



A well tempered cutlery steel blade with a strong joint and a solid well-proportioned handle.

61 18 51	Knife, electrician	Pc.

Heavy Duty Knives

with Leather Case

Machetes con Estuche de Cuero Reforzado
シーナイフ　强力刀（带皮套）

A 120 mm, high carbon, cutlery steel blade. Comes with a leather case.



61 18 55	Knife, heavy duty w/leather case	Pc.

6. Cutters/Shears

Bolt Cutters

with Plastic Coated Handle

Cortadora de pernos con mango revestido de plástico
ボルトクリッパー　绝缘柄断线钳



Precision cutting edges for soft and hard wire as well as piano wire, and cuts bolts, nails, rivets, etc. up to 5.2 mm dia (Model 71 31 200) and up to 6.0 mm dia (Model 71 31 250). Made of chrome vanadium heavy-duty steel, forged, oil-hardened. 60 % less effort required compared to conventional high-leverage diagonal cutters.

Unit Per Pr.

CODE	Length mm	CODE	Length mm
61 18 58	200	**61 18 59**	250

Ref.: Knipex Model No. 71 31 200 for 200 mm / No. 71 31 250 for 250 mm

Bolt Cutters, Straight Edge

(Bolt Clippers)

Cortavarillas　ボルトクリッパー　直线螺栓剪



For cutting mild steel, rods, bolts, wire, etc. Jaws are drop forged of special tool steel. Generally recommended for all around work with soft materials. Jaws are replaceable.

Complete Cutter			Spare Jaw for Straight Bolt Cutter		
		Unit Per Pr.			Unit Per Pc.
CODE	Length mm	Maximum Cut Dia.	CODE	Length mm	Maximum Cut Dia.
61 18 60	300	5 mm	**61 18 71**	300	5 mm
61	350	6	**72**	350	6
62	450	7	**73**	450	7
63	600	10	**74**	600	10
64	750	13	**75**	750	13
61 18 65	900	16	**61 18 76**	900	16
66	1,050	18	**77**	1,050	18

Bolt Cutters, Straight Edge

Cortarillas/Mango Aislado　ボルトクリッパー　直线螺栓剪



Insulated handle type is tested to withstand 1,000 volts.

	Insulated Handle	
61 18 80	Cutter, bolt straight edge, 620 mm, cutting capacity 8 mm diam. handle insulated	Pr.
81	Spare jaw for insulated bolt cutter, 620 mm	Pc.
	Non-Insulated Handle	
61 18 83	Cutter, bolt straight edge, 620 mm, cutting capacity 8 mm diam. handle non-insulated	Pr.
84	Spare jaw for non-insulated bolt cutter, 620 mm	Pc.

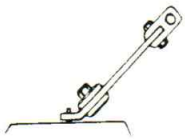
Bolt Cutters, Angle Edge

Cortavarillas, Filo Angular

アングルカッター　弯形螺栓剪

Designed for cutting mild steel rods, bolts, wire, etc. at a raised angle. Even if the bolt is set against a flat surface, it is possible to use these cutters because they will fit flush against the surface for a straight cut.





Complete			Spare Jaw for Angle Edge Bolt Cutter		
		Unit Per Pr.			Unit Per Pc.
CODE	Length mm	Maximum Cut Dia.	CODE	Length mm	Maximum Cut Dia.
61 18 90	300	5 mm	**61 18 93**	300	5 mm
91	450	7	**94**	450	7
92	600	10	**95**	600	10

Wire Rope Cutters

Cortadores para Cuerda de Alambre

ワイヤーロープカッター　钢丝剪

Designed specially for cutting wire ropes. The cutting edges pass each other for complete shear action resulting in a clean, sharp cut. A notched jaw holds the wires in place while cutting and minimizes the crushing and deformation of the wires.





Complete			Spare Jaw for Wire Rope Cutter		
		Unit Per Pr.			Unit Per Pc.
CODE	Length mm	Maximum Cut Dia.	CODE	Length mm	Maximum Cut Dia.
61 19 01	600	10 mm	**61 19 06**	600	10 mm
02	750	14	**07**	750	14
03	900	16	**08**	900	16
04	1,050	20	**09**	1,050	20

Cable Cutters

Cortante Cables Acero　ケーブルカッター　电缆剪



Designed for electric cables, of copper, aluminium, etc. Notched jaw holds and cuts cables in a clean and sharp way.

Complete

Unit Per Pr.

CODE	Model No.	Length mm	Maximum Cut Dia.
61 19 20	1	450	20 mm
21	2	750	30 mm
22	3	1,050	50 mm

Spare Jaw for Cable Cutters

Unit Per Pc.

CODE	Model No.	Length mm	Maximum Cut Dia.
61 19 25	1	450	20 mm
26	2	750	30 mm
27	3	1,050	50 mm

Cable Cutters

Tenaza Cortacables Eléctrico/Mango Aislado
絶縁ケーブルカッター　绝缘电缆剪

Same as the above cutters but the insulated handle type is tested to withstand 1,000 volts.



	Insulated Handle	
61 19 31	Cutter, cable 535 mm, cutting capacity 20 mm dia. handle insulated	Pr.
32	Spare jaw for insulated cable cutter, 535 mm	Pc.
	Non-Insulated Handle	
61 19 33	Cutter, cable 535 mm, cutting capacity 20 mm dia. handle non-insulated	Pr.
34	Spare jaw for non-insulated cable cutter, 535 mm	Pc.

Ratchet Type Cable Cutters

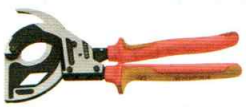
Insulated Handle

Cortadores de cables tipo trinquete, mango aislado
ラチェット式絶縁ケーブルカッター
棘轮式绝缘电缆剪

For cutting copper and aluminium single conductors as well as multiple stranded cables. Insulated with multi-component grips to withstand up to 1,000 Volts. Two-stage, three-stage ratchet-drive with high leverage enables easy cutting in one-hand and two-hand operation. *Not suitable for cutting steel and wire ropes.



Two-Stage Ratchet Drive



Three-Stage Ratchet Drive

Unit Per Pr.

CODE	Length mm	Ratchet Drive	Cutting Capacities			Weight grm
			Max.Dia mm	mm²	MCM	
61 19 37	250	2-Stage	32	240	500	652
61 19 38	280	2-Stage	52	380	750	835
61 19 39	320	3-Stage	60	600	1,200	830

MCM: Thousands of circular mils, same as kcmil.
Ref.: Knipex Model No. 95 36 250 / 95 36 280 / 95 36 320

Portable Midget Cutters

Tenazas Pegueñas Cortacables Eléctrico
ミジェットカッター
便携式弹簧剪

A portable tool for cutting spring wire of a diameter of up to 4 mm. The jaws are rivetted to the handle so they are not replaceable. The handles are knurled and covered in plastic. These cutters are easy to handle as they weigh only 300 grms and are of a length of only 200 mm.



61 19 36	Cutter, midget, portable 200 mm	Pr.

Rod Cutters

Cortavarillas　鉄筋カッター　钢筋剪

A heavy duty, improved bench type rod and bolt cutter. The handle end is covered by rubber to avoid slipping during use. Capable of cutting rods and bolts of a diameter of up to 16 mm.



Complete			**Spare Jaw for Rod Cutter**		
		Unit Per Pr.			Unit Per Pc.
CODE	Length mm	Maximum Cut Dia.	CODE	Length mm	Maximum Cut Dia.
61 19 50	766	10 mm	**61 19 55**	766	10 mm
51	1,090	13	**56**	1,090	13
52	1,290	16	**57**	1,290	16

Metal Bench Shears

Cizalla Manual Chapa　レバーシャー　台式螺栓剪

A heavy duty, improved, bench type iron sheet and rod cutter. This unit can be permanently mounted to a bench or bolted to a plank. The cutting lever can be operated with one hand, leaving the other hand free to feed and hold in place the material which is being cut.



Unit Per Set

CODE	Blade Length mm	Cutting Capacity mm		Size mm	Weight kg
		Iron Sheet	Iron Round	L x H	
61 19 64	120	3.0	6	370 x 300	9.5
65	160	4.0	6	400 x 325	11.5
60	180	3.2	13	370 x 300	35
61	200	5.0	8	495 x 350	22
62	250	6.5	8	485 x 335	35
63	300	3.2	13	485 x 335	13

Hydraulic Wire Rope Cutters

Cortante hidráulico para Cables de Acero
油圧ワイヤーロープカッター　液压式钢丝剪

Designed for manually cutting wires with hydraulic power. Gives a clean cut with a few strokes of the handle without requiring any outside power. Can be carried to the job and placed anywhere, no firm base is required. Essential for cutting and splicing wire rope. Be sure to unscrew the die plug before use and to retighten it after use.



Unit Per Set

CODE	Maximum Cut Diam mm	Dimensions mm	Weight kg
61 19 70	20	310 x 90 x 152	10
71	30	380 x 105 x 180	15
72	40	400 x 120 x 200	20
61 19 73	50	485 x 130 x 220	30
74	60	630 x 175 x 270	70
75	100	1,000 x 600 x 360	200

Gasket and Washer Cutters

Juego Máquina Cortar Juntas
パッキングカッター　垫片（圈）剪

Designed for cutting gaskets or washers from leather, paper, or rubber sheets up to a diameter of 600 mm/24". The knife and center are made of tool steel, are well tempered, and adjustable. A tool box is furnished with the cutter.



61 20 01	Cutter, gasket and washer, set	Set

7. Packing Hooks

Packing Hook Sets

Juego Extractor Empaquetadura
パッキングフックセット　盼更钩子组

The shank consists of one inner spiral shaft wrapped with an outer spiral of steel wire laid in the opposite direction. The flexible shaft has a solid handle and the hook is carefully tempered and pointed.



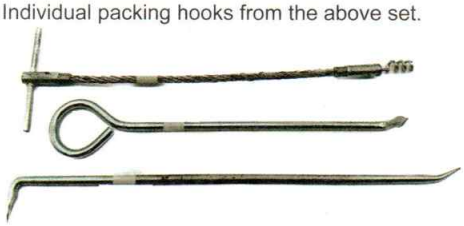
61 20 04	Packing hook set, complete	Set

61 Hand Tools

Packing Hooks

Extractor Empaquetadura　パッキングフック　盼更钩子

Individual packing hooks from the above set.



How to order: CODE
Packing hook, NAME, LENGTH

Unit Per Pc.

CODE	Name	Length mm	For Packing Size mm
61 20 06	Flex	185	Flex 3.2 ~ 6.4
07		215	" 6.4 ~ 9.6
08		255	" 9.6 ~ 16.0
09		380	" 16.0 ~ 25.4
10		600	" 25.4 ~ 38.1
11		800	" 38.1 ~ 50.8
61 20 12	Stick	240	
13	Hook & Ring	200	

Single Wheel Pipe Cutters

Cortatubos de una sola Cuchilla
トライモ形パイプカッター　単轮式切管器

Equipped with either a heavy duty cutter wheel or a thin blade wheel which are forged from tool steel and assembled in solid steel bushed hubs.

The cutter has powerful, malleable alloy frames which insure perfect tracking. Extra wheels available.



Pipe Cutter

Unit Per Set

CODE	For Pipe Size in Inches	Overall Length
61 20 20	1/8 - 1-1/4"	335 mm
21	1/8 - 2"	435
61 20 22	1/2 - 3"	540

Spare Wheel

Unit Per Pc.

61 20 23	1/8 - 1-1/4", 1/8 - 2"	O.D. 32 mm
24	1/2 - 3"	" 35

Chain-Type Pipe Cutters

Cortatubos Tipo Cadena　チェーン式パイプカッター　链式切管器

Designed for cutting large sized pipes easily. By cranking the lever, ratchet action tightens the cutting blades against the pipe while continually increasing the cutting pressure on the pipe. Because of the ratcheting action only a small amount of force is required on the lever itself.

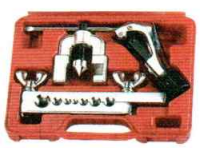


61 20 25	Cutter, pipe, chain-type 75 to 250 mm	Pc.

Cutting & Flaring Tool Sets

Abocinador Conjunto
チューブフレアリングカッターツールセット
切管工具组

Designed for cutting or flaring copper, brass or aluminium tubes. The set consists of one cutter, flaring bar and yoke.



Unit Per Set

CODE	Capacity of Cutting & Flaring	
61 20 30	mm . . .	5 to 12 with Cutter
31	in	3/16 to 5/8 with Cutter
32	mm . . .	12 to 20 without Cutter

Copper & Brass Tube Cutters

Cortatubos para Cobre y Latón　チューブカッター　切铜管器

Designed for the cutting and flaring of small copper, brass or aluminium tubes. The cut will be absolutely clean (no distortion or burr) and ready for soldering. Extra blades are available.



Unit Per Set		Unit Per Pc.
CODE	For Tube Size O.D. mm	CODE For Extra Blade
61 20 35	3 - 30 mm	61 20 45
36	5 - 45	46
37	6 - 60	47

8. Tube Expanders

Tube Flaring Expanders

Abocinador - Expandidor

チューブエキスパンダー　扩管器



For condenser, heat exchanger and similar types of tubes. Made of special selected and hardened tool steel. When ordering, please select the largest size of expander which will fit for the inner tube diameter.

Unit Per Pc.

CODE	Enters I.D. tube & Expands to		Square Shank
	mm	Equiv. in	mm
61 20 51	6.4 to 7.5	1/4 to 5/16	8
52	9.5 to 11	3/8 to 7/16	8
53	13 to 15	1/2 to 19/32	8
54	16 to 18.5	5/8 to 3/4	8
55	19 to 22	3/4 to 7/8	9.5
61 20 56	22 to 25.5	7/8 to 1	9.5
57	25 to 29.5	1 to 1-3/8	9.5
58	29 to 33.5	1-1/8 to 1-5/16	12.7
59	32 to 36.5	1-1/4 to 1-7/16	12.7
60	35 to 40	1-3/8 to 1-9/16	12.7

9. Screwdrivers

Screwdrivers, Wood Handle

Destornilladores, angd de Madera/Uso Intensivo

木柄貫通ドライバー　木柄一字螺丝刀（重型）

Heavy Duty

Tungsten alloy steel blades are pierced through a hard wood handle. The end is reinforced with a large nut that permits hammering. When ordering, please indicate the blade length for the slotted type, not the overall length. For Phillips type screwdrivers, please order according to the indicated number.



How to order: CODE

Screwdriver, wood handle, heavy duty, BLADE LENGTH (Slotted), or NO. (Phillips)

- Slotted Screwdriver **+ Phillips Screwdriver**

Unit Per Pc.

CODE	Blade Length mm	Blade Width	CODE	No.	Blade Length mm
61 22 01	50	4.5 mm	**61 22 11**	No. 0	75
02	75	5.5	**12**	No. 1	75
03	100	6.0	**13**	No. 2	100
04	125	7.0	**14**	No. 3	150
05	150	8.0	**15**	No. 4	200
61 22 06	200	9.0			
07	250	10.0			
08	300	10.0			

General Purpose

Tungsten alloy steel blades are set securely in hard wood handles. The required size must be ordered according to the blade length for the slotted type, not by the overall length. For Phillips type screwdrivers, please order according to the indicated number.



How to order: CODE

Screwdriver, wood handle, general purpose, BLADE LENGTH (Slotted), or NO. (Phillips)

- Slotted Screwdriver **+ Phillips Screwdriver**

Unit Per Pc.

CODE	Blade Length mm	Blade Width	CODE	No.	Blade Length mm
61 22 31	50	4.5 mm	**61 22 41**	No. 0	75
32	75	5.5	**42**	No. 1	75
33	100	6.0	**43**	No. 2	100
34	125	7.0	**44**	No. 3	150
35	150	8.0	**45**	No. 4	200
61 22 36	200	9.0			
37	250	10.0			
38	300	10.0			

Screwdrivers, Plastic Handle

Heavy Duty

Destornilladores, Mango de Plástico/Uso Intensivo

プラ柄絶縁ドライバー　塑料柄一字螺丝刀（重型）

Tungsten alloy steel blades are interlocked firmly to plastic handles which are hammer-proof and unbreakable. Handles are insulated to withstand up to 1,000 AC voltage for insulated type. The required size must be ordered according to the blade length for the slotted type, not by the overall length. For Phillips type screwdrivers, please order according to the indicated number.



Insulated Handle

How to order: CODE

Screwdriver, plastic handle, insulated heavy duty, BLADE LENGTH (Slotted), or NO. (Phillips)

- Slotted Screwdriver **+ Phillips Screwdriver**

Unit Per Pc.

CODE	Blade Length mm	Blade Width	CODE	No.	Blade Length mm
61 22 61	50	4.5 mm	**61 22 71**	No. 00	75
62	75	5.5	**72**	No. 0	75
63	100	6.0	**73**	No. 1	75
64	125	7.0	**74**	No. 2	100
65	150	8.0	**75**	No. 3	150
61 22 66	200	9.0	**61 22 76**	No. 4	200
67	250	10.0			
68	300	10.0			

Non-insulated Plastic Handle

How to order: CODE

Screwdriver, plastic handle, non-insulated, heavy duty, BLADE LENGTH (Slotted), or NO. (Phillips)

- Slotted Screwdriver **+ Phillips Screwdriver**

Unit Per Pc.

CODE	Blade Length mm	Blade Width	CODE	No.	Blade Length mm
61 21 81	50	4.5 mm	**61 21 91**	No. 00	75
82	75	5.5	**92**	No. 0	75
83	100	6.0	**93**	No. 1	75
84	125	7.0	**94**	No. 2	100
85	150	8.0	**95**	No. 3	150
61 21 86	200	9.0	**61 21 96**	No. 4	200
87	250	10.0			
88	300	10.0			

Screwdrivers, Plastic Handle

Square Blade

Destornilladores, Mango de Plástico/Varilla Cuadrada
スクエアドライバー　一字型螺丝刀（塑料柄）

Tungsten alloy steel square blade, heat-treated and chromed. The required size must be ordered according to the blade length for the slotted type, not by the overall length. For Phillips type screwdrivers, please order according to the indicated number.



- Slotted



+ Phillips

How to order: CODE

Screwdriver, plastic handle, square blade, BLADE LENGTH (Slotted), or NO. (Phillips)

- Slotted Screwdriver

CODE	Blade Length mm	Blade Width
61 22 90	75	5.5 mm
91	100	6.0
92	150	8.0
87	200	8.0
88	250	8.0
61 22 89	300	10.0

+ Phillips Screwdriver

Unit Per Pc.

CODE	No.	Blade Length mm
61 22 95	No. 1	75
96	No. 2	100
97	No. 3	150
98	No. 4	200

Electrician's Screwdrivers

Destornilladores de Electristas　電工用ドライバー　电工螺丝刀



Designed with a large wood on synthetic handle for electricians continuous lining works. When ordering, please indicate the blade length for the slotted type, not the overall length.

How to order: CODE

Screwdriver, electrician, wood handle, BLADE LENGTH (Slotted), or NO. (Phillips)

- Slotted Screwdriver

CODE	Blade Length mm	Blade Width
61 23 01	50	7.0 mm
02	75	5.5
03	100	5.5
61 23 04	125	9.0 mm
05	150	6.0
06	200	6.0

+ Phillips Screwdriver

CODE	Blade Length mm	No.
61 23 11	75	No. 1
12	100	
13	150	
61 23 08	100	No. 2
14	150	
15	200	
61 23 09	150	No. 3

Insulated Screwdrivers

Resistance up to 1,000 Volts
Conformed to IEC 60900 / DIN EN 60900

Destornilladores aislados, Resistencia hasta 1.000 voltios
絶縁型スクリュードライバー（耐震圧 1,000V）
隔离螺丝刀（抗震压力 1 000V）



The essential screwdriver for electrical installation work, fully insulating to reduce risk of short circuit up to AC 1,000V and DC 1,500V. Insulation standard: IEC 60900 DIN EN 60900.

- Slotted Screwdriver

CODE	Blade Length mm	Blade Width
61 23 31	80	2.5 mm
32	100	4.0
33	125	5.5
34	150	6.5
35	175	8.0

+ Phillips Screwdriver

Unit Per Pc.

CODE	No.	Blade Length mm
61 22 36	No. 1	75
37	No. 2	100
38	No. 3	150
39	No. 4	200

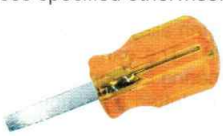
Stubby Screwdrivers

Wood or Plastic Handle

Destornilladores Cortos, Mango de Madera o de Plástico "Carrocero"
スタビードライバー
短柄螺丝刀

For work in close quarters. The plastic handle screwdrivers are more popular than the wood ones. Plastic handle screwdrivers will be supplied unless specified otherwise.







Wood Handle



Plastic Handle

How to order: CODE

Screwdriver, stubby, WOOD, or PLASTIC HANDLE, BLADE LENGTH (Slotted), or NO. (Phillips)

Wood Handle

CODE	No.	Blade Length mm
61 23 21	Slotted	38
22	(+) No. 1	38
23	(+) No. 2	38

Plastic Handle

Unit Per Pc.

CODE	No.	Blade Length mm
61 23 24	Slotted	38
25	(+) No. 1	38
26	(+) No. 2	38

Screwdrivers, Plastic Ratchet Handle

Destornilladores, Mango de Carraca de Plástico
ラチェット付ドライバー
塑料棘轮手柄一字螺丝刀

Can be used in several ways. The handle can tighten and revolve freely back like a ratchet handle or it can operate in the normal way when put in a neutral ratchet gear.




How to order: CODE

Screwdriver, ratchet, plastic handle, BLADE LENGTH (Slotted), or NO. (Phillips)

- Slotted Screwdriver **+ Phillips Screwdriver**

Unit Per Pc.

CODE	Blade Length mm	Blade Width	CODE	No.	Blade Length mm
61 23 41	100	5.0 mm	**61 23 43**	No. 1	100
42	100	6.0	**44**	No. 2	100

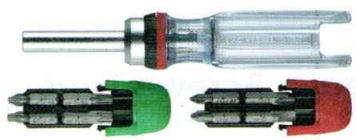
Ratchet Screwdrivers

with Interchangeable Bits

Destornillador de Trinquete con Brocas Infercambiables

替えビット式ラチェットドライバー　棘轮螺丝批

Supplied with four sizes of magnetic interchangeable bits. They are stored inside the handle.



Unit Per Set

CODE	Blade Length mm	Overall Length mm	Bit's Size
61 23 46	112	227	-5 x 25 mm / -7 x 25 mm #1 x 25 mm / #2 x 25 mm

Hexagon Nut Drivers

Destornilladores Hexagonales para Tuerca "Stecker"

ボックスドライバー　六角螺母螺丝刀

The wood handle with a heat-treated on plastic handle and chromed blade. The size must be ordered according to the opening across flats.



Unit Per Pc.

CODE	Opening mm	Blade Length mm	Overall Length mm
Wood Handle			
61 23 51	4.0	75	170
52	5.0	115	210
53	5.5	115	210
54	6.0	115	220
55	7.0	125	230
61 23 56	8.0	125	230
57	9.0	125	250
58	10.0	125	250
59	11.0	125	250
60	12.0	150	292
61 23 61	13.0	150	292
62	14.0	150	292
63	17.0	150	313

Unit Per Pc.

CODE	Opening mm	Blade Length mm	Overall Length mm
Plastic Handle			
61 23 91	4.0	75	155
67	5.0	75	155
68	5.5	75	155
69	6.0	75	155
70	7.0	75	155
61 23 92	8.0	75	155
71	9.0	75	155
72	10.0	75	155
93	11.0	75	155
94	12.0	75	155
61 23 95	13.0	75	155
96	14.0	75	155
97	17.0	75	155

Hexagon Nut Driver Sets

Juegos de Destornilladores Hexagonales para Tuerca "Stecker"

ナットドライバーセット　六角螺母螺丝刀组

Deep socket type nut drivers provided as a set with a steel holding rack. The set consists of 7 nut drivers ranging from 5 mm to 12 mm in size.



61 23 66	Nut driver set, 5 mm - 12 mm, 7 pcs	Set

Flexible Blade Nut Drivers

Destornilladores para Tuerca con Varilla Flexible

自在ボックスドライバー　弹性刀杆螺帽刀

The flexible blade is made of a specially designed spring which will bend and allow you to set nuts around corners and in places where straight blades cannot be used. When ordering, please specify the size, not by the bolt size, but by the size between the two parallel walls of the nut driver socket.



Unit Per Pc.

CODE	Opening mm	For Bolt Size ISO mm	Overall Length mm
61 23 75	5.5	3	226
76	7	4	226
77	8	5	226

Screwdrivers with Gripping

Destornilladores Sacatornillos

ピスキャッチ ドライバー　带夹具螺丝刀

Heat-treated, hardened, alloy steel blades. Plastic handle and precision ground tips. Positive gripping mechanism. Can be worked on screws in hard-to-reach places with the assurance that the screw will stay on the blades.




- Slotted Screwdriver **+ Phillips Screwdriver**

Unit Per Pc.

CODE	Blade Length mm	Blade Width	CODE	No.	Blade Length mm
61 23 81	100	4.5 mm	**61 23 87**	No. 00	75
82	100	2.6	**88**	No. 20	100
83	150	4.5			
84	150	2.6			

Offset Screwdrivers

Destornilladores Acodados　オフセットドライバー　扁頸螺丝刀

For work in close quarters. Made from selected alloy steel. Mechanic and Phillips points drivers are available. Chrome plate finished.



Unit Per Pc.

CODE	No.	Blade Diameter mm	Overall Length mm
61 24 01	-5 x -6	6.4	127
02	-8 x -9	9.0	152
61 24 03	No.1 & 2	6.4	127
04	No.3 & 4	9.0	152
61 24 05	No.1 & -5	5.0	125
06	No.2 & -6	6.0	125
07	No.3 & -8	8.0	150

Screwdriver Sets, Watch Makers'

Juegos de Destornilladores de Precisión Relojero
時計用精密ドライバー 6 本組　钟表螺丝刀全套

For precision work with small screws. The end of the handle rotates, permitting your fingers to stay on the end during screwing work. Set supplied in a plastic case.



Unit Per Set

CODE	Blade	Contents	Set
61 24 11	Slotted	Blade width mm 0.9, 1.2, 1.8, 2.3, 3.0, 3.5	6 Pcs
61 24 13	Phillips	Blade width No. 0000, No. 000, No. 00, No. 0, No. 1, No. 1	6 Pcs
61 24 12	Slotted & Phillips	Blade width mm & No. 0.9, 1.2, 1.8, 2.3 mm No.00, No.0	6 Pcs

Spark Testing Screwdriver Sets

In Vinyl Sheath

Juegos de Destornilladors para Comprobar el Voltaje con Varilla Aislada
検電ドライバー 6 本組　测电螺丝刀全套

For spark testing of low voltage:
100-220V-AC 100-350V-DC
6 various interchangeable bits



61 24 16	Screwdriver, spark testing, Low-voltage 6's	Set

For spark testing of high voltage:
2,500-15,000V-AC
6 various interchangeable bits



61 24 17	Screwdriver, spark testing, High-voltage 6's	Set

Automatic Screwdrivers with Ratchet

Destornilladores Automáticos con Carraca
オートマチックドライバー　自动棘轮螺丝刀



These screwdrivers work by pushing the handle downward and causing a crank drive inside the ratchet shaft to spin the blade. When the handle is released, the blade extends to its original position. By repeatedly pushing the handle you can set loose screws quickly with a very simple operation. When not in use the interchangeable bits can be stored inside of the handle. The gear blade can be set to rotate in either direction by changing the ratchet gear allowing you to remove screws as well as insert them.

Unit Per Set

CODE	Extend Length	Handle Length	Bit Contents
61 24 21	240 mm	102 mm	Plastic handle, -6, +#1, #2, & one gimlet
22	300	84	Plastic handle, -6, +#1, #2, & one gimlet
23	380	100	Wood handle, -6, +#1 & #2
24	440	100	Wood handle, -6, +#1 & #2
25	620	120	Wood handle, -7, +#2 & #3

Hammering Screwdrivers

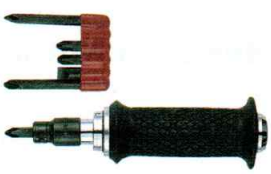
Impact Type

Destornilladores/Tipo Impacto
打撃ドライバー　冲锤螺丝刀

Designed to work with screws that are set tight due to freezing or corrosion. By hammering the head of the screwdriver, a sudden, sharp pressure is applied to the screw causing it to be jarred loose. Supplied with interchangeable bits for rotation in the left or right direction.



61 24 31



61 24 32

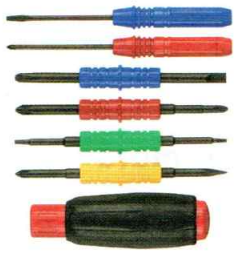
Unit Per Set

CODE	No. of Bit	Blade Diam	Overall Length	Bit Contents
61 24 31	4's	32 mm	190 mm	- 10 mm + No.2 3 & 4
61 24 32	6's	26 mm	240 mm	- 5, 6, 7 mm + No.1, 2 & 3

Detachable Screwdriver Sets

Juegos de Destornilladores Desmotables
差し替えドライバーセット　套换式螺丝刀组

Detachable drill bits with plastic handle in a handy plastic case. The drill bits are attached and detached manually by screwing bit chuck at handle.



Unit Per Set

CODE	No. of Bits	Bit Size	Bit Length	Overall Length
61 24 41	4's	-3 / -5 No.1 & 2	90 mm	162 mm
42	5's	-3 / -5 No.1 & 2 Auger	100 mm	182 mm
43	5's	-3 / -4 / -6 No.1 & 2	125 mm	216 mm

Pozidriv Screwdrivers

Destornillador Pozidriv
ポジドライブスクリュードライバー　十字塑料柄精工螺丝批

This unique shape of the bit provides excellent driving control with less operator fatigue. The Pozidriv screw is incorporated with visible ribs in the groove, so Phillips drivers should not be used with Posidriv screws.



Unit Per Pc.

CODE	Blade Diam mm	No.	Blade Length mm
61 24 51	5	PZ1	75
52	6	PZ2	100
53	8	PZ3	150

Long Blade Screwdrivers

Destornillador de Hoja Larga　角長軸ドライバー　加长型一字螺丝批

Extra long blade screwdrivers with plastic handle.



Unit Per Pc.

CODE	Blade Width or No.	Blade Diam.	Blade Length
61 24 56	9.0 mm	8 mm	450 mm
61 24 57	No.2	6 mm	450 mm
61 24 58	No.3	8 mm	450 mm

10. Hammers

Ball Pein Hammers

Handled

Martillos de Boda/con Mango　片手ハンマー　球头手锤

The perfect ball pein hammers for all industries. Accurately balanced. Tough drop forged head with a selectively hardened face and pein. Fine quality, lacquer finished, hickory handles shaped for ease in use.



Unit Per Pc.

CODE	No.	Weight Gram	CODE	No.	Weight Gram
61 25 01	1/4	110	**61 25 06**	1-1/2	675
02	1/2	225	**07**	2	900
03	3/4	330	**08**	2-1/2	1,100
04	1	450	**09**	3	1,350
05	1-1/4	550			

Blacksmiths' Sledge Hammers

Double Face

Maza de Doble Cara/con o sin Mango
両口ハンマー　双面铁锤（带柄）

Double head hammer with smooth faces furnished with a handle.



Unit Per Pc.

CODE	No.	Weight kg	CODE	No.	Weight kg
61 25 21	No. 2	0.9	**61 25 29**	No. 14	6.3
22	3	1.3	**30**	15	6.7
23	4	1.8	**31**	16	7.2
24	5	2.2	**32**	18	8.1
25	6	2.7	**33**	20	9.0
61 25 26	8	3.6	**61 25 34**	22	9.9
27	10	4.5	**35**	25	11
28	12	5.4	**36**	30	13.5

Smooth & Cross Pein Hammers

with or without Handle

Martillos de Cruz/con o sin Mango
片口ハンマー　横头大锤（带手柄）



Smooth and cross pein head. Specify whether you need a hammer with or without a handle. The hammer-head will be furnished without a handle unless otherwise specified.

With Handle **Without Handle**

Unit Per Pc.

CODE	No.	Weight kg	CODE	No.	Weight kg
61 25 61	2	0.9	**61 25 81**	2	0.9
62	3	1.3	**82**	3	1.3
63	4	1.8	**83**	4	1.8
64	5	2.2	**84**	5	2.2
65	6	2.7	**85**	6	2.7
61 25 66	8	3.6	**61 25 86**	8	3.6
67	10	4.5	**87**	10	4.5
68	12	5.4	**88**	12	5.4
69	14	6.3	**89**	14	6.3
70	15	6.7	**90**	15	6.7
61 25 71	16	7.2	**61 25 91**	16	7.2
72	18	8.1	**92**	18	8.1
73	20	9.0	**93**	20	9.0
74	22	9.9	**94**	22	9.9
75	25	11.0	**95**	25	11.0
61 25 76	30	14.0	**61 25 96**	30	14.0

Testing Hammers

Handled

Martillo Inspectión/con Mango
テストハンマー　检验用手锤

For testing and investigating boilers, welding joints, hulls, etc. Designed for detecting structural defects by the sound created from the hammering. Made from specially selected alloy steel with a hickory handle.



Unit Per Pc.

CODE	61 26 01	61 26 02	61 26 03
No.	1/4	1/2	3/4
Weight	110 grm	225 grm	330 grm

Bell Face-Hand Hammers

with Nail Puller, Handled (Claw Hammers)

Martilos Uñas/con Mango　釘抜付ハンマー　钟面羊角锤（带柄）

Drop forged of specially heat-treated steel. Round bell face enables easier driving of nails close to butting surfaces and in corners.



Unit Per Pc.

CODE	61 26 06	61 26 07	61 26 08
Weight	330 grm	450 grm	550 grm

Chipping Hammers

Handled

Piqueta con Mango　ケレンハンマー　敲锈锤（连柄）

Designed for removing boiler, scale, rust or paint on vessels, etc. Forged from a special grade of steel. Handle made of hard wood.



CODE	Weight	Unit
61 26 11	225 grm	Pc.
12	450 grm	"

Combination Hammers

Handled

Martillos Combinados o de bocas de Intercambio/con Mango
コンビネーションハンマー
双面锤（带铁头和塑料头）

Hammer-head made of a combination of iron and hard plastic.



Unit Per Pc.

CODE	61 26 16	61 26 17	61 26 18
Nos.	1/2	1	2
Weight	0.225 kg	0.45 kg	0.9 kg

Carpenter Hammers

Tubular Steel & Cushion Grip

Martillos de Carpintero/Mango de Goma
ゴム柄ハンマー　木工锤（连柄）

Tubular steel handle with rubber cushion grip. The head has been designed with one round faced end and one end as a nail puller.



Unit Per Pc.

CODE	61 26 21	61 26 22
Weight	450 grm	550 grm

Copper Hammers

Handled

Maza de Cobre/con Mango　銅ハンマー　紫铜锤（连柄）

A polished face hammer fitted securely to a hard wooden handle.



Unit Per Pc.

CODE	No.	Weight kg	CODE	No.	Weight kg
61 26 41	1/2	0.25	61 26 45	3	1.5
42	1	0.5	46	4	2.0
43	1-1/2	0.75	47	5	2.5
44	2	1.0			

Copper Hammers

with Replaceable Tip and Handle

Martillos de Cobre/con Mango y Bocas de Intercambio
替頭式銅ハンマー　锤头可换式紫铜锤（连柄）

Copper hammer with replaceable spare tip and handle. The head and the handle can be furnished separately.



Complete

Unit Per Pc.

CODE	No.	Weight kg	CODE	No.	Weight kg
61 26 51	1/2	0.25	61 26 55	3	1.35
52	1	0.45	56	4	1.8
53	1-1/2	0.65	57	5	2.25
54	2	0.9			

Spare Tip　　**Spare Handle**

Unit Per Pc.

CODE	Head No.	CODE	Head No.
61 26 61	1/2	61 26 71	1/2
62	1	72	1
63	1-1/2	73	1-1/2
64	2	74	2
65	3	75	3
61 26 66	4	61 26 76	4
67	5	77	5

Lead Hammers

Handled

Maza de Plomo/con Mango　鉛ハンマー　铅锤（连柄）

A polished face hammer fitted securely to a hard wooden handle.



Unit Per Pc.

CODE	No.	Weight kg	CODE	No.	Weight kg
61 26 81	1/2	0.25	61 26 85	3	1.5
82	1	0.5	86	4	2.0
83	1-1/2	0.75	87	5	2.5
84	2	1.0			

Brass Hammers

Handled

Maza de Latón/con Mango　真鍮ハンマー　黄铜锤（连柄）

A polished face hammer fitted securely to a hard wooden handle.



Unit Per Pc.

CODE	No.	Weight kg	CODE	No.	Weight kg
61 26 91	1/2	0.25	**61 26 95**	3	1.5
92	1	0.5	**96**	4	2.0
93	1-1/2	0.75	**97**	5	2.5
94	2	1.0			

Aluminium Hammers

Handled

Martilos de Alumino/con Mango　アルミハンマー　铝锤（连柄）

A polished face hammer fitted to a hard wooden handle which is light and easy to use for extended periods of time.



Unit Per Pc.

CODE	No.	Weight kg	CODE	No.	Weight kg
61 27 01	1/2	0.1	**61 27 05**	4	0.5
02	1	0.2	**06**	10	1.5
03	2	0.3	**07**	20	3.0
04	3	0.45			

Plastic Hammers

Handled and Replaceable Tips

Martillos de Plástico con Mango/y Bocas intercambiables
替頭式ソフトハンマー　　锤头可换式塑料锤

Furnished with replaceable round tips of tough plastic.



Complete

Unit Per Pc.

CODE	No.	Head Diam. mm	Weight kg
61 27 21	1/2	25	0.22
22	1	31	0.4
23	1-1/2	38	0.63
24	2	46	0.98

Spare Tip

Unit Per Pc.

CODE	No.	CODE	No.
61 27 31	1/2	**61 27 33**	1-1/2
32	1	**34**	2

Rubber Hammers

Handled

Maza de Goma con Mango　ゴムハンマー　橡胶锤（连柄）

Soft but tough, non-flaking neoprene head prevents damage to the surface being worked on.



Unit Per Pc.

CODE	No.	Head Diam. mm	Weight kg
61 27 51	1/2	46	0.31
52	3/4	48	0.46
53	1	60	0.58
54	1-1/2	67	0.82

Wood Mallet Hammers

Handled

Maza de Madera/con Mango　木槌　小木槌

Head and handle manufactured of selected hardwood. Head finished with a bright varnish.



Unit Per Pc.

CODE	Face Diam.	CODE	Face Diam.
61 27 61	50 mm	**61 27 63**	70 mm
62	60	**64**	75

Hammer Handles, Hard Wood

Mango de Martillo, Madera (Dura) de Fresno o Haya
ハンドル柄　　木锤柄

Tough hard wood handle shaped and finished for a comfortable, sure grip.





Unit Per Pc.

CODE	Length mm	CODE	Length mm
61 27 75	300	**61 27 78**	600
76	330	**79**	900
77	450	**80**	1,200

Handles for Testing and Chipping Hammers:

Unit Per Pc.

CODE	For	Hammer Weight
61 27 82	Testing Hammer	110 grm
83		225
84		330
61 27 86	Chipping Hammer	225 grm
85		450

Steel Wedges for Hammer

Cuña de Acero para Martillo　スチールウエッジ　锤用钢楔

Used to tightly wedge a wooden handle to a hammer-head.



Unit Per Pc.

CODE	**61 27 91**	**61 27 92**	**61 27 93**
Size	7 x 16 mm	14 x 16 mm	20 x 27 mm

11. Glass Cutters

Glass Cutters

Cortavidrios　ガラス切り　玻璃刀

These glass cutters are for cutting straight plate glass with the use of straight scales. Industrial diamonds are used for the cutting point to ensure easy cutting.



Unit Per Pc.

CODE	For Glass Thickness	CODE	For Glass Thickness
61 28 01	2 - 3 mm	**61 28 03**	5 - 10 mm
02	3 - 5		

Circle Glass Cutters

Cortadores para Cristal Cilcular　棹付丸ガラス切り　切玻璃圆规



These glass cutters are designed for cutting round glass pieces in the range between 80 to 600 mm. The cutting points are made of industrial diamonds and on the other end of the glass cutter is a special rubber piece fitted to ensure a correct, even cut.

61 28 05	Glass cutter, max cutting diam. 600 mm	Pc.

12. Bars / Nail Pullers

Carpenters' Pincers

Plastic Coated Handle

Tenazas para Carpintero　くぎ抜き　牛头钳



Extreme wear resistance and good balance. Made of special tool steel, oil-hardened and tempered.

Unit Per Pr.

CODE	Length mm	Weight grm	CODE	Length mm	Weight grm
61 28 32	160	225	**61 28 35**	225	435
33	180	325	**36**	250	600
34	210	415	**37**	300	900

Ref.: Knipex Model No. 50 01 160 / 180 / 210 / 225 / 250 / 300

Claw and Nail Puller Bars

Desencofradores　段付カジヤバール　起钉撬棒



Pull and ply bar with one 90° end and one smoothly curved end to suit use on a variety of surfaces.

Unit Per Pc.

CODE	Length mm	CODE	Length mm
61 28 41	200	**61 28 45**	330
42	240	**46**	360
43	260	**47**	460
44	300		

Claw and Chisel End Bars

Desencofradores "Garra y Cincel"　平カジヤバール　起钉器及凿子端杆



Made of forged steel and heat-treated. Curved claw is offset 90°, pointed and polished.

Unit Per Pc.

CODE	Length mm	CODE	Length mm
61 28 51	300	**61 28 56**	500
52	330	**57**	540
53	360	**58**	600
54	390	**59**	750
55	450	**60**	900

Straight Pinch and Chisel End Bars

Desencofradores "Punzón y Cincel"
直バール　叉头弯凿撬棒



A multi purpose pinch bar.

Unit Per Pc.

CODE	61 28 65	61 28 66	61 28 67
Length mm	600	900	1,200

Gooseneck Type Bars

Desencofradores Tipo "Cuello de Ganso"
グースネックバール　鹅颈撬棒

One end is a pointed chisel and the other is a rounded nail puller.



Unit Per Pc.

CODE	61 28 71	61 28 72	61 28 73
Length mm	600	900	1,200

Crowbars

Palancas de Acero　クローバー　撬棍

Iron lever with a forked wedge.



Unit Per Pc.

CODE	Length mm	Weight kg	CODE	Length mm	Weight kg
61 28 81	850	4	**61 28 84**	1,200	8
82	950	5	**85**	1,350	9
83	1,150	6	**86**	1,500	10

Giant Nail Pullers

Extracores de Clavos Gigantes　西洋釘抜　西洋起钉器



Forged steel shank with hand guard and automatic claw. Overall length: 460 mm.

61 28 90	Nail, puller, giant type, 460 mm	Pc.

13. Chisels

Chisels

Cinceles　タガネ　凿

Cold Chisel

These chisels are made of tough selected alloy steel which has been carefully tempered to assure toughness and ample strength.



Unit Per Pc.

CODE	Blade Width mm	Length mm	CODE	Blade Width mm	Length mm
61 29 01	6	125	**61 29 05**	19	190
02	9	140	**06**	22	200
03	13	160	**07**	25	215
04	16	175	**08**	32	225

Cape Chisel

Made from special selected alloy steel. Lacquered body and polished blade.



Unit Per Pc.

CODE	Blade Width mm	Length mm	CODE	Blade Width mm	Length mm
61 29 11	3	150	**61 29 14**	7.5	175
12	4.5	150	**15**	9	200
13	6	175	**16**	13	200

Concrete Chisel

Made from selected alloy steel. Well balanced and finished in blue lacquer with a polished point.



Unit Per Pc.

CODE	Blade Width mm	Length mm	CODE	Blade Width mm	Length mm
61 29 21	9	120	**61 29 25**	22	240
22	13	150	**26**	25	270
23	16	180	**27**	32	300
24	19	210			

Offset Caulking Chisel



Unit Per Pc.

CODE	Length mm	CODE	Length mm
61 29 31	150	**61 29 36**	400
32	200	**37**	450
33	250	**38**	500
34	300	**39**	550
35	350	**40**	600

Cross Cut Cold Chisels

with Wooden Handle

Tajadera　生切柄付タガネ　横切冷凿（木柄）

Made with carbon black finish and fitted to a hardened wood handle.



Unit Per Pc.

CODE	61 29 51	61 29 52	61 29 53
Blade Width & Length mm	25 x 125	32 x 140	38 x 150

Cross Cut Hot Chisels

with Iron Handle

Cinceles Calientes con Mango de Hierro
柄タガネ　横切热凿（铁柄）



Made from carbon steel with an iron handle.

Unit Per Pc.

CODE	61 29 57	61 29 58
Blade Width & Length	25 x 125 mm	32 x 140 mm

14. Punches/Stencils

Round Hole Punches

Sacabocado Cilíndrico　打抜ポンチ　圆冲

Forged from selected tool steel with a fully polished finish.



Unit Per Pc.

CODE	Hole Diam. mm	CODE	Hole Diam. mm
61 30 01	3	**61 30 26**	28
02	4	**27**	29
03	5	**28**	30
04	6	**29**	31
05	7	**30**	32
61 30 06	8	**61 30 31**	33
07	9	**32**	34
08	10	**33**	35
09	11	**34**	36
10	12	**35**	37
61 30 11	13	**61 30 36**	38
12	14	**37**	39
13	15	**38**	40
14	16	**39**	41
15	17	**40**	42
61 30 16	18	**61 30 41**	43
17	19	**42**	44
18	20	**43**	45
19	21	**44**	46
20	22	**45**	47
61 30 21	23	**61 30 46**	48
22	24	**47**	49
23	25	**48**	50
24	26		
25	27		

Punching Tool Sets

Juego de Sacabocado　パッキング打抜工具　冲头组

Used for punching holes in soft brass, copper, and other soft metals as well as leather, canvas, and gasketing materials. A set for 6 to 38 mm is available as standard.



Punching Dies



Punching Table

Unit Per Set

CODE	Hole Size	Contents
		Combination Size
61 30 56	6-38 mm	16 pcs Punching dies (6, 7, 8, 9, 10, 11, 12, 13, 16, 19, 22, 25, 28, 32, 35, 38) 1 pc Punching table

Center Punches

Granetes　センターポンチ　中心冲头

Forged from special alloy steel. The tips are accurately centered and the knurled finger grip assures accurate handling.



Unit Per Pc.

CODE	61 30 60	61 30 61	61 30 62
Length	100 mm	125 mm	150 mm

Center Punch Sets

Combination

Juegos de Granetes　センターポンチセット　中心冲头组

Forged, tempered, alloy steel. Center punches of various sizes available in one compact case.



Unit Per Set

CODE	Contents
61 30 65	9 pcs set, Length 150 mm

Pin Rivet Punches

Botadores Cilindricos　ピンポンチ　销铆钉冲

Forged from selected alloy steel. For driving out pins and bushings and lining up bolt and rivet holes. Length: 150 mm.



Unit Per Pc.

CODE	Point mm	CODE	Point mm
61 30 70	2.5	**61 30 74**	5.5
71	3.0	**75**	6.5
72	4	**76**	8
73	5	**77**	10

Pin Punch Sets

Combination

Juegos de Botadores Cilindricos
ピンポンチセット　销钉冲

Forged, tempered alloy steel. Each set is furnished in a round wooden case. Pointings available are : 2.5 - 3 - 4 - 5 - 5.5 - 6.5 - 8 & 10 mm in diameter. Length: 150 mm.



61 30 80	Punch set, pin, combination 2.5-10 mm, L:150 mm, 8 pcs/set	Set

Combination Chisel Sets

Juego Cortafrios Combinado
タガネセット　组合凿子组

Forged, tempered alloy steel. Contains 7 different types of chisels in a round plastic case. Shank diameter 8 mm, length 150 mm.



61 30 86	Chisel set, combination 150 mm, 7's	Set

Chisel & Punch Sets

Combination

Juegos de Cinceles, punteros Y Granetes
タガネ及びピンポンチセット　凿子及冲头组

Forged, tempered alloy steel. Consisting of different chisel and pin punch types in a vinyl case.

Length: 150 mm.



Unit Per Set

CODE	Contents
61 30 88	7 pcs set Length 150 mm
89	12 pcs set - " -

Heavy Duty Wad Punches

Perforadora de arandelas de gran potencia
強力型打ち抜きポンチ　重型冲孔机

A heavy-duty tools designed to cut discs of gasket materials. They are most commonly used to create washers by first cutting a disc with a larger sized wad punch and the centre hole with a smaller sized punch.



Unit Per Pc.

CODE	Hole Diam. mm	CODE	Hole Diam. mm	CODE	Hole Diam. mm
61 30 49	6	**61 30 82**	24	**61 31 14**	42
50	7	**83**	25	**15**	43
51	8	**84**	26	**27**	44
52	9	**85**	27	**28**	45
53	10	**87**	28	**29**	46
61 30 54	11	**61 30 90**	29	**61 31 30**	48
55	12	**91**	30	**97**	50
57	13	**92**	31	**98**	55
58	14	**93**	32	**99**	60
59	15	**94**	33	**61 32 00**	65
61 30 63	16	**61 30 95**	34	**61 32 10**	70
64	17	**96**	35	**11**	75
67	18	**97**	36	**12**	80
68	19	**98**	37	**13**	85
69	20	**99**	38	**14**	90
61 30 78	21	**61 31 00**	39	**61 32 15**	100
79	22	**12**	40		
81	23	**13**	41		

Letter or Figure Sets

In Steel Box

Abecedarios y Nmeración de Golpe
手打刻印、英字又は数字　钢印字母及数字组

This machine processed letter set consists of 27 letters and the character "&". The special machine processed figure set consists of 9 pieces 0 to 8 where as the figure "9" is also to be used as "6". The letters/figures are accommodated in a steel case.



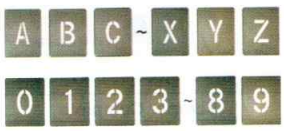


Unit Per Set

Letter Sets 27 Pieces		Figure Sets 9 Pieces	
CODE	Size mm	CODE	Size mm
61 31 01	1.5	**61 31 16**	1.5
02	2.0	**17**	2.0
03	2.5	**18**	2.5
04	3.0	**19**	3.0
05	4.0	**20**	4.0
61 31 06	5.0	**61 31 21**	5.0
07	6.0	**22**	6.0
08	8.0	**23**	8.0
09	10.0	**24**	10.0
10	13.0	**25**	13.0
61 31 11	16.0	**61 31 26**	16.0

Stencil Letter and Figure Sets

Abecedarios y Nmeración de Chapa
ステンシルレター又は数字　　字母及数字印花版



Adjustable stencils for letters and figures. Due to a special design, the letters and figures may be joined together to form any word, address, etc. as required. The joined figures and letters are accurately spaced and on an even level to assure a perfect print. The size is taken according to the required height of letters and figures.

How to order: CODE

Stencil, LETTER & FIGURE (LETTER or FIGURE), adjustable brass, SIZE, NUMBERS/set.

Unit Per Set

CODE	Size mm	Description	Set
61 31 31	13	76 Pieces A to Z and 0 to 9	Letter & Figure
32	20		
33	25		
34	30		
35	38		
61 31 36	45	76 Pieces A to Z and 0 to 9	Letter & Figure
37	50		
38	60		
39	75		
40	100		
61 31 61	13	36 Pieces A to Z and 0 to 9	Letter & Figure
62	20		
63	25		
64	30		
80	38		
61 31 81	45	36 Pieces A to Z and 0 to 9	Letter & Figure
82	50		
83	60		
84	75		
96	100		
61 31 41	13	26 Pieces A to Z only	Letter
42	20		
43	25		
44	30		
45	38		
61 31 46	45	26 Pieces A to Z only	Letter
47	50		
48	60		
49	75		
50	100		
61 31 51	13	10 Pieces 0 to 9 only	Figure
52	20		
53	25		
54	30		
55	38		
61 31 56	45	10 Pieces 0 to 9 only	Figure
57	50		
58	60		
59	75		
60	100		

15. Anvils / Blacksmith's Tongs

Anvils

Yunques　アンビル　砧子

Cast Iron Anvils

Yunques de Hierro Forjado　鋳鉄製アンビル　铸铁製铁砧

Made of cast iron and heat-treated with plain surfaces. Finished painted or in its original colour. Available in weights from 10 to 200 kg.



Unit Per Pc.

CODE	Weight kg	Overall Length mm	CODE	Weight kg	Overall Length mm
61 31 65	10	285	**61 31 73**	60	470
66	15	320	**74**	70	520
67	20	340	**75**	80	520
68	25	350	**76**	90	560
69	30	380	**77**	100	560
61 31 70	35	400	**61 31 78**	150	665
71	40	405	**79**	200	700
72	50	420			

Cast Steel Anvils

Yunques de acero Forjado　鋳鋼製アンビル　铸钢钢砧

Made of cast steel and perfectly heat-treated to assure a long life under heavy working conditions. Painted or furnished in its original colour. Available in weights from 20 to 200 kg.



Unit Per Pc.

CODE	Weight kg	Overall Length mm	CODE	Weight kg	Overall Length mm
61 31 85	20	325	**61 31 91**	80	580
86	30	430	**92**	100	620
87	40	460	**93**	120	665
88	50	480	**94**	150	790
89	60	515	**95**	200	880
61 31 90	70	530			

Blacksmiths' Tongs

Tenazas de Herrero　火造箸　扁嘴打铁钳



Flat



Round

Unit Per Pr.

CODE	Type	Length mm	CODE	Type	Length mm
61 32 01	Flat	360	**61 32 06**	Round	360
02		450	**07**		450
03		550	**08**		550
04		600	**09**		600

16. Scrapers / Scribers

Bearing Scrapers

Rasqueteadores　ベアリングスクレーバー　轴承刮刀

These scrapers are forged and perfectly tempered to assure an absolute true shape for scraping jobs on bearings, valves, etc. Highly polished finish.



1. With Wooden Handle



2. Flat Double End



3. Half Round & Flat End



4. Half Round & Point End

Unit Per Pc.

CODE	Type	Length mm	CODE	Type	Length mm
61 32 20	1. With	200	**61 32 30**	3. Half	200
21	wooden	250	**31**	round &	240
22	handle	280	**32**	flat end	300
			33		360
61 32 25	2. Flat	200	**61 32 35**	4. Half	200
26	double	240	**36**	round	240
27	end	300	**37**	& point	300
28		360	**38**	end	360

Double End Angle Scrapers

Resqueta Angular Doble　共柄スクレーパー　双端弯头刮刀

Made of rounded edge tool steel, hammer forged, and oil finished.



Unit Per Pc.

CODE	61 32 41	61 32 42	61 32 43
Length	200 mm	250 mm	300 mm

Deck Scrapers

with Long Handle

Rasqueta Mango Largo　長柄スクレーパー　甲板刮刀

Tempered steel blade of 65 mm width. Furnished with a wooden handle of 1,200 mm length.



61 32 46	Deck scraper with long handle 65 x 1,200 mm	Pc.

Angle Scrapers

with Wooden Handle

Rasqueta Acodada con Mango de Madera
短柄スクレーパー　弯头短柄刮刀（木柄）



Forged steel blade of 45 mm width, overall length: 320 mm.

61 32 48	Angle scraper with wooden handle 45 x 320 mm	Pc.

Yacht Type Triangular Scrapers

Basqueta Triangular Tipo Yate
ヨットスクレーパー　快艇用三角刮刀

Triangular shaped 70 mm steel edge with a 300 mm wooden handle.



61 32 50	Triangular scraper, yacht type, 70 x 300 mm	Pc.

Hand Scrapers

Raspilla　鉄の爪　手刮刀

Stainless steel blade with plastic body, excellent for removing glue, rust or paint from wood or glass surfaces. Ideal for work in close quarters. Blades can be changed easily.





Unit Per Pc.

Scraper Complete		Spare Blade	
CODE	Blade Width mm	CODE	Blade Width mm
61 32 55	25	**61 32 58**	25
56	45	**59**	45
57	64		

Hand Scraper for Ice

For cleaning ice and frost from windows. Made of ABS plastic.

61 32 61	Hand Scraper, ice for window	Pc.

Steel Scribers

Trazadores de Acero Punta Trazar
ケガキ針　钢划针



Points are made of the best quality steel, and properly tempered with twisted center portions for a solid grip.

Unit Per Pc.

CODE	61 32 65	61 32 66
Size	200 mm	250 mm

17. Magnets

Strong Hand Magnets

Imanes Potentes de Mano
強力マグネット　强力磁铁



A handy strong magnet for moving or lifting metallic objects (steel, etc.).

Unit Per Pc.

CODE	No.	Size mm H x W x T	CODE	No.	Size mm H x W x T
61 32 80	4.5	85 x 65 x 8	**61 32 82**	10	127 x 93 x 12
81	7.5	105 x 75 x 11	**83**	15	136 x 110 x 15

18. Saws / Hacksaws

Hand Saws

Serruchos de Carpintero　西洋手挽鋸　手锯



Steel blade, hardened and tempered. Thin back, true taper ground, highly polished.

Unit Per Pc.

CODE	Blade Length mm	CODE	Blade Length mm
61 34 01	450	**61 34 03**	600
02	500	**04**	650

Back Saws

(Tenon Saws)

Serrucho de Costilla　バックソー　板锯

For general use in connection with mitre box and cabinet work. Stiff blade with a heavy steel back. Solid hard wood handle.



61 34 07	Back saw 300 mm	Pc.

Double Blade Saws

Serrucho de Doble Hoja　両刃鋸　日本式双刃锯

For carpentry use. Double blade saw for rip and cross cutting.



Unit Per Pc.

CODE	Blade Length mm	CODE	Blade Length mm
61 34 10	210	61 34 13	295
11	240	14	320
12	270		

Compass or Keyhole Saws

Serrucho de Punta　引廻し鋸　鸡尾锯

Steel blade, hardened and tempered. Blade fastened securely to the handle.



61 34 16	Saw, compass, blade length 210 mm	Pc.

Saw Setters

Fijador de Serrucho　鋸目立て　正锯器

For use on setting saw teeth.



61 34 22	Setter saw Japanese type	Pc.

Tiny Hacksaw Frames

Arco de Marqueteria　弓鋸　弓形锯架

Designed for cutting sheet metal, thin tubing or heavy wires in close quarters. Frames are made of bright finished nickel spring wire. Handle depth is 50 mm and the blades are 150 mm x 6 mm.



CODE	Description	Unit
61 34 23	Tiny hack saw frame with 12 blades	Set
24	Tiny hack saw frame with one blade	"
25	Tiny hack saw blades	Doz

Hacksaw Frames

Acros de Sierra　弓鋸フレーム　锯架

The frames are available in solid type or pipe type. Made of nickel plated steel and polished or buff finished.



Pipe



Fixed

Unit Per Pc.

CODE	Type	For Blade Length
61 34 26	Pipe	Adjustable to blades
29	Fixed	For 250 mm
28		For 300 mm

Hacksaw Blades

Hojas de Sierra o Segueta　弓鋸刃　锯条（碳钢）



Carbon Steel ..... Recommended for general use by engineers, mechanics, electricians, plumbers and maintenance men.

Tungsten Alloy Steel ..... Resist breakage, longer wearing and give satisfaction where fast, dependable results are essential.

High Speed Steel ..... Heat resistant and suitable for cutting tough alloy steel.

Choose the right blades for the right works.

14 Teeth Per 25.4 mm..... For cutting soft solid steel, iron, rails, brass, bronze, copper and aluminium.

18 Teeth Per 25.4 mm ..... For cutting tool steels, iron pipes and light angle iron.

24 Teeth Per 25.4 mm..... For cutting drill rods, medium sheet metal, tubing and solid brass.

32 Teeth Per 25.4 mm ..... For cutting thin sheet metal and thin wall tubing.

How to order: CODE

Hacksaw blade, MATERIAL, LENGTH, TEETH per INCH

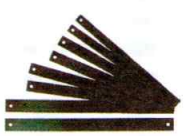
Unit Per Doz

CODE			Length mm	Teeth Per Inch
Carbon Steel	Tungsten Alloy Steel	High Speed Steel		
61 34 31	61 34 41	61 34 51	250	14
32	42	52	250	18
33	43	53	250	24
34	44	54	250	32
61 34 35	61 34 45	61 34 55	300	14
36	46	56	300	18
37	47	57	300	24
38	48	58	300	32

Machine/Power Saw Blades

Hoja de Segueta para Máquina/Hoja de Sierra
機械用弓鋸刃　机器 / 动力锯刃

Please indicate length and teeth per 25.4 mm.



Tungsten Alloy Steel

How to order: CODE

Machinesaw blade, tungsten alloy steel, LENGTH, THICKNESS, TEETH per INCH

Unit Per Pc.

CODE	Specification Length mm	Specification Width mm	Thickness mm	Teeth Per Inch
61 34 61	300	25	1.25	9
62	300	25	1.25	10
63	300	25	1.25	14
61 34 64	300	25	1.65	9
65	300	25	1.65	10
66	300	25	1.65	14
61 34 67	350	25	1.25	8
68	350	25	1.25	9
69	350	25	1.25	10
61 34 70	350	25	1.65	8

High Speed Steel

How to order: CODE

Machinesaw blade, high speed steel, LENGTH, THICKNESS, TEETH per INCH

Unit Per Pc.

CODE	Specification Length mm	Specification Width mm	Thickness mm	Teeth Per Inch
61 34 76	300	25	1.25	9
77	300	25	1.25	10
78	300	25	1.25	14
61 34 79	300	32	1.60	6
61 34 82	350	25	1.25	6
84	350	25	1.25	10
83	350	25	1.25	14
61 34 87	350	32	1.60	4
88	350	32	1.60	6
89	350	32	1.60	10

19. Pin Vises / Hand Drills

Steel Pin Vises

Broqueros de Acero　ピンバイス　工具轧头

For holding drills, taps, needles, files, etc. Jaw hardened and nickel chromed.



Unit Per Pc.

Type	CODE	No.	Maximum Jaw open mm	Overall Length mm
	61 35 01	No. 1	0 ~ 0.6	105
	02	2	0 ~ 0.9	108
	03	3	0 ~ 1.2	120
	04	4	0 ~ 1.2	100
	**61 35 05**	No. 5	1.3 ~ 2.2	104
	**06**	6	2.3 ~ 3.2	108
	07	7	3.3 ~ 4.2	112
	08	8	4.3 ~ 5.2	116
	61 35 09	No. 4A	0 ~ 1.2	110
	**10**	5A	1.3 ~ 2.2	115
	**11**	6A	2.3 ~ 3.2	120
	**12**	7A	3.3 ~ 4.2	125
	**13**	8A	4.3 ~ 5.2	130

Hand Chuck Vises

with Wood Handle

Broqueros Manuales con Mango de Madera
木柄ピンバイス　手转卡盘钳



Will hold larger diameter tools than the steel pin vise. The 3 jaw chuck locks tight to any device with the indicated diameter.

Unit Per Pc.

CODE	**61 35 17**	**61 35 18**
No.	No. 1	No. 2
Jaw Opening	0 - 4 mm	0 – 6 mm

Straight Hand Drills

Three Jawed Chuck

Taladro Manual Rectos/3 Mordazas
手廻しボール（ハンドドリル）　手滚球（手操）



Designed for light drilling work with a 3 jaw-chuck. Used with straight drills maximum up to 10 mm in diameter.

61 35 30	Drill, hand straight 3-jaw chuck	Pc.

Straight Breast Drills

Two-Gear & Two-Jaw

Taladro Manual Antepecho/2 Mordazas
胸当ドリル　直式手摇钻



Two speed drill in one set. Will operate with straight shank drills up to 12.5 mm in diameter.

61 35 31	Drill, breast, straight 2 gear & 2 jaw	Pc.

Ratchet Type Braces

Taladro Manual Berbiqui クリックボール　棘轮式手摇曲柄钻

Open ratchet type, finished in high grade chrome. To be operated with straight shank drills of up to 13 mm in diameter.



61 35 32	Brace, ratchet type up to 13 mm	Pc.

20. Auger Bits / Gimlets

Machine Auger Bits

Barreno Máquina　マシンオーガー　机械式螺旋钻头

Used for large timber work and heavy construction. Made from special bit steel for use with electric drills. Shank is straight and round.



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
61 35 61	6	**61 35 66**	21
62	9	**67**	24
63	12	**68**	27
64	15	**69**	30
65	18		

Japanese Gimlets

Barrenos Japoneses　和錐　日本手钻



For marking or pre-holing for screws on a wooden board.

61 35 71	Gimlet, Japanese	Pc.

21. Planes / Wood Gouges

Bench Jack Planes

Cepillos de carpintero
西洋カンナ　刨台平面夹具



Cutter end and side size adjustable.
Cutter size: 40 mm & 50 mm.

Unit Per Set

CODE	61 36 01	61 36 02	61 36 03
Width	40 mm	45 mm	50 mm

Wood Butt Chisels

Formón　平のみ　木制平头铲刀



The blade and socket are forged in one piece. High grade steel. Heat-treated and tempered. Select hard wood handle.

Unit Per Pc.

CODE	Blade Width mm	CODE	Blade Width mm
61 36 10	3	**61 36 15**	18
11	6	**16**	24
12	9	**17**	30
13	12	**18**	36
14	15	**19**	42

Wood Gouges

Gubia　丸のみ　木制圆凿



Made from high grade steel, heat-treated and tempered. Select hard wood handle.

Unit Per Pc.

CODE	Blade Width mm	CODE	Blade Width mm
61 36 25	6	**61 36 28**	15
26	9	**29**	18
27	12	**30**	24

22. Trowels / Putty Knives

Trowels

Paletas　コテ　小铲子



Polished mounting securely fastened to the handle. Polished spring steel blades.

Unit Per Pc.

Heart type		Point Type	
CODE	Blade Length mm	CODE	Blade Length mm
61 36 51	145	**61 36 57**	150
52	150	**58**	165
53	160	**59**	180
54	170	**60**	195
55	180	**61**	210
61 36 56	190	**61 36 62**	225
		63	240
		64	255

Putty Knives

Espátulas para Masilla　パテナイフ　油灰刀



High carbon, cutlery steel, oil hardened blade, tempered and glaze finished.

Unit Per Pc.

CODE	Blade Width mm	CODE	Blade Width mm
61 36 71	25	**61 36 75**	75
72	40	**76**	90
73	50	**77**	100
74	65		

23. Shovels

Shovels

Palas Cuadradas　スコップ　方形铁锹

Square



Blade is forged in one piece from a solid bar of special treated steel for heavy duty work.

Unit Per Pc.

CODE	Overall Length mm	Blade Size Width x Length mm
61 36 85	970	240 x 300
86	1,050	250 x 367
87	1,070	270 x 395

Polycarbonate



Made from polycarbonate shovel with wooden handle. Much lighter than conventional steel shovel, but has temperature resistance and impact resistance. Overall length is 1,200 mm.

61 36 89	Shovel, polycarbonate, square, overall length 1,200 mm.	Pc.

24. Tool Belts

Electrician's Tool Belts

Cinturones para Herramientas de Electricista
電工ベルト　电工工具带





A high-quality leather belt with pouches specially designed for use by electricians.

61 36 91	Leather belt for electrician, With 3 tool pockets	Pc.
92	" with 4 tool pockets	"

Electrician's Tool Bags

Bolsas para Herramientas de Electricista
電工腰袋　　电工工具袋

Tools are sold separately. Available in leather and canvas.



Leather



Canvas

61 36 95	Electrician's tool bag, leather	Pc.
96	Electrician's tool bag, canvas	"

25. Pipe Benders

Pipe Benders

Curvadoras de Tubo　パイプベンダー　　弯管器

Made of malleable steel with preset jaws which are equipped with receiving grooves for holding the pipe to assure accurate, good fitting bends. This bender is designed with a fitting support and bending shoe so the pipes do not kink or flatten.



Unit Per Pc.

CODE	For Pipe Size		Handle Length mm
	Gas	Conduit	
61 37 01	10A	5/8 in	1,200
02	15A	3/4	1,200
03	20A	1	1,500
04	25A	1-1/4	1,700
05	30A	1-1/2	1,800
61 37 06	40A	2 in	2,000
07	50A	2-1/2	2,100

Hydraulic Pipe Benders

Portable

Curvadoras de Tubo Hidráulicos/Portátil
油圧パイプベンダー　　液压弯管器

Designed for bending rigid conduit pipes, steel pipes, etc. Capable of making a full bend of up to 90° of 20A to 100A pipes.



Unit Per Set

CODE	Power Tons	Weight Kg	Standard Attached Shoes
61 37 11	10	60	20A, 25A, 32A, 40A & 50A
12	20	150	65A, 80A & 100A

26. Screw Clamps / Vises

C-Type Screw Clamps

Abrazaderas Tipo C o torniquete　シャコ万力　　C 螺栓夹头

Drop forged from strong special steel and heat-treated. The screws are made from tough, wrought steel, heat-treated and threaded for strength and rapid adjustment.



Unit Per Pc.

CODE	Opening mm	CODE	Opening mm
61 37 16	25	61 37 21	125
17	38	22	150
18	50	23	200
19	75	24	250
20	100	25	300

Hand Vises

Entenallas　手万力　　手动虎钳

Drop forged from strong special steel. For holding tools, etc. firmly by hand. The opening size is about the same size as the jaw width.



Unit Per Pc.

CODE	Opening	Overall Length mm	CODE	Opening	Overall Length mm
61 37 51	25 mm	100 mm	61 37 53	38 mm	150 mm
52	32	125			

Pipe Vises

Tornillo Banco para Tuberias
パイプ万力　　管子台虎钳

Both upper and lower jaws are made of specially selected tool steel and will not wear out. The vise frame is made of malleable iron. The base has a flat bottom and can be mounted on any plain surface.



Unit Per Set

CODE	Nominal Size	Capacity mm	Height mm
61 37 55	50	10 - 60.5	240
56	80	10 - 77	280
57	105	10 - 102	335
58	130	10 - 128	390
59	170	10 - 166	480

Pipe Vises with Stand

Tornillo banco para Tuberias con pié
脚付パイプ万力　　有支架管子虎钳

This portable pipe vise has been designed for use in areas where a permanent installed vise is not available. Has a folding stand which keeps good balance during working operation.



Unit Per Set

CODE	For Pipe Hold Size	Height mm	Weight kg
61 37 62	8A - 50A	1,100	12.5
63	10A - 90A	1,180	17.0

Clamp Base Vises

Tornillo Banco de Sobremesa
卓上小型取付万力　桌虎钳



A handy portable vise. The body is made of cast iron and the jaws are made from a solid cube of steel.

Unit Per Pc.

CODE	Jaws	
	Width mm	Opening mm
61 37 65	40	40
66	50	50
67	63	57
68	75	60

Parallel Bench Vises

Tornillo Banco　バイス　虎钳

Square Cylinder



The body of this square cylinder bench vise is made of forged cast iron. The jaws are made of a replaceable alloy steel. This vise is convertible between stationary and swivel type by simply attaching or removing the swivel base assembly.

Unit Per Pc.

CODE	Jaws			Weight kg
	Width mm	Opening mm	Depth mm	
61 37 70	57	60	39	2.7
71	65	65	44	3.9
72	77	82	50	5.6
73	90	92	61	9.5
74	103	117	76	14.6
61 37 75	116	135	79	19.8
76	128	162	82	22.5
77	152	200	90	31.1
78	206	240	100	38.8
79	255	300	140	68.4

Round Cylinder



The body and slidings are made of specially selected, shock resistant high quality cast iron. Built for heavy duty use and designed for accuracy. The jaws are made of heat-treated steel and are replaceable. Handles have finger protecting rubber grommets on each end. This vise can be also used in connection with a swivel base.

Unit Per Pc.

CODE	Jaws			Weight kg
	Width mm	Opening mm	Depth mm	
61 37 81	85	85	65	10
82	110	110	83	18
83	127	125	95	26
84	153	150	100	36
85	215	200	114	85

With Swivel Base



These vises can easily be rotated on their base by turning a clasp and then fixed in the most convenient position for the job.

Unit Per Pc.

CODE	Jaws		Length mm	Height mm	Weight kg
	Width mm	Opening mm			
61 37 86	100	135	370	190	14.5
87	140	180	470	230	27.0

Swivel Bases, Assembly

Bases Giratorias　バイス用回転ベース　虎头钳夹块

Sturdily constructed, the swivel base vises 61 37 73 and larger rotate a full 360°, while 61 37 72 and smaller rotate only 280°. They can be positively locked by simple adjustment of the locking attachment.



For 61 37 70 - 72
Vise size 280°



For 61 37 73 - 79
Vise size 360°

61 37 88	Swivel base assembly for 61 37 70 – 72, 280°	Pc.
89	Swivel base assembly for 61 37 73 – 79, 360°	"

Vise Jaw Pads

Magnet Type

Mordazas para Tornillo Banco　マグネット式バイスロ金　虎钳夹块



Protect fine work in vises with corrugated jaw facings. A piece of aluminium angle with two magnets make the piece stick fast to the jaw, converting any reed vise jaw face to a smooth and soft surface. 3 sizes available. When you request the vise jaw pads fixed with screw, please specify exact dimensions of screw size, number of screws and distance of screws.

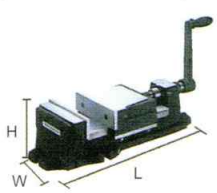
Unit Per Pr.

CODE	Width	Material	CODE	Width	Material
61 37 91	100 mm	Aluminium	**61 37 93**	150 mm	Aluminium
92	125 mm				

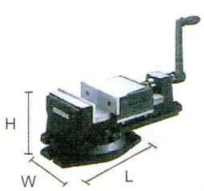
Milling Vises

Prensas Mecánicas　ミリングバイス　车工钳

Suitable to hold small parts for milling on the milling machine.
F type : Fixed base, K type : with Swivel base.



Vises
Milling F Type



Vises
Milling K Type

Unit Per Pc.

CODE	Jaw W x Open x Depth mm	Body L x W x H mm	Max. Clamping Power (kN)	Weight Kg
F Type (Fixed Base)				
61 37 41	102 x 65 x 35	310 x 123 x 84	7.84	8
42	132 x 82 x 37	382 x 148 x 98	9.80	12
43	153 x 112 x 43	465 x 183 x 109	12.74	21
44	204 x 146 x 63	608 x 233 x 145	16.66	43
K Type (with Swivel Base)				
61 37 46	102 x 65 x 35	310 x 123 x 84	7.84	8
47	132 x 82 x 37	382 x 148 x 98	9.80	12
48	153 x 112 x 43	465 x 183 x 109	12.74	21
49	204 x 146 x 63	608 x 233 x 145	16.66	43

27. Tool Boxes / Part Cabinets

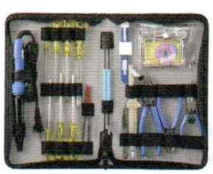
Handy Tool Sets

Juegos Prácticos de Herramienta 手提工具セット 便携工具组

Basic tool set furnished in a carrying case contains the necessary tools for mechanics to perform daily maintenance activities.



61 38 01



61 38 02

Contents in One Set

61 38 01		61 38 02	
Diagonal Cutting Plier	125 mm	Diagonal Cutting Plier	150 mm
Long Nose Plier	150 mm	Long Nose Plier	150 mm
Side Cutting Plier	150 mm	Side Cutting Plier	150 mm
Screwdriver Set (handle in neon)		Tweezers	125 mm
Handle only		Adjustable Wrench	150 mm
Tweezers	150 mm	Screwdriver	5.5 x 100 mm
Adjustable Wrench	150 mm	Screwdriver	4.5 x 100 mm
Soldering Iron, 100V 30W		Screwdriver	2.6 x 100 mm
Solder, Paste, Punch, Chisel, Pencil, Duster-Cloth		Phillips Screwdriver	100 mm
		Nut Driver	5.5 mm
		Alignment Driver	150 mm
		File (Flat and Round)	
		Soldering Iron, 100V 60W	
		Solder Tip Cleaner	
		Heat Sink	
		Solder Aid (2-Pcs.)	
		Convex Rule, Solder	

61 38 01	Handy tool set carrying case Contains 14 tools	Set
61 38 02	Handy tool set carrying case Contains 20 tools	"

Tool Boxes

Cajac de Herramienta 工具箱 工具箱

Various types of tool boxes and tool cabinets made of steel or plastic are available.

Steel Tool Boxes



Spare Parts Box



Suitcase



Quonset



V-Type

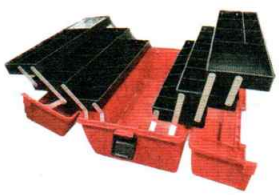
Unit Per Pc.

CODE	Shape	Dimensions in mm Length x Width x Height
61 38 05	Spare Parts Boxes	200 x 150 x 100
06		350 x 200 x 200
07		400 x 400 x 150
08		400 x 400 x 300
09		800 x 400 x 300
61 38 10	Suitcase	260 x 135 x 75
11		300 x 160 x 75
12		360 x 200 x 75
61 38 13	Quonset	260 x 120 x 100
14		290 x 150 x 100
15		350 x 150 x 100
61 38 16	V-Type	540 x 210 x 190
17		700 x 210 x 190

Plastic Tool Boxes



Rectangular box with Drawers



V-Type

Unit Per Pc.

CODE	Shape	Dimensions in mm Length x Width x Height
61 38 19	Rectangular Box with Drawers	420 x 240 x 330
20	V-Type	450 x 270 x 230

Parts Cabinets

Gabinetes con Separaciones パーツキャビネット 配件柜

Plastic Drawer

Transparent, hard plastic drawers encased in a steel frame. The front of the drawers are transparent making it easy to locate the contents.

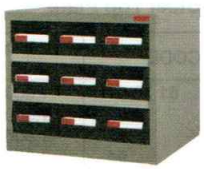


Unit Per Set

CODE	Drawers	Size W x D x H mm
61 38 21	10	243 x 238 x 253
22	15	358 x 238 x 253
23	24	358 x 238 x 379
61 38 24	40	487 x 238 x 500
25	72	487 x 238 x 880
26	72	555 x 275 x 880
61 38 27	21	440 x 275 x 570
28	36	574 x 272 x 690
29	48	574 x 272 x 880

Steel Drawer

Steel made drawers encased in a steel frame.



Unit Per Set

CODE	Drawers	Size W x D x H mm
61 38 31	10	245 x 240 x 255
32	15	360 x 240 x 255
33	24	360 x 240 x 380
34	40	477 x 240 x 465
35	72	475 x 240 x 870

Plastic Parts Cases

Estuches de Plástico con Separaciones

プラスチックパーツケース　塑料配件箱



Suitcase type parts case made of plastic. The inside is divided into small compartments.

Unit Per Pc.

CODE	Size W x D x H mm	Compartments
61 38 36	333 x 228 x 72	16
37	360 x 252 x 104	15

Plastic Multi Tool Boxes

Cajas de plástico para herramientas

ハンガーラックコンテナ　塑料多功能工具箱



Suitable for storing small parts, hand tools, bolts, etc. dividing the size or colour of each item.

Unit Per Pc.

CODE	Colour	Capacity ltr	Size mm
			Width x Depth x Height
61 38 41	Red	1.0	113 x 201 x 75
42	Blue		
61 38 43	Blue	2.4	150 x 201 x 125
44	Yellow		
61 38 45		5.1	143 x 401 x 140
46	Blue	10.3	225 x 400 x 175
47		22.3	450 x 400 x 175

Tools & Parts Cabinets

Herramientas y Gabinetes　工具部品収納キャビネット　工具和备件柜

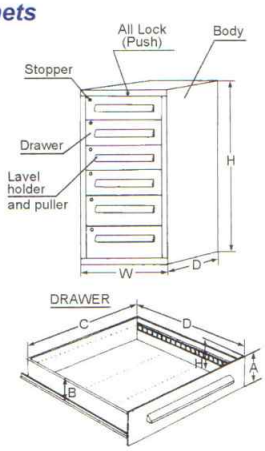
Designed, engineered and built to industrial standards to withstand continuous and rugged service. Suitable for use in marine storage systems. As a wide range of fabrications of models are possible, please ask or write for catalogues before ordering.

Master Tools & Parts Cabinets

The system cabinet consists of 4 standard body sizes and 5 standard drawer sizes, and by their combination, adjusting the drawer rail position, many types of cabinets can be fabricated.

Storing capacity is up to 1,000 kg. Comes equipped with a device to prevent the cabinet from moving when the ship is pitching and rolling.

The standard sizes of the bodies and drawers are as follows.



Cabinet Body

How to ordee: CODE

Master tools & parts cabinet body, steel, HEIGHT, WIDTH, DEPTH

Unit Per Pc.

CODE	Height mm	Width mm	Depth mm
61 38 51	902	713	711
52	1,002	713	711
53	1,202	713	711
54	1,402	713	711

Cabinet Drawer Only

How to order: CODE

Master tools & parts cabinet drawer, steel, SIZE A, C and D mm

Unit Per Pc.

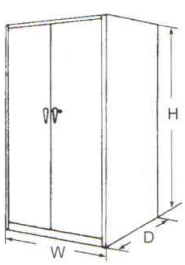
CODE	A mm	B mm	C mm	D mm	H mm
61 38 55	150	90	600	600	125
56	200	140	600	600	175
57	250	140	600	600	225
58	300	200	600	600	275
59	350	200	600	600	325

Master Tools & Parts Lockers

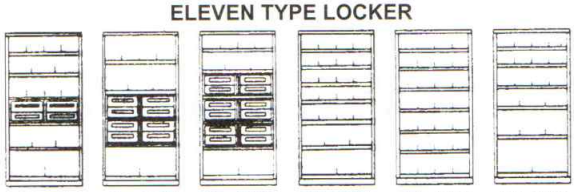
Equipped with full height locking doors, adjustable shelves, and separators. There are 11 standard models whose inside arrangements are illustrated below.

Locker Size

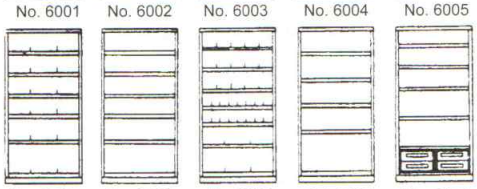
H mm	W mm	D mm
1,800	900	600



ELEVEN TYPE LOCKER



No. 6001　No. 6002　No. 6003　No. 6004　No. 6005　No. 6006



No. 6007　No. 6008　No. 6009　N0. 6010　No. 6011

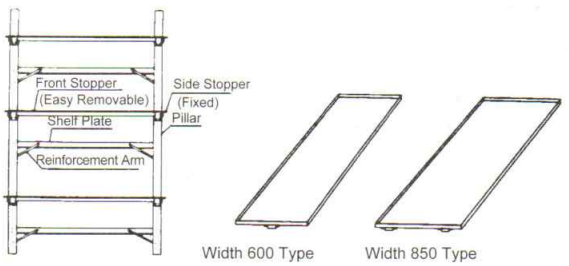
Master Tools & Parts Locker

Unit Per Set

CODE	Type No.	Weight kg	CODE	Type No.	Weight kg
61 38 61	6001	145	**61 38 67**	6007	124
62	6002	152	**68**	6008	112
63	6003	179	**69**	6009	142
64	6004	134	**70**	6010	105
65	6005	136	**71**	6011	133
61 38 66	6006	125			

Shelves:

Standard types are illustrated below, but the number of plates can vary. Also, free spacing plates are available. Specify the type required by the shelf and frame dimensions listed below.



How to order: CODE

Shelves, steel, WIDTH, DEPTH, and HEIGHT mm

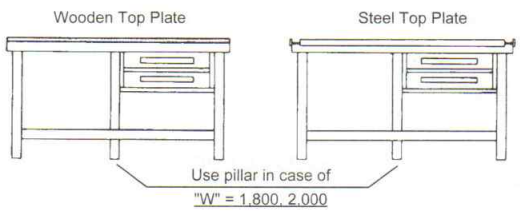
Shelf

Unit Per Set

CODE	Width mm	Depth mm	Height mm	Weight Kg	Capacity Kg
61 38 75	1,200	600	2,300	124	540
76	1,200	850	2,300	160	360
77	1,400	600	2,300	137	490
78	1,400	850	2,300	178	330
79	1,600	600	2,300	149	440
61 38 80	1,600	850	2,300	196	300

Work Benches

Heavy duty design for use in the Engine Room. Wooden top plate and steel top plate types are available.



How to order: CODE

Work bench, steel, TYPE of TOP PLATE, WIDTH, DEPTH and HEIGHT mm

Wooden Top Plate

Unit Per Set

CODE	Width mm	Depth mm	Height mm	Weight Kg
61 38 85	1,000	700	800	154
86	1,500	700	800	189
87	1,800	700	800	222
88	2,000	700	800	234
89	2,000	1,000	800	270
61 38 90	1,800	1,000	800	256

Steel Top Plate

Unit Per Set

CODE	Width mm	Depth mm	Height mm	Weight Kg
61 38 91	1,000	700	800	165
92	1,500	700	800	202
93	1,800	700	800	237
94	2,000	700	800	251
95	2,000	1,000	800	280
61 38 96	1,800	1,000	800	265

28. Drum Opening Spanners / Drum Cocks

Drum Opening Spanners

Malleable Steel

Llaves para Abrir bidón Maleable　ドラム缶用スパナ　开桶板手

A tool designed for opening drums, plugs and caps in an easier, quicker and safer way.



61 40 01	Spanner, drum opening	Pc.

Drum Cocks

for 1-1/2 & 2 inch

Gifos de Bidón/Para 1-1/2 y 2 pulgadas　ドラムコック　油桶考克

Drum cock has inversive fittings, one of a 1-1/2" thread size and the other of a 2" thread size. Will fit to all kinds of drums and can safely hold oil, gasoline, kerosene, alcohol, light varnishes, clear lacquers, and solvents of all kinds.



61 40 04	Cock, drum oil, adjustable 1-1/2 & 2 inch	Pc.

29. Drum Pumps

Rotary Hand Pumps

Bombas de Transvase Rotoria　ロータリーポンプ　手摇泵

Economical and durable barrel and refueling pump unit complete with spout, suction pipe and bung attachment. Most often used for dispensing light to medium grade cutting and lubricating oils, solvents, and fuels.



61 40 06	Rotary hand pump 3/4 inch	Pc.
61 40 07	" 1 "	"

Plastic Hand Pumps

Bombas Manuales de Achique, Plástico

プラスティック製ポンプ　塑料手泵

A plastic, manual, suction pump; used for all purpose light pumping or dispensing work. Overall length 540 mm.



61 40 10	Pump, hand, plastic	Pc.

Plastic Hand Pumps for Drum

Bombas Manuales de Achique para Bidón, Plástico
プラスティック製ドラム用ポンプ　油桶用塑料手泵

Same as above but of a larger size. Overall length is 1,200 mm.



61 40 11	Pump, hand plastic for drum	Pc.

Wing Pumps, Hand Operated

Bombas de Achique Rotativa Manual　ウイングポンプ　翼式手动泵

This semi-rotary pump will produce a steady stream of liquid. A double blade impeller assures a high pumping rate with greater efficiency. To be installed between pipes.



Unit Per Pc.

CODE	Pipe Size mm	Capacity per Minute ltr	Weight Kg
61 40 14	15	14	4.7
15	20	18	6
16	25	28	8
61 40 17	32	36	12
18	40	54	17
19	50	75	27

30. Drum Hooks / Lifting Clamps

Drum Hooks

Gafas Descarga Bidones　ドラム用フック　桶钩

For 1 Drum

Designed for lifting drum barrels with a hanging drum rib by hooks. Hooks with wire or chain can be made to order if required.



61 40 25	Drum hook, chain, for one drum	Set

For 2 Drums

Quadruple chain sling with master link & drum hooks for lifting two drum barrels simultaneously.



61 40 26	Drum hook, chain, for 2 drums	Set

Clamps

Garra　クランプ　轧头

Drum Clamp

Designed to accommodate a large variety of drums with or without the lids removed. Drums can be lifted from a horizontal or vertical position and can also be reversed.



Max. Jaw Opening mm	Capacity Tons	Weight Kg
18	0.5	2

61 40 28	Clamp, drum, capacity 0.5 ton	Pc.

Steel Plate Clamp

Suitable for use in the vertical lifting of steel plates. Please specify the model type required based upon the size of the jaw opening and the lifting capacity of the clamp.



Unit Per Pc.

CODE	Capacity Tons	Max. Jaw Opening	Eye ID mm	Weight Kg
61 40 30	0.5	22	35	1.5
31	1	28	46	3
32	2	35	61	6
33	3	41	74	9
34	5	54	92	18

Steel Structure Clamp

Suitable for use in lifting steel structures such as H, I, C, L and T shaped steel. Please specify the model type required based upon the size of the jaw opening and the lifting capacity of the clamp.



Unit Per Pc.

CODE	Capacity Tons	Jaw Opening mm	Eye ID mm	Weight Kg
61 40 37	1	1 - 13	23	1.5
38	2	3 - 22	30	3.7
39	3	22 - 45	36	8.1

31. Hose Bands / Pipe Clamps

Hose Bands

Abrazaderas de Manguera　ホースバンド　喉箍

An extremely flexible one piece hose band that gives perfect circumference contact even on irregular surfaces. Made from galvanized steel and stainless steel sealed by gear drive principle, this heavy duty clamp will assure a leak proof seal. When ordering, please indicate the outside diameter of the corresponding hose.



Steel

Unit Per Pc.

CODE	Size mm	CODE	Size mm	CODE	Size mm
61 40 51	8-14	**61 40 55**	22-32	**61 40 59**	68 - 85
52	11-17	**56**	32-44	**60**	77 - 95
53	13-20	**57**	46-56	**61**	87 - 112
54	15-24	**58**	58-75		

Stainless Steel

Unit Per Pc.

CODE	Size mm	CODE	Size mm	CODE	Size mm
61 40 65	8-14	**61 40 69**	22-32	**61 40 73**	68 - 85
66	11-17	**70**	32-44	**74**	77 - 95
67	13-20	**71**	46-56	**75**	87 - 112
68	15-24	**72**	58-75		

Hose Bands

Extra Heavy Duty

Abrazaderas de Manguera/Reforzadas
高耐久型ホースバンド　軟管卡箍

Double Bolt
Made from malleable iron.



Interlock
Made from structural steel.



Unit Per Pc.

Double Bolt Type				Interlock Type	
CODE	For Hose O.D. mm	CODE	For Hose O.D. mm	CODE	For Hose O.D. mm
61 37 94	30 - 40	**61 40 86**	140-153	**61 40 92**	31.0 - 35.0
99	35 - 45	**61 38 40**	155-165	**93**	40.0 - 44.0
61 38 00	40 - 50	**61 40 87**	165-175	**94**	47.5 - 52.5
03	45 - 55	**61 38 48**	170-180	**95**	56.5 - 60.5
04	50 - 60	**49**	180-190	**96**	73.0 - 77.0
61 40 80	60 - 65	**61 40 88**	195-205		
61 38 18	65 - 75	**61 38 50**	200-210		
61 40 81	78 - 85	**61 40 89**	215-225		
82	85 - 95	**61 38 60**	220-230		
83	90 - 100	**72**	230-240		
61 38 30	100 - 110	**61 38 73**	240-250		
38	115 - 125	**61 40 90**	285-300		
39	135 - 145				

Banding Clamps & Tools

Abrazaderas y Herramientas　バンドクランプ　卡箍工具

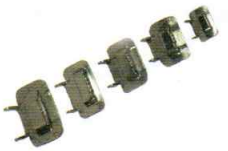
These products have a wide range of applications for hose and pipe fastening and are used in almost all industries. Tensioning tools, band, buckles, performed clamps, hose couplings, mounting brackets, accessories and spare parts offer a universal and economical fastening system. The products will connect, clamp, fasten, secure and fix hose, pipe, cables, signs, boards, etc.



Banding Tool



Banding Band



Banding Buckle



Banding Screw Buckle

Banding Tool : Tensioning capability over 1 ton weight 2 kg.

Banding Band : 30 mtrs/roll of 5 sizes stainless steel made.

Banding Buckle : 100 pcs/box of 5 sizes stainless steel made.

Banding Screw Buckle : 50 and 25 pcs/box 3 sizes.

CODE	Description		Unit
61 41 01	Banding Tool		Set
		Width x Length	
61 41 03	Banding Band, S.Steel	6.4 mm x 30 Mtrs	Roll
04	"	9.5 mm x 30 "	Roll
05	"	12.7 mm x 30 "	Roll
06	"	16.0 mm x 30 "	Roll
07	"	19.0 mm x 30 "	Roll
		Width x Pcs	
61 41 09	Banding Buckle, S.Steel	6.4 mm x 100 Pcs	Box
10	"	9.5 mm x 100 "	Box
11	"	12.7 mm x 100 "	Box
12	"	16.0 mm x 100 "	Box
13	"	19.0 mm x 100 "	Box
		Width x Pcs	
61 41 16	Banding Screw, Buckle	9.5 mm x 50 Pcs	Box
17	"	12.7 mm x 25 "	Box
19	"	19.0 mm x 25 "	Box

Straub Couplings

Acoplamientos Straub　ストラブカップリング　管接头

A very useful clamp for connecting pipes easily and quickly without using pipe fittings or doing welding work. Designed for use with casing, rubber sleeve, bolt nut and washers. A grip type and flexible type are available.



Grip Type

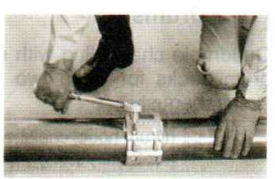


Flex Type

Main Material	Stainless Steel SUS 316, 304 & Galvanized	
Rubber Sleevs	EPDM	For Seawater, Air, Inert Gas, etc.
	NBR	For Oil, Organic Gas
Working Pressure	Up to 16 kgf/cm²	

EPDM denotes Ethylene Propylene Dien Rubber

NBR denotes Acrylonitrile-butadiene Rubber



How to order: CODE

Pipe coupling, Straub, grip type(Grip-L or Metal Grip), MATERIAL of SLEEVE, NOMINAL SIZE

Unit Per Pc.

Straub-Grip-L Type

Rubber (EPDM) Sleeve			Rubber (NBR) Sleeve		
CODE	Nominal Size	Pipe OD mm	CODE	Nominal Size	Pipe OD mm
61 41 20	20A	26 - 28	**61 41 26**	20A	26 - 28
21	25	33 - 35	**27**	25	33 - 35
22	32	37 - 39	**28**	32	37 - 39
23	40	47 - 49	**29**	40	47 - 49
31	50	57 - 61	**41**	50	57 - 61
61 41 32	65	74 - 78	**61 41 42**	65	74 - 78
33	80	87 - 93	**43**	80	87 - 93
34	100	112 - 118	**44**	100	112 - 118
35	125	137 - 142	**45**	125	137 - 142
36	150	165 - 171*	**46**	150	165 - 171*
61 41 24	200	217 - 221**	**61 41 30**	200	217 - 221**
25	250	270 - 276***	**37**	250	270 - 276***

Working Pressure: * 13 bar, ** 10 bar, *** 4 bar

Unit Per Pc.

Straub-Metal-Grip Type - Significantly stronger design

Rubber (EPDM) Sleeve			Rubber (NBR) Sleeve		
CODE	Nominal Size	Pipe OD mm	CODE	Nominal Size	Pipe OD mm
61 41 38	150	165 - 171*	**61 41 47**	150	165 - 171*
39	200	217 - 221**	**48**	200	217 - 221**
40	250	270 - 276***	**49**	250	270 - 276***

Working Pressure: *16 bar (SUS304), **16 bar (SUS304), ***12 bar (Galvanized)

How to order: CODE

Pipe coupling, Straub, flex type, MATERIAL of SLEEVE, NOMINAL SIZE

Unit Per Pc.

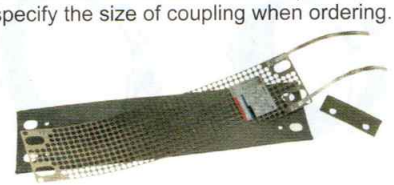
Straub-Flex Type

Rubber (EPDM) Sleeve			Rubber (NBR) Sleeve		
CODE	Nominal Size	Pipe OD mm	CODE	Nominal Size	Pipe OD mm
61 41 59	40A	47 - 50	**61 41 69**	40A	47 - 50
50	50	57 - 61	**60**	50	57 - 61
51	65	74 - 78	**61**	65	74 - 78
52	80	87 - 93	**62**	80	87 - 93
53	100	112 - 118	**63**	100	112 - 118
61 41 54	125	137 - 142	**61 41 64**	125	137 - 142
55	150	165 - 171	**65**	150	165 - 171
56	200	211 - 221*	**66**	200	211 - 221*
57	250	263 - 273**	**67**	250	263 - 273**
58	300	314 - 324***	**68**	300	314 - 324***

Working Pressure:* 10 bar, ** 8 bar, *** 7 bar

Fire Proof Jackets for Straub Coupling

The Fire Proof Jacket can be added to Straub Couplings that have already been installed, quickly and easily upgraded to the Fire-Fence version, in case fire protection is required. Available for models Straub-Metal-Grip and Straub Grip-L. Please specify the size of coupling when ordering.



How to order: CODE

Straub-FireFence Upgrade Kit to Straub-Metal-Grip or Straub-Grip-L coupling, NOMINAL SIZE

Unit Per Pc.

Straub-FireFence Upgrade Kit

to Straub-Grip-L Couplings			to Straub-Metal-Grip Couplings		
CODE	Nominal Size	Pipe OD mm	CODE	Nominal Size	Pipe OD mm
61 42 71	20A	26.9	**61 42 83**	20A	26.9
72	25	33.7	**84**	25	33.7
73	32	38.0	**85**	32	38.0
74	40	48.3	**86**	40	48.3
75	50	60.3	**87**	50	60.3
61 42 76	65	76.1	**61 42 88**	65	76.1
77	80	88.9	**89**	80	88.9
78	100	114.3	**90**	100	114.3
79	125	139.7	**91**	125	139.7
80	150	168.3	**92**	150	168.3
61 42 81	200	219.1	**61 42 93**	200	219.1
82	250	273.0	**94**	250	273.0

Straub Clamps

Abrazaderas Straub　ストラブクランプ　管夾



A clamp for the quick repair of pit holes, punctures or splits in steel pipe. Repairs leaks on water, gas, oil and pressure steam lines up to normal working pressure 16 kgf/cm². The features are the same as the Straub Couplings. Coupling material is Stainless Steel SUS316.

How to order: CODE

Pipe clamp, Straub, MATERIAL of SLEEVE, NOMINAL SIZE

Unit Per Pc.

Straub-Open-Flex Type

Rubber (EPDM) Sleeve			Rubber (NBR) Sleeve		
CODE	Nominal Size	Pipe OD mm	CODE	Nominal Size	Pipe OD mm
61 41 79	40A	47 - 50	**61 41 89**	40A	47 - 50
70	50	57 - 61	**80**	50	57 - 61
71	65	74 - 78	**81**	65	74 - 78
72	80	87 - 93	**82**	80	87 - 93
73	100	112 - 118	**83**	100	112 - 118
61 41 74	125	137 - 142	**61 41 84**	125	137 - 142
75	150	165 - 171	**85**	150	165 - 171
76	200	211 - 221*	**86**	200	211 - 221*
77	250	263 - 273**	**87**	250	263 - 273**
78	300	314 - 324***	**88**	300	314 - 324***

Working Pressure:* 10 bar, ** 8 bar, *** 7 bar

Rapid Response Clamps

Abrazadera de respuesta rápida
緊急修理用クランプ　緊急修理用夾具



The fastest and easiest way to temporarily repair pipe leaks and bursts. Taking less than 60 seconds to install by one operator and featuring a fully self contained design, which does not require the use of tools. Made from marine-grade stainless steel and featuring an innovative patented design, the system features a choice of three grades of material in the lip-seal,

making it suitable for water, potable water, steam, gas and most chemicals/petroleum liquids.

It fits pipe sizes ranging from 1.5" - 36" (DN38 mm - DN930 mm) and is available in four clamp widths, with each covering a wide range of diameters. It is a reusable repair clamp and can be applied to pressurized pipes up to 20 bar. Clamps are all ABS approved.

Material Specification

Casing	Stainless Steel SS 316
Lip-Seal	Nitrile, Neoprene or Therban
Working Temperature	Up to 165 DEG C

How to order: CODE

Rapid Response Clamp, NOMINAL SIZE, CLAMP WIDTH, SEAL (NITRILE, NEOPRENE or THERBAN)

Unit Per Pc.

CODE	Pipe Dia to Seal mm (inch)	Clamp Width (mm)	Effective Seal Width (mm)	Number of Cam Lock Handles
61 53 01		70	40	Single (1)
02	38 - 75	148	118	Double (2)
03	(1.5" - 3")	210	180	Triple (3)
04		272	242	Quad (4)
61 53 09		70	40	Single (1)
10	75 - 100	148	118	Double (2)
11	(3" - 4")	210	180	Triple (3)
12		272	242	Quad (4)
61 53 13		70	40	Single (1)
14	100 - 220	148	118	Double (2)
15	(4" - 8")	210	180	Triple (3)
16		272	242	Quad (4)
61 53 17		70	40	Single (1)
18	220 - 350	148	118	Double (2)
19	(8" - 14")	210	180	Triple (3)
20		272	242	Quad (4)
61 53 21		70	40	Single (1)
22	350 - 500	148	118	Double (2)
23	(14" - 20")	210	180	Triple (3)
24		272	242	Quad (4)

*Larger sizes up to DN930 (36") are available upon request.
Name of Mfr.: World Wide Metric Inc.

Fire Resistant Couplings

Teekay Axilock-FP

Acoplamientos resistentes al fuego
耐火性カップリング　防火型管道连接器



The Teekay Axilock-FP represents the ultimate in high security fire protected mechanical pipe couplings. With its unique internal fire sleeve and double casing design, it is plain to see why this coupling is the primary pipe connection of choice in the marine and naval market sectors. The Axilock-FP has been tested to military standards for shock and fire resistance and is fully compliant with current IACS regulations, including ISO19921/19922 fire testing and ISO1182 non-combustibility testing.
Available in two types for material selection, Type I(AISI 304) and Type IV(AISI 316L). Type approved by all the major marine classification bodies so please specify the ship classification when ordering.

Material Specification

	Type I	Type IV
Casing	AISI 304/DIN 1.4301	AISI 316L/DIN 1.4301
Fasteners	Alloy Steel, PTFE Coated	AISI 316 / 316L
Gasket	EPDM (NBR is available on request)	
Working Pressure	16 Bar	

How to order: CODE

Pipe coupling, TEEKAY Axilock-FP, Fire Resistant, NOMINAL SIZE, MATERIAL (Type I or Type IV), GASKET (EPDM or NBR), and SPECIFY THE SHIP'S CLASSIFICATION

Unit Per Pc.

CODE	Pipe OD (mm)	O.D. Tolerance (mm)	CODE	Pipe OD (mm)	O.D. Tolerance (mm)
61 42 30	21.3	21.0 - 21.6	**61 42 51**	98.0	97.0 - 100.0
31	26.9	26.6 - 27.3	**52**	101.6	100.5 - 103.5
32	28.0	27.7 - 28.4	**53**	104.0	103.0 - 106.0
33	30.0	29.7 - 30.4	**54**	108.0	107.0 - 110.0
34	33.7	33.3 - 34.1	**55**	110.0	109.0 - 112.0
61 42 35	35.0	34.7 - 35.4	**61 42 56**	114.3	113.0 - 116.0
36	38.0	37.0 - 39.0	**57**	118.0	117.0 - 120.0
37	42.4	41.4 - 43.4	**58**	127.0	126.0 - 129.0
38	44.5	43.5 - 45.5	**59**	129.0	128.0 - 131.0
39	48.3	47.3 - 49.3	**60**	133.0	132.0 - 135.0
61 42 40	54.0	53.0 - 55.0	**61 42 61**	139.7	139.0 - 142.0
41	57.0	56.0 - 58.0	**62**	141.3	140.5 - 143.5
42	60.3	59.0 - 62.0	**63**	144.0	143.0 - 146.0
43	63.0	62.0 - 65.0	**64**	154.0	153.0 - 156.0
44	67.0	66.0 - 69.0	**65**	159.0	158.0 - 161.0
61 42 45	70.0	69.0 - 72.0	**61 42 66**	165.0	164.0 - 167.0
46	73.0	72.0 - 75.0	**67**	168.3	167.0 - 170.0
47	76.1	75.0 - 78.0	**68**	170.0	169.0 - 172.0
48	82.5	81.5 - 84.5	**69**	193.7	193.0 - 196.0
49	84.0	83.0 - 86.0	**70**	219.1	218.0 - 221.0
61 42 50	88.9	88.0 - 91.0			

Note: Working pressure for pipe OD 193.7 mm and 219.1 mm is 12 Bar
Name of Mfr.: Teekay Couplings Ltd.

Repair Clamp Joints for Elbow Pipe

Grapa de sujeción para reparación de codos de tuberías
エルボーパイプ用クランプジョイント　弯管用夹紧接头

To protect and repair the leakage on cracked or welded elbow (tee, cross) pipes line.



RCH-E



RCD-E

Unit Per Pc.

EPDM Gasket

CODE	Type	Size	Length mm	W/P kgf/cm²		T.Q. (N.m)
				Industrial	Ship	
61 40 08	RCH-E	15A	26.3	22	11	3 - 5
09	RCH-E	20A	26.3	18	8	3 - 5
12	RCH-E	25A	26.3	18	8	3 - 5
13	RCH-E	32A	26.3	18	8	3 - 5
20	RCH-E	40A	26.3	18	8	3 - 5
61 40 21	RCH-E	50A	41.8	16	7	12 - 15
22	RCH-E	65A	41.8	16	7	12 - 15
23	RCH-E	80A	52.4	14	7	20 - 25
24	RCH-E	100A	52.4	14	7	20 - 25
27	RCH-E	125A	52.4	14	7	30 - 32
61 40 29	RCH-E	150A	52.4	14	7	30 - 32
35	RCD-E	200A	57.5	12	6	32 - 35
36	RCD-E	250A	57.5	12	6	32 - 35
40	RCD-E	300A	58.5	10	5	45 - 50
41	RCD-E	350A	58.5	10	5	45 - 50
61 40 42	RCD-E	400A	58.5	10	5	55 - 60
43	RCD-E	450A	58.5	8	4	55 - 60
44	RCD-E	500A	58.5	7	3	65 - 70

*W/P: Working Pressure T.Q: Locking Torque Value
Name of Mfr.: YOUNGNAM METAL CO.,LTD

Unit Per Pc.

NBR Gasket

CODE	Type	Size	Length mm	W/P kgf/cm²		T.Q. (N.m)
				Industrial	Ship	
61 40 45	RCH-E	15A	26.3	22	11	3 - 5
46	RCH-E	20A	26.3	18	8	3 - 5
47	RCH-E	25A	26.3	18	8	3 - 5
48	RCH-E	32A	26.3	18	8	3 - 5
49	RCH-E	40A	26.3	18	8	3 - 5
61 40 50	RCH-E	50A	41.8	16	7	12 - 15
62	RCH-E	65A	41.8	16	7	12 - 15
63	RCH-E	80A	52.4	14	7	20 - 25
64	RCH-E	100A	52.4	14	7	20 - 25
76	RCH-E	125A	52.4	14	7	30 - 32
61 40 77	RCH-E	150A	52.4	14	7	30 - 32
78	RCD-E	200A	57.5	12	6	32 - 35
79	RCD-E	250A	57.5	12	6	32 - 35
91	RCD-E	300A	58.5	10	5	45 - 50
97	RCD-E	350A	58.5	10	5	45 - 50
61 40 98	RCD-E	400A	58.5	10	5	55 - 60
99	RCD-E	450A	58.5	8	4	55 - 60
61 41 00	RCD-E	500A	58.5	7	3	65 - 70

*W/P: Working Pressure T.Q: Locking Torque Value
Name of Mfr.: YOUNGNAM METAL CO.,LTD

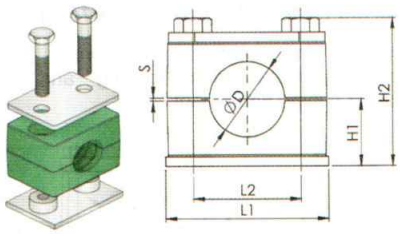
Tube Clamps

Abrazaderas para tubos チューブクランプ 管夹

Tube clamps help prevent the loosening of joints and welds by reducing noise, absorbing shock and dampening vibration. In addition to preventing vibration transmission, they provide solid support that eases the stress caused by unequal movements in tubing installations. Clamp kits for each series include: clamp body, weld plate, cover plate and bolts.
Clamps are available in metric and imperial sizes. Hardware available in Metric or UNC Thread, as well as steel or stainless steel.
Llaves de Vaso ソケットレンチ 套筒扳手套装

Standard Series (According to DIN 3015/1)

For average load and moderate vibration installations. Ideal for mobile equipment, machine tools and instrumentation plumbing applications.



Materials

Clamp body : Polypropylene
Cover plates : Galvanized steel (ST-37)
Screws/Bolts : Galvanized steel (ST-37)
Weld plates : Phosphated steel (ST-37)
"Kits are also available with Stainless steel hardware."

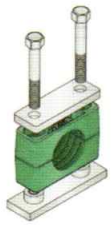
Unit Per Pc.

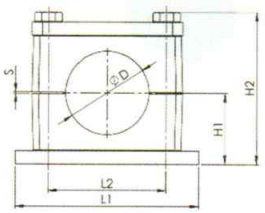
CODE	Size D mm	Nom.	Inch	Dimensions mm				
				L1	L2	H1	H2	S
Group S1								
61 38 74	6	-	-	36	20	16.5	37	0.4
81	6.4	-	1/4					
82	8	-	5/16					
83	9.5	-	3/8					
84	10	R 1/8	-					
97	12	-	-					
Group S2								
61 38 98	12.7	-	1/2	42	26	19.5	43	0.6
99	13.5	R 1/4	-					
61 39 00	14	-	-					
01	15	-	-					
02	16	-	5/8					
03	17.2	R 3/8	-					
04	18	-	-					
Group S3								
61 39 05	19	-	3/4	50	33	21	46	0.6
06	20	-	-					
07	21.3	R 1/2	-					
08	22	-	7/8					
09	23	-	-					
10	25	-	-					
11	25.4	-	1					
Group S4								
61 39 12	26.9	R 3/4	-	60	40	24	52	0.6
13	28	-	-					
14	30	-	-					
Group S5								
61 39 15	32	-	1-1/4	71	52	32	68	0.8
16	33.7	R 1	-					
17	35	-	-					
18	38	-	1-1/2					
19	40	-	-					
20	42	R 1-1/4	-					
Group S6								
61 39 21	44.5	-	1-3/4	86	66	36	76	0.8
22	48.3	R 1-1/2	-					
23	50.8	-	2					
Group S7								
61 39 24	57.2	-	2-1/4	122	94	51.5	107	0.8
25	60.3	R 2	-					
26	63.5	-	2-1/2					
27	70	-	2-3/4					
28	73	-	-					
29	76.1	R 2-1/2	3					
Group S8								
61 39 30	88.9	R 3	3-1/2	148	120	64	132	0.8
31	101.6	-	4					

Name of Mfr. : World Wide Metric

Heavy Series (According to DIN 3015/2)

For higher load and vibration installations. Applications include primary metal manufacturing and heavy-duty construction or mining equipment.





Materials

Clamp body : Polypropylene
Cover plates : Galvanized steel (ST-37)
Screws/Bolts : Galvanized steel (ST-37)
Weld plates : Phosphated steel (ST-37)
"Kits are also available with Stainless steel hardware."

Unit Per Pc.

CODE	Size D mm	Nom.	Inch	Dimensions mm				
				L1	L2	H1	H2	S
Group H1								
61 39 32	6	-	-	74	33	24	55	0.6
33	6.4	-	1/4					
34	8	-	5/16					
35	9.5	-	3/8					
36	10	R 1/8	-					
37	12	-	-					
38	12.7	-	1/2					
39	13.5	R 1/4	-					
40	14	-	-					
41	15	-	-					
42	16	-	5/8					
43	17.2	R 3/8	-					
44	18	-	-					
Group H2								
61 39 45	19	-	3/4	86	45	32	71	0.6
46	20	-	-					
47	21.3	R 1/2	-					
48	22	-	7/8					
49	25	-	-					
50	25.4	-	1					
51	26.9	R 3/4	-					
52	28	-	-					
53	30	-	-					
Group H3								
61 39 54	32	-	1-1/4	100	60	38	83	0.6
55	33.7	R 1	-					
56	35	-	-					
57	38	-	1-1/2					
58	40	-	-					
59	42	R 1-1/4	-					
Group H4								
61 39 60	44.5	-	1-3/4	140	90	54.5	117	2
61	48.3	R 1-1/2	-					
62	50.8	-	2					
63	55	-	-					
64	57	-	2-1/4					
65	60.3	R 2	-					
66	63.5	-	2-1/2					
67	65	-	-					
68	70	-	2-3/4					
Group H5								
61 39 69	73	-	2-7/8	180	122	70	150	2
70	76.1	R 2-1/2	3					
71	80	-	-					
72	82.5	-	3-1/4					
73	88.9	R 3	3-1/2					

(to be continued)

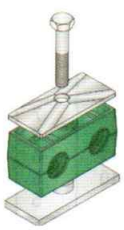
Unit Per Pc.

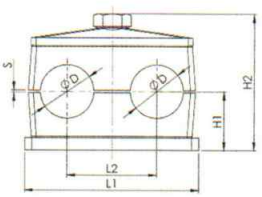
CODE	Size D mm	Nom.	Inch	Dimensions mm				
				L1	L2	H1	H2	S
Group H6								
61 39 74	100	-	-	226	168	99	211	2
75	101.6	R 3-1/2	-					
76	108	-	4-1/4					
77	114.3	R 4	-					
78	127	-	5					
79	133	-	5-1/4					
Group H7								
61 39 80	139.7	R 5	-	270	205	115	245	3
81	152.4	-	6					
82	159	-	6-1/4					
83	165	-	6-1/2					
84	168.3	R 6	-					
Group H8								
61 39 85	177.8	-	7	340	265	160	339	3
86	193.7	-	7-5/8					
87	216	-	8-1/2					
88	219.1	R 8	-					
Group H9								
61 39 89	244.5	-	-	520	395	235	489	8
90	273	R 10	-					
91	323.9	R 12	-					
Group H10								
61 39 92	355.6	R 14	-	680	534	295	609	18
93	406.4	R 16	-					

Name of Mfr. : World Wide Metric

Twin Series (According to DIN 3015/3)

For installations with closely placed lines. Ideal for general industrial use and mobile applications with moderate vibration.





Materials

Clamp body : Polypropylene
Cover plates : Galvanized steel (ST-37)
Screws/Bolts : Galvanized steel (ST-37)
Weld plates : Phosphated steel (ST-37)
"Kits are also available with Stainless steel hardware."

Unit Per Pc.

CODE	Size D mm	Nom.	Inch	Dimensions mm				
				L1	L2	H1	H2	S
Group T1								
61 39 94	6	-	-	37	20	16.5	41	0.6
95	6.4	-	1/4					
96	8	-	5/16					
97	9.5	-	3/8					
98	10	R 1/8	-					
99	12	-	-					
Group T2								
61 40 00	12.7	-	1/2	55	29	18.5	44.5	0.7
61 41 02	13.5	R 1/4	-					
08	14	-	-					
14	15	-	-					
90	16	-	5/8					
97	17.2	R 3/8	-					
99	18	-	-					

(to be continued)

Unit Per Pc.

CODE	Size D mm	Nom.	Inch	Dimensions mm L1	L2	H1	H2	S
Group T3								
61 42 00	19	-	3/4					
18	20	-	-					
19	21.3	R 1/2	-					
20	22	-	7/8	70	36	23.5	54.5	0.7
24	23	-	-					
25	25	-	-					
26	25.4	-	1					
Group T4								
61 42 27	26.9	R 3/4	-					
28	28	-	-	85	45	25.5	58.5	0.7
29	30	-	-					
Group T5								
61 42 95	32	-	1-1/4					
96	33.7	R 1	-					
97	35	-	-					
98	38	-	1-1/2	110	56	32	71.5	0.7
99	40	-	-					
61 43 00	42	R 1-1/4	-					

Name of Mfr.: World Wide Metric

32. Carborundom Paste

Grinding & Lapping Compound

(Valve Compounds)

Pasta de Esmeril (Compuestos para Válvulas)
バルブコンパウンド　金刚砂磨研膏



For precision lapping, fitting, surfacing, polishing and other general use in machine shops. Universally used for grinding valves. Supplied in 450 grm tin. Please specify grit number when ordering.

Unit Per Tin

CODE	Grade	Grit #	Applications
61 42 01	Micro Fine	3000	Precision lapping and high profile polishing to mirror finishing of metal parts.
02		2000	
03		1500	
04		1200	
05		1000	
06		800	
61 42 07	Very Fine	600	Fine surface lapping, fine polishing for protection seating of valves, bearing and matting components.
08		500	
61 41 91		400	
61 42 09	Fine	320	Surface finishing, e.g. valve seats, bearings, bushings, etc.
10		280	
61 41 92	Medium Fine	240	Surface lapping/reseating exhaust and intake valves.
61 42 11		220	
61 42 12	Medium	180	Cleaning of corroded bolt threads & sharpening shears, etc.
13		150	
61 41 93	Coarse	120	Spot removal of uneven surfaces e.g. conditioning of new gears for smooth running.
61 42 14		100	
15		80	
61 41 94		60	
61 42 16	Very Coarse	50	Fast removal of high spots and very rough metal surfaces.
61 41 95		40	
61 42 17		36	

Nozzle Lapping Paste

Pasta Lubricante para Boquillas　ノズル用ラッピングペースト　钻孔膏

High grade Silicon Carbide abrasive paste for nozzle lapping. Supplied in 60 grm/tin. Please specify grit number when ordering.



Unit Per Tin

CODE	Grade	Grit
61 42 21	Fine	1200
61 42 22	Medium	1000
61 42 23	Coarse	800

Name of Mfr.: Skatool Marine

Blue Paste - Prussian Blue

Pasta Azul-Azul Prusia　ブルー ペースト　研磨膏（蓝油）



For lapping of bearings, high pressure valves, etc. Improved type on red lead for prevision lapping work. A jelly-like paste made of super corpuscular dyes furnished in tubes.

61 41 96	Blue paste, 120 grm/tube	Tub

Tapping Paste

Lubricante de Pasta para taponear y barrenar
タッピングペースト　攻丝润滑剂



Used for precision tapping and fitting. It is also a very useful paste for cutting marks, using tapes, drills, reamers, etc.

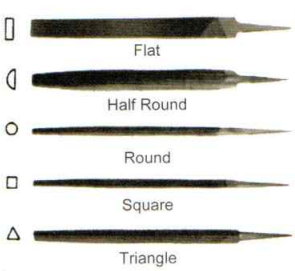
61 41 98	Tapping paste 1 kg	Tin

33. Files

Machinist Files

Limas Mecánicas　鉄工ヤスリ　铁锉刀

The illustration right shows the types of files commonly available. These files have double cut teeth as is most common for use under heavier pressure where a fine finish is not required. Single cut files for smoother finishes are also available upon request. Specify from the following tables the type of file required based upon the type of work to be done and the material being used.



How to order: CODE
File, SHAPE, TYPE of CUT, LENGTH

Flat Files - Double Cut

Used by engineers for all kinds of works.

Unit Per Pc.

CODE	Cut	Length mm	CODE	Cut	Length mm
61 43 01	Bastard (荒)	150	**61 43 15**	Smooth (細)	150
02		200	**16**		200
03		250	**17**		250
04		300	**18**		300
05		350	**19**		350
06		400	**20**		400
61 43 08	Second Cut (中)	150	**61 43 21**	Dead Smooth (油)	150
09		200	**22**		200
10		250	**23**		250
11		300	**24**		300
12		350	**25**		350
13		400	**26**		400

Half Round Files - Double Cut

Used mostly in 200, 250 & 300 mm length on concaved surfaces.

Unit Per Pc.

CODE	Cut	Length mm	CODE	Cut	Length mm
61 43 28		150	**61 43 42**		150
29		200	**43**		200
30	Bastard	250	**44**	Smooth	250
31		300	**45**		300
32	(荒)	350	**46**	(細)	350
33		400	**47**		400
61 43 35		150	**61 43 49**		150
36	Second	200	**50**	Dead	200
37	Cut	250	**51**	Smooth	250
38		300	**52**		300
39	(中)	350	**53**	(油)	350
40		400	**54**		400

Round Files - Double Cut

Used on curved surfaces and for enlarging round holes. Sometimes called a rattail file.

Unit Per Pc.

CODE	Cut	Length mm	CODE	Cut	Length mm
61 43 56		150	**61 43 70**		150
57		200	**71**		200
58	Bastard	250	**72**	Smooth	250
59		300	**73**		300
60	(荒)	350	**74**	(細)	350
61		400	**75**		400
61 43 63		150	**61 43 77**		150
64	Second	200	**78**	Dead	200
65	Cut	250	**79**	Smooth	250
66		300	**80**		300
67	(中)	350	**81**	(油)	350
68		400	**82**		400

Square Files - Double Cut

These types of files are mainly used for enlarging rectangular holes.

Unit Per Pc.

CODE	Cut	Length mm	CODE	Cut	Length mm
61 43 84		150	**61 44 01**		150
85		200	**02**		200
86	Bastard	250	**03**	Smooth	250
87		300	**04**		300
88	(荒)	350	**05**	(細)	350
89		400	**06**		400
61 43 91		150	**61 44 08**		150
92	Second	200	**09**	Dead	200
93	Cut	250	**10**	Smooth	250
94		300	**11**		300
95	(中)	350	**12**	(油)	350
96		400	**13**		400

Triangle Files - Double Cut

Used for cleaning and smoothing out corners and angles. Not suitable for saw filling due to the sharp edges.

Unit Per Pc.

CODE	Cut	Length mm	CODE	Cut	Length mm
61 44 15		150	**61 44 29**		150
16		200	**30**		200
17	Bastard	250	**31**	Smooth	250
18		300	**32**		300
19	(荒)	350	**33**	(細)	350
20		400	**34**		400
61 44 22		150	**61 44 36**		150
23	Second	200	**37**	Dead	200
24	Cut	250	**38**	Smooth	250
25		300	**39**		300
26	(中)	350	**40**	(油)	350
27		400	**41**		400

Wood or Lead Rasps

Escofinas para Madera o Plomo　鬼目ヤスリ木工用又は鉛工用　木锉

Used for working with wood or with lead piping. Specify what shaped rasp you require and whether it is for use with wood or lead material.



Unit Per Pc.

WOOD			LEAD		
CODE	Shape	Length mm	CODE	Shape	Length mm
61 45 01		150	**61 45 15**		150
02		200	**16**		200
03	Flat	250	**17**	Flat	250
04		300	**18**		300
05	(平)	350	**19**	(平)	350
06		400	**20**		400
61 45 08		150	**61 45 22**		150
09	Half	200	**23**	Half	200
10	Round	250	**24**	Round	250
11		300	**25**		300
12	(半丸)	350	**26**	(半丸)	350
13		400	**27**		400

Needle File Sets

Juegos de Lima de Aguja　組ヤスリ　什锦锉

File sets which are used for precision work. Available in sets consisting of 5 to 12 pieces. Please specify the number of pieces you require in a set as well as the length and the cut of the files as shown in the tables below.



How to order: CODE

Needle file set, LENGTH, NUMBERS/set, TYPE of CUT

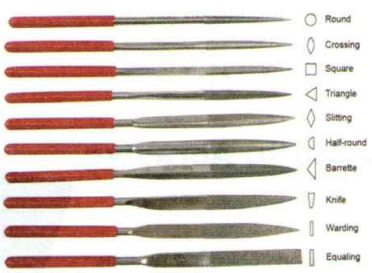
Unit Per Set

CODE	Cut	Contents
	215 mm / 5 pcs Set	
61 45 31	2nd Cut	Flat, Half Round, Round, Square and Triangle
32	Smooth	
33	D.Smooth	
	200 mm / 8 pcs Set	
61 45 34	2nd Cut	Flat, Half Round, Round, Square Triangle, Mill, Shinogi, and Oval
35	Smooth	
36	D.Smooth	
	185 mm / 10 pcs Set	
61 45 37	2nd Cut	Added Knife Edge and Half Round to 8 pcs Set
38	Smooth	
39	D.Smooth	
	170 mm / 12 pcs Set	
61 45 40	2nd Cut	Added Oval, Half Moon Shape to 10 pcs Set
41	Smooth	
42	D.Smooth	

Electroplated Diamond Needle File Sets

Conjunto de limas de aguja adiamantadas con revestimiento electrolítico
電気めっきダイアモンド加工組やすり　　电镀金刚砂锉刀组

The electroplated diamond needle file set is used by metal workers for precise filing on stone, metal, glass and sculptures. They are also ideal for delicate filing, shaping and creating inside cuts. Files are electroplated uniformly using 150# ~ 240# diamond grit onto high grade steel. Different 10 file shapes included in these sets offer a variety of use for different applications: Equaling, Half-round, Triangle, Square, Round, Warding, Crossing, Knife, Barrette and Slitting. Size : 4 x 160 mm.



61 45 43	File set, needle, electroplated diamond, 10's	Set

Double Saw Files

Limas Dobles de Sierra　両刃摺込ヤスリ　　锯齿锉

For filing saw blade teeth and various types of circular saws.



Unit Per Pc.

CODE	Length mm	CODE	Length mm
61 45 51	75	**61 45 54**	150
52	100	**55**	175
53	130	**56**	200

File Handles

Mangos de Lima　ヤスリ柄　　锉刀柄

Well balanced and shaped handle made of moisture absorbing hard wood.



Unit Per Pc.

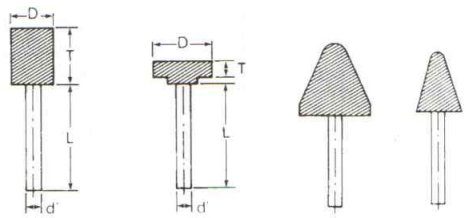
CODE	**61 45 60**	**61 45 61**	**61 45 62**
Length	100 mm	125 mm	150 mm

34. Grinding Wheels/Disc Paper

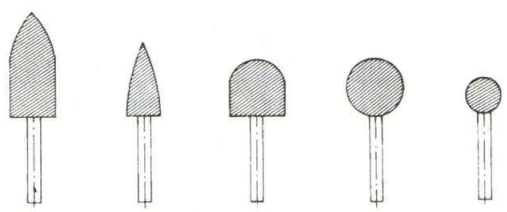
Mounted Wheels

Muelas Taladros Esmerilar　軸付き砥石　回转锉

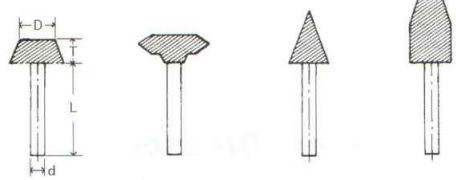
The mounted wheels are designed for use when ordinary grinding wheels cannot be used. Used in connection with air or electric drilling machines of 6 mm capacity. Please specify the number of the required shape.



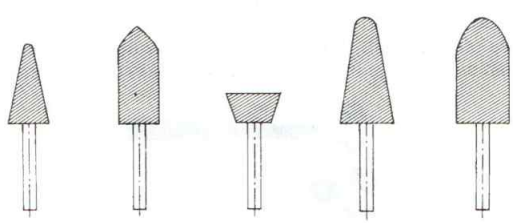
W　W with Reinforcement　A-4　A-5



A-11　A-12　A-21　A-25　A-26



A-35　A-37　AJ-1　AJ-2



AJ-3　AJ-4　AJ-5　AJ-6　AJ-7

How to order : CODE

Mounted wheel with 6 mm dia shank, TYPE of SHAPE, SIZE D, T, and d mm

Unit Per Pc.

CODE	Size mm D	T	d	L	CODE	Size mm D	T	d	L
Shape W					**Shape A-12**				
61 45 65	16	16	6	40	**61 45 87**	16	32	6	40
66	16	25	6	40	**Shape A-21**				
67	16	32	6	40	**61 45 88**	25	25	6	40
68	19	19	6	40	**Shape A-25**				
69	19	25	6	40	**61 45 89**	25	25	6	40
61 45 70	19	38	6	40	**Shape A-26**				
71	25	25	6	40	**61 45 90**	16	16	6	40
72	25	38	6	40	**Shape A-35**				
73	25	50	6	40	**61 45 91**	25	10	6	40
74	32	19	6	40	**Shape A-37**				
61 45 75	32	32	6	40	**61 45 92**	32	8	6	40
76	38	19	6	40	**Shape AJ-1**				
77	38	25	6	40	**61 45 93**	19	25	6	40
78	38	38	6	40	**Shape AJ-2**				
79	50	25	6	40	**61 45 94**	19	38	6	40
Shape W with Reinforcement					**Shape AJ-3**				
61 45 80	32	6	6	40	**61 45 95**	19	38	6	40
81	38	6	6	40	**Shape AJ-4**				
82	38	13	6	40	**61 45 96**	19	45	6	40
83	50	13	6	40	**Shape AJ-5**				
Shape A-4					**61 45 97**	25	13	6	40
61 45 84	32	32	6	40	**Shape AJ-6**				
Shape A-5					**61 45 98**	25	50	6	40
61 45 85	19	28	6	40	**Shape AJ-7**				
Shape A-11					**61 45 99**	25	50	6	40
61 45 86	22	50	6	40					

Grinding Wheel Dressers

Rectificadoras de muelas
研削砥石ドレッサー　砂轮修整器

Designed for dressing the round grinding stone. Cutter is attached to the bush of the hardened steel case and the bush rotates on the shaft. Attached dust-proof washer is inserted on both sides of the bush to prevent intrusion of sand grains.



CODE	Item	Unit
61 46 06	Dresser Grinding Wheel	Set
07	Wheel Extra for Grinding Dresser 50's	Pkt
08	Wheel Extra Block Type for Grinding Dresser	Set

Disc Sanding Paper, Abrasive

Disco Papel Abrasivo　ディスクペーパー　盘式砂纸



Designed for use with portable, grinding machines on all kinds of surfaces (rust & paint removing, feather edging, etc.). Each individual cutting grain is firmly anchored in a resin type adhesive which will withstand high grinding heat.

How to order: CODE

Disc paper, abrasive, DIAM mm, GRIT #

Unit Per Pc.

CODE	Grit	CODE	Grit	CODE	Grit
Diam. 100 mm					
61 46 11	16	**61 46 16**	40	**61 46 21**	120
12	20	**17**	50	**22**	150
13	24	**18**	60	**23**	180
14	30	**19**	80	**24**	220
15	36	**20**	100	**25**	240
Diam. 125 mm					
61 46 26	16	**61 46 31**	40	**61 46 36**	120
27	20	**32**	50	**37**	150
28	24	**33**	60	**38**	180
29	30	**34**	80	**39**	220
30	36	**35**	100	**40**	240
Diam. 150 mm					
61 46 41	16	**61 46 46**	40	**61 46 51**	120
42	20	**47**	50	**52**	150
43	24	**48**	60	**53**	180
44	30	**49**	80	**54**	220
45	36	**50**	100	**55**	240
Diam. 180 mm					
61 46 56	16	**61 46 61**	40	**61 46 66**	120
57	20	**62**	50	**67**	150
58	24	**63**	60	**68**	180
59	30	**64**	80	**69**	220
60	36	**65**	100	**70**	240

Grit Numbers are classified as follows:
Coarse Grit No. 16 – 40
Medium Grit No. 50 – 120
Fine Grit No. 150 – 240

Emery Cloth, Abrasive

Tela de Esmeril, Abrasiva
エメリークロス　金钢砂布



Excellent for hand polishing metals. Size: 230 x 280 mm.

Unit Per Sht.

CODE	Grit	CODE	Grit	CODE	Grit
61 46 81	30	**61 46 87**	100	**61 46 93**	280
82	36	**88**	120	**94**	320
83	40	**89**	150	**95**	400
84	50	**90**	180		
85	60	**91**	220		
61 46 86	80	**61 46 92**	240		

Emery Tapes, Abrasive

Cinta de Esmeril, Abrasiva　エメリーロール　金钢砂布带



Easy to use by simply tearing off the required length of strip. Used for metal cleaning and polishing jobs. The grain is selected aluminium oxide attached to a flexible cloth strap. Length of tape (roll): 36.5 mtr.

How to order: CODE

Emery tape, abrasive, WIDTH mm, GRIT #

Unit Per Rls.

CODE	Grit	CODE	Grit	CODE	Grit
Width 25 mm					
61 47 01	30	**61 47 05**	80	**61 47 09**	180
02	40	**06**	100	**10**	240
03	50	**07**	120	**11**	320
04	60	**08**	150	**12**	400
Width 40 mm					
61 47 13	30	**61 47 17**	80	**61 47 21**	180
14	40	**18**	100	**22**	240
15	50	**19**	120	**23**	320
16	60	**20**	150	**24**	400
Width 50 mm					
61 47 25	30	**61 47 29**	80	**61 47 33**	180
26	40	**30**	100	**34**	240
27	50	**31**	120	**35**	320
28	60	**32**	150	**36**	400

Sand Paper, Abrasive

Papel de Lija, Abrasivo　サンドペーパー　砂纸



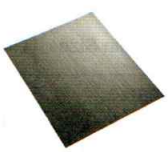
Ideal abrasive for hand sanding wood, paint fillers, paint under coats and varnishes. Sheet size: 230 x 280 mm.

Unit Per Sht.

CODE	Grit	CODE	Grit	CODE	Grit
61 47 51	40	**61 47 55**	100	**61 47 59**	220
52	50	**56**	120	**60**	240
53	60	**57**	150	**61**	320
54	80	**58**	180	**62**	400

Sandpaper, Wet & Dry

Papel de Lija, Abrasivo　サンドペーパー　砂纸



Flexible and more durable to sand irregular shapes than most other sandpaper thanks to closed-coat abrasive bonding with a waterproof resin. The abrasive particles are bonded with a waterproof adhesive that permits the use of water, oil, and other lubricants. To be used on metal, wood plastic fillers to gain a smooth finish. Sheet size: 230 x 280 mm.

Unit Per Sht.

CODE	Grit	CODE	Grit	CODE	Grit
61 47 37	80	**61 47 43**	240	**61 47 49**	600
38	100	**44**	280	**50**	800
39	120	**45**	320	**63**	1,000
40	150	**46**	360	**64**	1,200
41	180	**47**	400	**65**	1,500
61 47 42	220	**61 47 48**	500	**61 47 81**	2,000

Silicon Paper, Abrasive Waterproof

(Crocus Paper)

Papel Silicón a Abrasivo Imprmeable (Papel de Azafrán)

耐水シリコンペーパー　耐水砂纸

Designed for hand sanding lacquers and under coats together with water. Used in marine and auto body refinishing. Will leave no scratch marks. The flexible cloth is coated with selected silicon carbide grain. Size: 230 x 280 mm.



Unit Per Sht.

CODE	Grit	CODE	Grit	CODE	Grit
61 47 66	80	**61 47 71**	220	**61 47 76**	400
67	100	**72**	240	**77**	500
68	120	**73**	280	**78**	600
69	150	**74**	320	**79**	700
70	180	**75**	360	**80**	800

*Grit No. 120 is recommended for general sanding.

Carborundum Oil Stones

Piedra Asentar Combinado　油砥石　金钢砂油磨石

Carborundum oil stone:



For carpenters and engineers. May be used dry or with oil or water. Sufficiently porous to assure a good grinding or cutting action in combination with wax or oil.

Combination stone:

A combination of two grit sizes. One side coarse for very dull tools, the other one with a fine grit for clean edging work. May be used wet or dry.

Unit Per Pc.

CODE	No.	Dimensions mm
61 47 85	3	100 x 25 x 13
86	24	115 x 38 x 16
87	29	150 x 50 x 25
88	0	205 x 50 x 25
89	Combination	205 x 50 x 25

Carborundum Round Edge Slips

Piedra Afilar Tipo Cuña　橄形油砥石　金钢砂楔形油磨石



A useful abrasive carborundum stone for grinding or edging of tools with curved edges. Maybe used dry or with a moderate application of oil.

Unit Per Pc.

CODE	No.	Dimensions mm
61 47 91	20	100 x 25 x 6.4 x 1.6
92	13	115 x 45 x 13 x 3
93	14	115 x 45 x 10 x 3
94	15	115 x 45 x 6.4 x 1.6

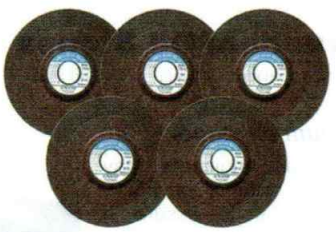
Abrasive Wheels

Discos Abrasivos　研削砥石　砂轮片

Abrasive wheels of various constructions for marine use in machine working and reconditioning parts. These wheels are generally used for cutting, deburring, blending and cleaning operations, and for surfacing finished hard steel, stainless steel, aluminium, carbon and brass. Abrasive wheels, regardless of the type, are constructed by organic or inorganic bonding methods.

1. Organic Bonded Wheels (Resinoid Bonded Wheel) Organic wheels are wheels which are bonded by means of an organic material such as resin, rubber, shellac or other similar bonding agents.

2. Inorganic Bonded Wheels (Vitrified Bonded Wheels) Inorganic wheels are wheels which are bonded by means of an inorganic material such as clay, glass, porcelain, sodium silicate, magnesium oxychloride, or metal. Wheels bonded with clay, glass, porcelain, or related ceramic materials are characterized as "vitrified bonded wheels."





Grinding Wheel Speed

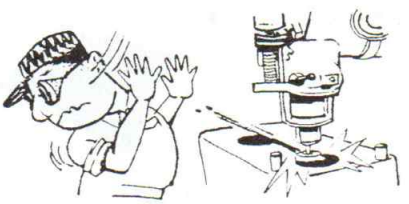
Disco Desbaste　研削丸砥石の周速度　研磨圆形磨石的周速

Note of Caution when ordering grinding wheels:

Surface meter per minutes (SMPM) is the distance in meters that any one abrasive grain on the peripheral surface of a grinding wheel travels in 1 minute.

Smpm = 3.1416 x Diameter in Meter x rpm

The speed at which a grinding wheel works is important because use at too slow a speed wastes abrasive without getting much useful work in return, where as an excessive speed may result in hard grinding action and may introduce the danger of breakage. The grits, grade and structures recommended for specific grinding operations are usually based on the assumption that approximately the recommended speeds will be employed. If for some reason they can not be, then the grade at least must usually be changed to suit the particular condition.



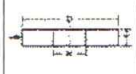
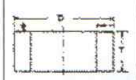
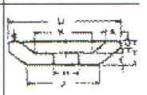
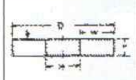
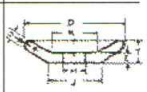
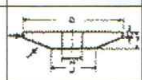
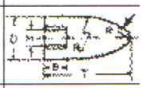
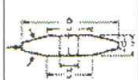
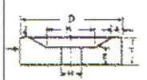
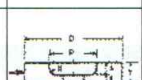
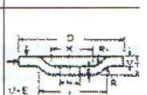
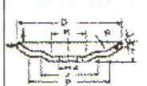
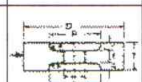
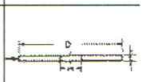


Identification Symbols for Abrasive Wheels. (ISO. JIS)

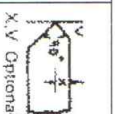
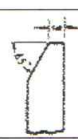
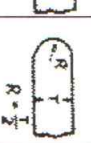
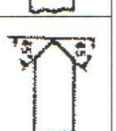
	No. 1 Straight Wheels	A	305 x 25 x 127	C	60	K	8	V	8J	2,000 mtr/min.
No.	Shape	Face	Size	Kind of Abrasive	Grain Size	Grade	Structure	Kind of Bond	Bond Modification	Max. Speed
1	Straight	A	OD x T x HD	A (=Brown Alumina)	Coarse	Soft	Dense	V= Vitrified	1L	1,500
2	Cylinder				10 240	E	0		2Q	
0	Discs	B			12 280	F	1			2,000
3	Single Taper			WA (=White Alumina)	14 320	G		B= Resinoid	4T	
4	Double Taper				16 400	H	2			
5	Recessed One Side	C	Outside Diam.		20 500	I	3		4U	2,400
6	Straight Cup			PA (=Pink Alumina)	24 600	J	4	BF= Resinoid Reinforced	5O	
7	Double Recessed	D			30 700	K	5			
8	Safety				36 800	L	6		5L	2,700
9	Double Cup	E	Thickness		46 1,000	M	7		5S	
10	Dovetail			C (=Black Silicon Carbide)	54 1,200	N	8	R= Rubber	6V	3,000
11	Flaring Cup	F			60 1,500	O	9		8J	
12	Dish		Hole Diam.		70 2,000	P	10	RF= Rubber Reinforced		3,600
13	Saucer	N		GC (=Green Silicon Carbide)	80 2,500	Q	11		8M	
16	Cone & Plug				90 3,000	R	12		9L	4,800
20	Relieved	M			100 Very	S	13		91L	
27	Depressed Center Offset Type				120 Fine	T	14		G7	6,000
28	Depressed Center U				150	U	Open			
30	Cutting	P			180	V				
					220	W				
						X				
						Y				
						Z				
						Hard				

Definitions and Limitations of Wheel Shapes

Definiciones y Limitaciones de formas de Disco
標準形状一覧表標準表　　标准形状列表标准表

Type No.	Name and Dimension	Illustration	Type No.	Name and Dimension	Illustration
1	Straight D x T x H		11	Flaring Cup D x T x H E ≧T/5, K > 7 Flange Dia +2R	
2	Cylinder D x T x W W≦ T		12	Dish D x T x H K > Flange Dia	
0	Discs D x T x H W > T		13	Saucer D x T x H K > Flange Dia	
3	Single Taper D x T x H		16	Cone & Plug	
4	Double Taper D x T x H		20	Relieved D x T x H E ≧T/2, K > Flange Dia	
5	Recessed One Side D x T x H E ≧ T/2		27	Depressed Center Offset Type D x U x H	
6	Straight Cup D x T x H E ≧T/5, W ≦ E		28	Depressed Center UD x U x H	
7	Double Recessed D x T x H E ≧ T/2		30	Cutting D x T x H	
8	Safety				
9	Double Cup				
10	Dovetail				

Standard Shapes of Wheel Faces

No.	Shape	No.	Shape	No.	Shape
A		D		N	
B		E		M	
C		F		P	

When ordering abrasive wheels, please refer to the aforementioned "identification symbols for abrasive wheels" and specify the following points.

How to order: 61 - 48 - 20

Shape	Straight, Disc, Recessed, etc.
Face	A, B, C.....etc.
Size	Outside diameter x Thickness x Hole diam.
Kind of Abrasive	Aluminium oxide or Silicon carbide
Grain size	36 or 46
Grade	K or L ...
Structure	3 or 4 ...
Kind of Bond	Vitrified or Resinoid
Detailed Bond Type	8J
Max. Speed	R.P.M. 2,000, 4,000.....etc.

Grinding Wheel Standard Surface Speed Table

Dia mm / R.P.M.	305	355	405	455	510	610	660
	12"	14"	16"	18"	20"	24"	26"
R.P.M.	m / min.	m / min.	m / min.	m / min.	m / min.	m / min.	m / min.
1,300	1,200	1,500	1,700	1,900	2,100	2,400	2,700
1,400	1,300	1,600	1,800	2,000	2,200	2,600	2,900
1,500	1,400	1,700	1,900	2,200	2,400	2,800	
1,600	1,500	1,800	2,000	2,300	2,600	3,000	
1,700	1,600	1,900	2,200	2,400	2,700	3,200	
1,800	1,700	2,000	2,300	2,600	2,900	3,400	
1,900	1,800	2,100	2,400	2,700	3,000	3,600	
2,000	1,900	2,200	2,500	2,900	3,300		
2,100	2,000	2,300	2,700	3,000	3,500		
2,200	2,100	2,500	2,800	3,300	3,700		
2,300	2,200	2,600	2,900	3,400	3,800		
2,400	2,300	2,700	3,100	3,600	4,000		
2,500	2,400	2,800	3,200				
2,600	2,400	2,900					
2,700	2,500	3,000					
2,800	2,600						
2,900	2,700						
3,000	2,800						

Some common types of abrasive wheels are described below with their respective specifications.

Resinoid Offset Grinding Wheels

Grain No. 36

Disco de desbaste/Grano No.36
レジノイドオフセット砥石　　轮式偏心磨轮（树脂）

Grain size No. 36 is widely used on ships for all purpose grinding and cutting jobs. Surface meter per minute 4,300.



How to order: CODE

Wheel, grinding, offset, resinoid, grain No. 36, OUT DIAM x THICKNESS x HOLE DIAM mm, 4,300 mtr/min.

Unit Per Pc.

CODE	Outer Diam. mm	Thickness mm	Hole Diam. mm
61 48 01 02 03	100	3 4 6	15
61 48 04 05 06	125	3 4 6	22
61 48 07 08 09	150	3 6 8	22
61 48 10 11 12	180	3 6 8	22
61 48 13 14	205	6 8	22
61 48 15 16	230	6 8	22

Resinoid Cut-Off Wheels

Disco de Corte　レジノイド切断砥石　轮式切割磨轮

These resin bond cutting wheels have a big advantage over rubber cut-off wheels. They resist very high cutting heats, have an aggressive cutting action, and a longer disc life. Grain No. 36 (medium grain) is recommended for general purpose ships use.



How to order: CODE

Wheel cut-off, resinoid, grain No. 36, OUT DIAM x THICKNESS x HOLE DIAM mm, 4,300 mtr/min.

Unit Per Pc.

CODE	Outer Diam. mm	Thickness mm	Hole Diam. mm
61 48 51 52	75	1.5 2.0	9.53
61 48 53 54		1.5 2.0	12.7
61 48 55 56	100	1.5 2.0	9.53
61 48 57 58		1.5 2.0	12.7
61 48 59		2.0	15.88
61 48 60 61	150	1.5 2.0	9.53
61 48 62 63		1.5 2.0	12.7
61 48 64	180	2.0	22.23
61 48 65 66	205	2.0 2.5	15.88
61 48 67 68		2.0 2.5	22.23
61 48 69 70	255	2.0 2.5	22.23
61 48 71 72		2.0 2.5	25.40
61 48 73 74	305	2.0 2.5	22.23
61 48 75 76		2.0 2.5	25.4
61 48 77 78	355	2.5 3.0	25.4
61 48 79 80		2.5 3.0	30.0
61 48 81 82	405	3.0 3.5	25.4
61 48 83 84		3.0 3.5	30.0

Abrasive Speed Discs

Silicon Carbide

Discos abrasivos de velocidad , Carburo de silicio
炭化ケイ素入り研削砥石　碳化硅砂轮

Used for multiple applications, from heavy corrosion and rust removal to thick coating on metal components. Made from embedded abrasive (silicon carbide) which are bonded in a flexible fibre disc and can conform to shape. Ideal as a paint stripping disc, essentially it will strip and clean almost anything without damaging the metal. It does not shed on rust encrusted pieces, does not load and clog with soft metals, sticky coating or adhesives.

It is compatible with any M14 125 mm grinder. Packed with 10 pcs.



61 48 91	Abrasive speed disc silicon carbide, Trelawny 491.4005, 10 pcs/pkt	Pc.

35. Winches/Chain Hoists

Portable Hand Winches

Dabrastante Manual Portátil　手動式ウインチ　便携式手摇绞车

Portable hand winches for light lifting, lowering, or hoisting. Complete with an automatic safety brake. Made of a strong steel frame with a solid center drum. Can be used in any position. Available in a non-geared type or with ratchet gears.



Unit Per Set

CODE	Lifting Capacity kg	Reeling Up Length mtr	Applicable Rope Diam mm	Weight kg
Non-geared Type				
61 49 01	100	30	5.0	7.5
02	300	30	6.3	12.0
03	500	40	6.3	14.0
04	1,000	40	8.0	18.5
05	2,000	40	9.0	25.0
06	3,000	40	12.5	44.0
Ratchet Geared Type				
61 49 11	100	30	5.0	7.5
12	300	30	6.3	12.0
13	500	40	6.3	14.0
14	1,000	40	8.0	18.5
15	2,000	40	9.0	25.0
16	3,000	40	12.5	44.0

Link Chain Hand-Lever Hoists

Polipastos de Palanca
レバーブロック　揺杆式链条葫芦



A small, light and strong hoists designed for all of the applications in the professional field such as transportation, bridge, general construction, civil engineering, shipbuilding, and forestry. Grade 100 chain uses a shorter and narrower link profile for greater surface area contact, which improves wear resistance and overall tensile strength. The hoist uses a Weston-style load brake with four braking surfaces, two brake pads and two brake pawls for added safety. Safety options such as load signal and overload limiter are available as well.

Unit Per Set

CODE	Capacity (tons)	Standard Chain (mtr)	Min. Distance Between Hooks (mm)	Weight (kg)
61 50 01	0.8	1.5	280	5.7
02	1.6	1.5	335	8.0
03	2.5	1.5	375	11.2
04	3.2	1.5	395	15.0
05	6.0	1.5	540	26.0
61 50 20	9.0	1.5	680	40.0

Spur-Gear Chain Hoists

Polipastos Manuales de Cadena
チェーンブロック　直齿轮链条葫芦



A rugged body and hand wheel cover made of heavy gauge high-impact steel, giving much needed protection in extreme conditions and demanding applications to see every job through to the end.

Made from heat-treated alloy steel for higher uniform strength, the chain guards not only against scarring and wear, but it keeps workers safer on the job. A dry-type mechanical brake ensures outstanding stopping power and safety for high performance operation. Options such as explosion proof and overload limiter are available.

Unit Per Set

CODE	Rated load (ton)	Standard lift (mtr)	Min. Distance between hooks (mm)	Weight (kg)
61 50 06	0.5	2.5	285	1.0
07	1	2.5	295	1.0
08	1.5	2.5	350	1.0
09	2	3	375	2.0
18	2.5	3	420	2.0
61 50 10	3	3	510	3.0
11	5	3	600	7.0
19	7.5	3.5	770	12.0
12	10	3.5	760	17.0
13	15	3.5	1,020	48.0
61 50 14	20	3.5	1,180	72.0
15	30	3.5	1,300	114.0
16	40	3.5	1,480	197.0
17	50	3.5	1,560	294.0

Non-Spark Chain Hoists

Polipastos de Cadena Anti-chispa
防爆用チェーンブロック　防爆式链条葫芦



Specially designed for LNG–LPG vessels and tankers, but also essential for factories handling explosive materials. Made of beryllium material except for the gears which are tightly covered by copper alloy casings assuring no-sparking during operation.

How to order: CODE

Hoist, chain, non-spark, beryllium copper alloy, LIFTING CAPACITY tons

Unit Per Set

CODE	Lift. Cap. Ton	Lift. Cap. mtr	Tested Cap. Ton	Min. Dist. Hooks mm	Weight kg
Beryllium Copper Alloy					
61 50 21	0.5	2.5	0.75	330	15.9
22	1	3	1.5	390	35.2
23	2	3	3	520	44
24	3	3	4.75	690	65
25	5	3	7.5	710	102

Trolleys

Polipastos con Carro　トロリー　滑輪吊車

Plain and geared type trolleys are available. They are adaptable running rails of 9 varieties in width and are easy to set up even on running rails with a rugged surface. Equipped with closed type high grade bearings. Running wheels are suitable for both I-Beam and H-Beam running rails.



Plain Trolley



Geard Trolley

How to order: CODE

Trolley, TYPE, LIFTING CAPACITY tons

Unit Per Pc.

CODE	Capacity Ton	Fit Beam Size (mm)				Weight kg
		Width		Height		
		Min	Max	Min	Max	
Plain Trolley						
61 50 31	1/2	75	125	100	150	6.0
32	1	75	125	125	250	10.0
33	2	100	150	150	400	18.5
34	3	100	150	180	400	26.0
35	5	125	175	250	450	44.0
Geared Trolley						
61 50 36	1	75	125	125	250	14.0
37	2	100	150	150	400	23.5
38	3	100	150	180	400	33.5
39	5	125	175	250	450	53.5

36. Gear Pullers / Bearing Pullers

Gear & Wheel Pullers

2-Arm

Extractores de 2 Garras Articuladas o Uiversales
ギヤプーラー（2 本足） 二臂式齿轮拉马

Designed for moving hard to pull gears, bearings or pulleys which are stuck from rust or over friction. Easy to set up and operate, just hook over the gears or wheel and tighten the screw. Will pull anything that is within arms reach and the maximum weight capacity. The arms and yokes are made of forged steel and the steel forcing screw is hardened to avoid flaring or thread damage.



G Type



GL Type

How to order: CODE

Puller, gear & wheel, 2-arm, TYPE, MAXIMUM SPREAD mm

Unit Per Set

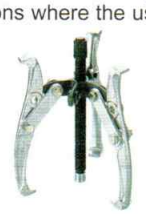
CODE	Maximum Spread mm	Maximum Reach mm	Capacity Tons	Weight kg
		Pullers Type "G"		
61 50 50	75	55	2	0.4
51	100	70	4	0.8
52	150	100	6	1.8
53	200	240	8	3.8
54	250	250	10	6.0
61 50 55	300	275	12	9.0
56	375	320	15	11.0
57	450	370	18	15.0
58	600	575	24	45.0
		Pullers Type "GL"		
61 50 61	100	150	4	1.0
62	150	190	6	2.3
63	200	275	8	4.4
64	250	300	10	7.0
65	300	350	12	10.0
61 50 66	375	400	15	13.0
67	450	440	18	16.0

Gear & Wheel Pullers

3-Arm

Extractores de 3 Garras Articuladas o Uiversales
ギヤプーラー（3 本足） 三臂式齿轮拉马

Drop forged from vanadium steel. This rigid 3 arm puller has been designed for situations where the use of a 2 arm puller is not possible.



How to order: CODE

Puller, gear & wheel, 3-arm, MAXIMUM SPREAD mm

Unit Per Set

CODE	Maximum Spread mm	Maximum Reach mm	Capacity Tons	Weight kg
61 50 70	125	140	5	3
71	200	200	10	6
72	300	270	20	17
73	375	290	25	30
74	450	320	30	48

Bearing Puller Sets

for Inner Ring

Juegos de Extractores de Rodamientos/para Anillo Interior
ベアリングプーラーセット 軸承拔全套



The slide hammer bearing puller set has been designed for removing "hard-to-pull" bearings without damaging the bearing housing. Expansion grippers are available from No. 00 to 06. These numbers 00 to 06 are indicating the last two numbers of the bearing number. When ordering, please make sure to indicate the last two bearing figures to get the right tools for your work. The expansion grippers are drop forged from vanadium alloy steel, heat-treated and chrome plated.

Remarks: Sold by set only.

Components

1 Sliding hammer 1 Steel case	5 Grippers, no. 00-06

61 50 81	Bearing puller set for inner ring 5 grippers no. 00-06 in steel case	Set

Bearing Puller Kits

for Inner & Outer Ring

Juegos de Extractores de Rodamientos para Anilo Interior y Exteror
ベアリングプーラーキット 軸承拔成套工具



This bearing puller kit has been designed to remove the inner and outer bearing rings from bearings mounted to various fittings, shafts, etc. Made of drop forged, heat-treated vanadium alloy steel. This bearing kit is available from No. 00 to 12. These 2 figures indicate the last two numbers of the bearing. For example: Bearing series No. 6004 to be ordered: No. 04.

Components

1 Sliding hammer 1 Standard puller 1 One end ring spanner 1 Steel case	8 Grippers, no. 00-12 1 Opening stopper 1 Hexagon wrench

61 50 82	Bearing puller kit for inner & outer ring, 8 grippers no. 00-12 in steel case	Set

Hydraulic Bearing Pullers

Extractores Hidráulicos de Rodamientos
油圧式ベアリングプーラー 轴承拉马液压泵

Designed for the removal of frozen bearings, wheels and other gears of various sizes without hammering or heating. 2 and 3 arm coupling pullers are available in a capacity from 10 to 20 and 50 tons. They are light in weight and of a compact design. Any hand or motor pump with a sufficient oil capacity may be connected to the puller.



Puller, bearing, hydraulic 2 arm.

How to order: CODE

Puller, bearing, hydraulic 2-arm, CAPACITY tons, complete with ram, pump & hose

Unit Per Set

	CODE	61 50 85	61 50 86	61 50 87
2 ARM	Capacity Tons	10	20	50
	Maximum Reach mm	210	315	490
	Maximum Open mm	250	350	500
	Applicable Ram Stroke	150 mm 255 mm	126 mm	153 mm 300 mm

Puller, bearing, hydraulic 3 arm.

How to order: CODE

Puller, bearing, hydraulic 3-arm, CAPACITY tons complete with ram, pump & hose

Unit Per Set

	CODE	61 50 90	61 50 91	61 50 92
3 ARM	Capacity Tons	10	20	50
	Maximum Reach mm	210	314	490
	Maximum Open mm	300	420	600
	Applicable Ram Stroke	150 mm 255 mm	126 mm	153 mm 300 mm

Hydraulic Pumps for Bearing Puller

Bombas Hidráulicas para Extractores de Rodamientos
油圧式ベアリングプーラー用油圧ポンプ　　轴承拉马液压泵

The hydraulic pumps listed below are the most suitable types for use with the above mentioned hydraulic bearing pullers.



Unit Per Pc.

CODE	Capacity up to	Max. Required Pressure	Tank Oil Capacity
61 50 95	20 ton	700 kgf/cm²	700 cc
97	50 ton		1,500 cc

High Pressure Rubber Hose

for Hydraulic Bearing Puller

Mangera de Alta Presión
高圧ゴムホース　　液压式轴承拉马用高压橡胶管

High pressure hydraulic hose for use with the above mentioned hydraulic bearing pullers. Their specifications are as follows.



Unit Per Pc.

CODE	Hose Size x Length	Coupling	Max. Working Pressure
61 51 01	6 mm x 2 mtr	PT 3/8	700 kgf/cm²
02	6 mm x 4 mtr	PT 3/8	
03	6 mm x 6 mtr	PT 3/8	

37. Hydraulic Jacks

Portable Hydraulic Jacks

Gatos Hidráulicos Portátiles
ポータブル油圧ジャッキ
便携式液压千斤顶



Made with a forged steel base, tool steel pump piston, and a high quality pump cup packing. A bronze guide bearing is used at the bottom of the precision ground ram. The ram cap is steel forged. Fixed with a hardened release, lowering valve. The handle is a knurled, interlocking type.

Unit Per Set

CODE	Capacity Tons	Height		Weight kg
		Closed	Extended	
61 51 11	2	180 mm	360 mm	2.6
12	4	188	382	3.5
13	5	230	470	5.3
14	7	230	465	6.7
15	10	240	480	7.9
61 51 16	15	245	495	10.1

Ratchet Type Journal Jacks

Gatos Hidráulicos Portátiles
ラチェット式ジャーナルジャッキ
便携式液压千斤顶



Designed with tremendous power in a compact space for short powerful lifts. Made of heat-treated alloy steel forgings with special bronze nuts. The ratchet mechanism is fully enclosed. Each jack is furnished with a heat-treated steel lever bar.

Unit Per Set

	CODE	Capacity Tons	Height		Weight kg
			Closed	Extended	
Lower	61 51 20	15	255 mm	380 mm	12
	21	25	255 mm	380 mm	16
	22	35	280 mm	410 mm	24
	23	50	290 mm	420 mm	31
	24	100	310 mm	415 mm	75
Middle	61 51 25	10	280 mm	430 mm	12
	26	25	395 mm	645 mm	21
	27	30	350 mm	550 mm	26
	28	35	410 mm	660 mm	32
	29	50	445 mm	695 mm	43
Higher	61 51 30	25	485 mm	815 mm	25
	31	35	535 mm	885 mm	38
	32	50	555 mm	905 mm	49

Hydraulic Jacks

Catos Hidráulicos　油圧ジャッキ　液压千斤顶



Useful for operating a variety of hydraulic tools. It is most suitable as a hydraulic opener for ships hatch covers but is also used for a variety of purposes at shipyard construction and factory job sites.

Lifting and lowering tests are executed at 100 % rated capacity. Horizontal capacity is guaranteed at up to 1/20 of the total rated capacity. The cylinder and piston are made of heat-treated, reinforced chromemolybdenum steel and the inner linings of the cylinder piston and the rod are plated with hard chrome. The couplings and screws for attachments are interchangeable. A wide variety of series and models are available. Please specify lifting capacity tons and stroke mm when ordering.

Returning System by Spring Force

1. Available for horizontal extending or inverse operation (like press).
2. Requires only one piece of connecting rubber hose.

How to order: CODE

Hydraulic jack, spring return type, CAPACITY tons, STROKE mm

Unit Per Pc.

CODE	61 51 36	61 51 37	61 51 38	61 51 39
Capacity (ton)	10	10	20	20
Stroke (mm)	35	150	50	125
Closed Height (mm)	140	308	154	295
Outer Diam. (mm)	57	57	86	86
Weight (kg)	2.6	5.3	5.8	11
Pump Applicable	61 51 56	61 51 57	61 51 56	61 51 57

Unit Per Pc.

CODE	61 51 40	61 51 41	61 51 42	61 51 43
Capacity (ton)	30	50	50	50
Stroke (mm)	125	25	50	150
Closed Height (mm)	312	100	220	320
Outer Diam. (mm)	102	127	127	127
Weight (kg)	16.8	8.6	19	28
Pump Applicable	61 51 57	61 51 56	61 51 57	61 51 59

Returning System by Hydraulic Force

1. Horizontal extension or inverse extension (like press) feasible, because of hydraulic returning.
2. Most adequate for remote controlled operation.(Requires 2 pieces of hose, for returning purpose)
3. No damage occurs in Guide-part, even when strokes are extended to maximum.

How to orde : CODE

Hydraulic jack, hydraulic return type, CAPACITY tons, STROKE mm

Unit Per Pc.

CODE	61 51 46	61 51 47	61 51 48	61 51 49
Capacity (ton)	10	20	20	20
Stroke (mm)	150	55	150	300
Closed Height (mm)	338	205	390	540
Outer Diam. (mm)	57	86	86	86
Weight (kg)	6	8.4	16	20
Pump Applicable	61 51 62	61 51 62	61 51 62	61 51 63

Unit Per Pc.

CODE	61 51 50	61 51 51	61 51 52	61 51 53
Capacity (ton)	50	50	100	100
Stroke (mm)	150	300	150	300
Closed Height (mm)	377	602	462	613
Outer Diam. (mm)	127	127	170	170
Weight (kg)	33.9	51.8	69	86
Pump Applicable	61 51 63	61 51 64	61 51 64	61 51 65

Hydraulic Pumps for Hydraulic Jack

Bombas Hidráulicas para Gato Hidraulico
油圧ジャッキ用ポンプ　液压千斤顶的液压泵

A wide range of hydraulic pumps are available, the two most common types which are applicable to the Jacks described in the former chapter are as follows:



Hand-Operated Pumps for Spring Return Jack

Widely used as the hydraulic source for the 720 kgf/cm² hydraulic jack group. The main body is of forged special steel, has long durability, with safety valve recessed. Pumps are classified according to effective oil volumes into 5 categories (0.3, 0.7, 0.9, 1.3, 2.3 litres respectively). Oil volumes are the base for pump selection. Applicable to spring return system jacks.

How to order: CODE

Hydraulic pump for spring return jack, OIL VOLUME ltr

Unit Per Set

CODE	Usable Oil Volume ltr	Max. Working Pressure kgf/cm²		Output Volume per Stroke cc		Connection Thread PT	Weight kg
		Low	High	Low	High		
61 51 56	0.3	30	720	5	1.0	3/8	3.5
57	0.7	30	720	11	2.0		7.2
58	0.9	30	720	11	2.0		7.9
59	1.3	30	720	11	2.0		9.1
60	2.3	30	720	24	2.0		13.8

Hand-Operated Pumps for Hydraulic Return Jack

To be used as the hydraulic source for the hydraulic return jack of 720 kgf/cm² series. Has a high and low automatic control-valve, the low pressure pump operates up to the loading of 30 kgf/cm². This means larger output volume and higher speed without loss of capacity. As the safety-valve is recessed inside, operation is assured. Applicable to hydraulic spring return jacks.

How to order: CODE

Hydraulic pump for hydraulic return jack, OIL VOLUME ltr

Unit Per Set

CODE	Usable Oil Volume ltr	Max. Working Pressure kgf/cm²		Output Volume per Stroke cc		Connection Thread PT	Weight kg
		Low	High	Low	High		
61 51 62	0.9	30	720	11	2.0	3/8	9.0
63	1.3	30	720	11	2.0		10.1
64	2.3	30	720	24	2.0		14.8
65	6.0	30	720	24	2.0		20.5

High Pressure Hose for Hydraulic Jacks

Manguera de Alta Presión para Gatos Hidráulicos
油圧ジャッキ用高圧ゴムホース　液压千斤顶的高压胶管

Available in 3 sizes of rubber or nylon made, fitted with coupling. Length of 2 mtrs.



How to order: CODE

High pressure hose with coupling for hydraulic jack, SIZE mm x 2 mtr

Unit Per Pc.

CODE	Size	Pressure Kgf/cm²	Flow Ltr/Min	Thread
		Rubber Hose		
61 51 66	6 mm	720	8	PT 3/8 x PT 3/8
67	9 "	720	20	PT 1/2 x PT 3/8
68	12 "	720	40	PT 1/2 x PT 1/2
		Nylon Hose		
61 51 69	5 mm	720	8	PT 3/8 x PT 3/8
70	8 "	720	20	PT 1/2 x PT 3/8
71	11 "	720	40	PT 1/2 x PT 1/2

38. Nut Splitters / Flange Jacks

Hydraulic Nut Splitters

Tronzatuercas　油圧式ナットスプリッター　液压螺帽割刀

Splits frozen or rusted nuts without damage to the bolt. It is conveniently sized to work in hard to reach places. Made of the finest steel, heat-treated and forged for long service. To operate, just use a regular hand wrench and turn the power screw which has a hydraulic pump built inside multiplying the power exerted upon it.





A set is composed of two models :

No. 316 size up to 1/2" BSW (Across Flat 20 mm)

No. 336 size up to 7/8" BSW (Across Flat 33 mm)
Sold in sets only.

61 51 80	Nut splitter, hydraulic size up to 1/2" and 7/8" BSW, 2 pcs/set	Set

Heating Loosener

for Stuck Bolt & Nut

Separador de calor de tornillos y tuercas atascados
錆付きボルトナット用加熱式弛緩セット
加热型锈死螺栓螺母拆卸器



This extremely handy tool uses induction to precisely heat a nut, steering knuckle, bearing or any other object made of magnetizable metal. In less than a minute this can heat steel to 300 till 600 degrees Celsius, and since heat causes it to expand you can remove it in a snap.

The heat generated through induction technology can be applied to parts of all different sizes: stuck nuts, bolts, steering knuckles, nipples, bearings and so forth. It generates no open fire, so it's safe to use.

To establish the right interaction between the "iDuctor" and the object to be heated, the tool is accompanied by a set of nine coils in metric sizes M8, M10, M12, M16, M20, M24, and M30. It also comes with a flexible 'wrappable' coil measuring 110 cm long. The coils are easily changed by hand.

The "iDuctor" is also usable for other specific purposes in addition to heating stuck parts, such as heating and removing coating layers from steel. Special tools are available for this specific application.

Time and power are easily adjustable. Power source: AC 220 V. The "iDuctor" is CE certified.

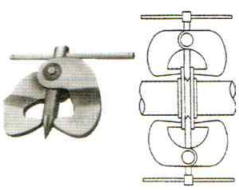
61 51 81	Heating Loosener for stuck bolt & nut "iDuctor" AC 220V	Set

Name of Mfr.: TK Tools Industrial Equipment

Flange Jacks

Extractor de Bridas　フランジジャッキ　法兰千斤顶

The jacks exert tremendous pressure smoothly and evenly. The flanges are parted quickly and held in perfect alignment without damage to flange faces. Sold in 2 pcs/set only.



Unit Per Set

CODE	No.	For Pipe Size mm				Weight Per Pair kg
		5 kgf/cm² Cast Iron	10 kgf/cm² Cast Iron	16 kgf/cm² Cast Iron	20 kgf/cm² Cast Iron	
61 51 84	20	50 - 500	50 - 500	25 - 300	20 - 300	6
85	30	400 - 1,200	450 - 600	300 - 600	300 - 600	12

39. Pipe Cleaners

Plumber's Snake Wire Pipe Cleaners

(Sani Snakes)

Desatascadores de Muelle　パイプ清掃機　蛇形钢丝管道清通器

Used for unclogging pipes and drains. The flexible coil of non-corrosive spring steel will remove most obstructions. The wire spring is available in diameters from 6 mm to 13 mm.



Unit Per Pc.

CODE	Dimensions Diam. x Length	For Pipe Inner Diam.
61 52 01	6 mm x 5 mtr	20 - 32 mm
02	6 mm x 7.5 mtr	20 - 32 mm
03	6 mm x 10 mtr	20 - 32 mm
61 52 04	10 mm x 10 mtr	38 - 75 mm
05	10 mm x 15 mtr	38 - 75 mm
61 52 06	13 mm x 10 mtr	75 - 100 mm
07	13 mm x 15 mtr	75 - 100 mm

40. Rivets / Riveters

Hand Rivets

Remaches Manuales　ハンドリベット　手铆钉

These simple and easy-to-use rivets fasten products together easily and effectively...no complicated installations, expensive equipment or skilled operators are needed. Just drill a hole, insert and set a rivet from the same side....and high fastening connections are achieved quickly. High strength, precision-made hollow rivets are assembled on a solid mandrel. They are specially useful for blind fastening....where no access to the reverse side is available.

Hand Riveter Tools

Herramientas Remachadoras Manuales
ハンドリベッター　手动铆钉套装

Designed to set all standard size of blind rivets.



Plier Type



Bellow Type

Unit Per Pr.

CODE	Type	Overall Length mm	Capacity Rivet Diam. mm
61 52 30	Plier	260	2.4, 3.2, 4.0, 4.8
31	Bellow	325 - 900	2.4, 3.2, 4.0, 4.8

Hand Riveter Kits

Estuches para remachadoras Manuales
手動式リベッター携帯キット　手动铆钉机工具

Contains a plier type hand riveter tool and two different diameter rivets, sized 3.2 mm and 4.0 mm each in two different lengths. Furnished in a steel carrying case.



61 52 33	Hand riveter kit in steel case	Set

Blind Rivets for Riveter

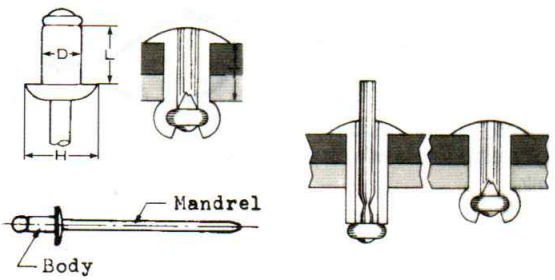
Remaches para Remachadoras　ブラインドリベット　铆钉

High strength, precision-made hollow rivets assembled on a solid mandrel. They are specially useful for "blind" fastening where no access to the reverse side is available. Rivets are made in various sizes with head styles in aluminium, steel, monel, copper and stainless steel. Two types of standard rivets, open and closed, are available but the most common open type is described below.



Standard Open Type

Standard open type rivet is a hollow rivet, pre-assembled on to a headed pin or mandrel. The mandrel is designed to fracture at a pre-determined point during the setting operation, when the lamination forming the structure being fastened, have been drawn closely together and the whole join is tight. Normally on the vessel the rivet of aluminium alloy body and steel mandrel are used. Unless otherwise specified the aluminium alloy body and steel mandrel type will be supplied. Please specify diameter and length in mm when ordering.



How to order: CODE

Blind rivet, open type, aluminium alloy body & steel mandrel, RIVET DIAM x LENGTH mm

Unit Per Pkt

CODE	Rivet Dia mm D	Length mm L	Required Hole dia mm	Rivetting Range mm	Pcs in Pkt
61 52 36	2.4	5.7	2.5	1.0 - 3.2	100
61 52 37	3.2	4.4	3.3	1.0 - 1.6	100
38	3.2	6.3	3.3	1.6 - 3.2	100
39	3.2	8.0	3.3	3.2 - 4.8	100
40	3.2	9.8	3.3	4.8 - 6.4	100
61 52 41	4.0	6.9	4.1	1.2 - 3.2	100
42	4.0	8.6	4.1	3.2 - 4.8	100
43	4.0	10.4	4.1	4.8 - 6.4	50
44	4.0	14.0	4.1	6.4 - 9.6	50
61 52 45	4.8	7.5	4.9	1.6 - 3.2	50
46	4.8	9.3	4.9	3.2 - 4.8	50
47	4.8	11.1	4.9	4.8 - 6.4	50

Pneumatic Riveters

Remachadoras Neumáticas　エアーリベッター　气力铆钉器

Designed to set all standard sizes of blind rivets and works by compressed air to set rivets securely and quietly for large jobs. The pneumatic type works smoothly with little impact, creates no noise and assures that the rivets stay loaded in the nozzle. Allow to set aluminium, steel, and stainless steel rivets with light operations. Working air pressure is 0.5 to 0.6 MPa.

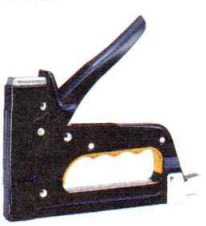


61 52 51	Pneumatic riveter Riveting capacity - 2.4, 3.2, 4.0, 4.8 φmm	Set

Staple Guns Heavy Duty

Grapadoras Heavy Duty　ガンタッカー　重型订书机

A heavy-duty staple gun with metal construction, ideal for professional or DIY use. Compact, light weight and impact-resistant metal die-cast body for use type 53 staples (6-14 mm).



61 52 61	Staple gun, heavy duty, type 53 staples	Pc.
61 52 62	Staple for staple gun, type 53 (6-14 mm) 1.000 pcs/Box	Box

41. Stainless Steel Tools

Stainless Steel Tools

Herramientas de acero inoxidable　ステンレス製工具　不锈钢工具

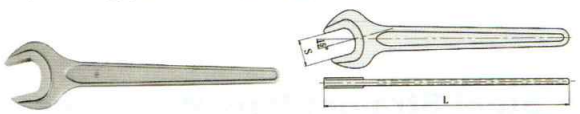
Various stainless steel tools are available and they show the following characteristics.

1) Resistant to corrosion and avoid steel material from corrosion in use.
2) Retain heat, and heat is difficult to be transmitted.
3) Higher rigidity than steel material
4) Difficult to conduct electricity compared to copper.
5) Simple cleaning.

Stainless Steel Single Open End Wrenches

Opening 15° Angle

Llaves de tuercas de boca abierta de un solo extremo de acero inoxidable
ステンレス製片口スパナ　不锈钢单头呆扳手



Unit Per Pc.

CODE	Opening mm	Length mm	CODE	Opening mm	Length mm
61 60 01	8	95	61 60 12	32	275
02	10	100	13	34	290
03	12	110	14	36	310
04	13	140	15	41	345
05	14	140	16	46	375
61 60 06	17	160	61 60 17	50	410
07	19	170	18	55	450
08	22	195	19	60	490
09	24	220	20	65	530
10	27	240	21	70	570
61 60 11	30	260	61 60 22	75	610

Stainless Steel Double Open End Wrenches

Opening 15° Angle

ステンレス製両口スパナ　不锈钢呆扳手



Unit Per Pc.

CODE	Opening mm	Length mm	CODE	Opening mm	Length mm
61 60 25	5.5 x 7	90	61 60 40	21 x 26	205
26	6 x 7	92	41	22 x 24	210
27	8 x 10	100	42	23 x 26	220
28	10 x 11	115	43	24 x 27	230
29	10 x 12	120	44	24 x 30	233
61 60 30	12 x 13	128	61 60 45	26 x 32	243
31	12 x 14	130	46	27 x 30	250
32	14 x 17	150	47	30 x 32	265
33	17 x 19	170	48	30 x 36	270
34	17 x 21	173	49	32 x 36	300
61 60 35	19 x 21	182	61 60 50	34 x 36	300
36	19 x 22	185	51	36 x 38	330
37	19 x 24	190	52	36 x 41	330
38	20 x 22	195	53	38 x 40	330
39	21 x 23	200	54	41 x 46	360

(to be continued)

S.Steel 12 Point Single End Offset Wrenches

Offset 60°

Llaves inglesas acodadas de un solo extremo de 12 puntos de acero inoxidable
ステンレス製片目スパナ　不锈钢单头梅花扳手



Unit Per Pc.

CODE	Opening mm	Length mm	CODE	Opening mm	Length mm
61 60 55	22	190	61 60 60	36	295
56	24	215	61	41	330
57	27	230	62	46	365
58	30	255	63	50	400
59	32	265	64	55	445

S.Steel 12 Point Single End Angle Wrenches

45° Angle

Llaves angulares de 12 puntos de un solo extremo de acero inoxidable
ステンレス製片目アングルスパナ 45°　不锈钢单弯头梅花扳手



Unit Per Pc.

CODE	Opening mm	Length mm	CODE	Opening mm	Length mm
61 60 65	10	119	61 60 74	32	295
66	13	151	75	34	307
67	14	151	76	36	307
68	17	174	77	38	340
69	19	207	78	41	340
61 60 70	22	207	61 60 79	46	370
71	24	250	80	50	400
72	27	250	81	55	430
73	30	295			

S.Steel Striking 12 Point Ring Wrenches

Llaves de estrella de 12 puntos de golpeo de acero inoxidable
ステンレス製打撃メガネスパナ　不锈钢敲击扳手



Unit Per Pc.

CODE	Opening mm	Length mm	CODE	Opening mm	Length mm
61 60 85	24	165	**61 60 92**	41	225
86	27	175	**93**	46	235
87	30	185	**94**	50	250
88	32	185	**95**	55	265
89	34	200	**96**	60	274
61 60 90	36	205	**61 60 97**	65	298
91	38	215	**98**	70	320

S.Steel Open & 12 Point Box Wrenches

Llaves de tuercas de boca abierta y de tubo de 12 puntos de acero inoxidable
ステンレス製片目 / 片口スパナ　不锈钢单头梅花 / 单头呆扳手



Unit Per Pc.

CODE	Opening mm	Overall Length mm	CODE	Opening mm	Overall Length mm
61 64 01	8	120	**61 64 15**	26	290
02	9	135	**16**	27	290
03	10	135	**17**	30	320
04	11	150	**18**	32	340
05	12	150	**19**	34	360
61 64 06	13	175	**61 64 20**	36	360
07	14	175	**21**	38	430
08	17	195	**22**	41	430
09	19	215	**23**	46	480
10	20	215	**24**	50	520
61 64 11	21	245	**61 64 25**	55	560
12	22	245	**26**	60	595
13	23	265	**27**	65	595
14	24	265	**28**	70	630

S.Steel 12 Point Double End Wrenches

Llaves de 12 puntos de doble extremo de acero inoxidable
ステンレス製両目スパナ　不锈钢梅花扳手

15° Offset



Unit Per Pc.

CODE	Opening mm	Overall Length mm	CODE	Opening mm	Overall Length mm
61 64 31	5.5 x 7	115	**61 64 43**	21 x 23	285
32	6 x 7	115	**44**	21 x 26	320
33	8 x 10	130	**45**	22 x 24	310
34	10 x 11	140	**46**	24 x 27	340
35	10 x 12	140	**47**	24 x 30	350
61 64 36	12 x 13	160	**61 64 48**	26 x 32	370
37	12 x 14	160	**49**	27 x 30	360
38	14 x 17	220	**50**	30 x 32	380
39	17 x 19	250	**51**	30 x 36	395
40	17 x 22	250	**52**	32 x 36	405
61 64 41	19 x 22	280	**61 64 53**	34 x 36	420
42	19 x 24	310	**54**	36 x 41	445

S.Steel Combination Ring & Spud Wrenches

Llaves combinadas de estrella y de cola de acero inoxidable
ステンレス製シノ付片目スパナ　不锈钢撬棒梅花扳手

60° Offset



Unit Per Pc.

CODE	Opening mm	Length mm	CODE	Opening mm	Length mm
61 64 55	14	270	**61 64 61**	30	430
56	17	310	**62**	32	430
57	19	330	**63**	36	460
58	22	350	**64**	41	490
59	24	370	**65**	46	520
61 64 60	27	400			

S.Steel Adjustable Wrenches

Llaves ajustables de acero inoxidable
ステンレス製モンキースパナ　不锈钢活动扳手



Unit Per Pc.

CODE	Length mm	Max Jaw Opening mm	CODE	Length mm	Max Jaw Opening mm
61 64 66	100	13	**61 64 70**	300	36
67	150	18	**71**	375	46
68	200	24	**72**	450	55
69	250	30	**73**	600	65

S.Steel Straight Pipe Wrenches

Llaves para tubos rectas de acero inoxidable
ステンレス製パイプレンチ　不锈钢套筒扳手



Unit Per Pc.

CODE	Length mm	Max Jaw Opening mm	CODE	Length mm	Max Jaw Opening mm
61 64 75	200	25	**61 64 79**	450	60
76	250	30	**80**	600	75
77	300	40	**81**	900	125
78	350	50	**82**	1,200	150

S.Steel Hook Spanner Wrenches

Llaves de gancho de acero inoxidable
ステンレス製引掛けスパナ　不锈钢钩形扳手



Unit Per Pc.

CODE	Circle Diam. mm	Overall Length
61 64 85	34 to 36	170 mm
86	40 to 42	176 mm
87	45 to 50	209 mm
88	52 to 55	212 mm
89	58 to 62	244 mm
61 64 90	68 to 75	250 mm
91	80 to 90	284 mm
92	95 to 100	288 mm
93	110 to 115	337 mm

Clip-on Tools

Combination Wrenches



Unit Per Pc.

CODE	Art. No.	Size mm	CODE	Art. No.	Size mm
61 07 60	K17105	5.5	**61 07 71**	K17117	17
61	K17106	6	**93**	K17118	18
62	K17107	7	**72**	K17119	19
63	K17108	8	**94**	K17120	20
64	K17109	9	**73**	K17121	21
61 07 65	K17110	10	**61 07 74**	K17122	22
66	K17111	11	**75**	K17123	23
67	K17112	12	**76**	K17124	24
68	K17113	13	**95**	K17125	25
69	K17114	14	**78**	K17127	27
61 07 92	K17115	15	**61 07 79**	K17130	30
70	K17116	16	**80**	K17132	32

Adjustable Wrenches, Heavy Duty



Unit Per Pc.

CODE	Art. No.	Length		Max. Jaw Opening
		mm	inch	
61 13 31	K16904	110	4	17mm
32	K16905	155	6	24 "
33	K16908	205	8	29 "
34	K16910	255	10	33 "
35	K16912	305	12	38 "
61 13 36	K16915	375	15	50 "
37	K16918	455	18	60 "
38	K16924	615	24	70 "

Comfort Rubber Grip Screwdriveres

Round Blade



- Slotted Screwdriver **+ Phillips Screwdriver**

Unit Per Pc.

CODE	Art. No.	Size mm	CODE	Art. No.	Size mm
61 22 46	F56102	3x75	**61 22 52**	F56202	#0x75
47	F56107	5.5x100	**53**	F56207	#1x100
48	F56115	6x150	**54**	F56215	#2x150
49	F56120	8x200	**55**	F56220	#3x200
50	F56121	8x250	**56**	F56221	#3x250
61 22 51	F56122	8x300	**61 22 57**	F56222	#3x300

90° Universal Pipe Wrenches



Unit Per Pr.

CODE	Art. No.	Size	Length mm
61 13 40	P104209	3/4"	280
41	P104210	1"	320
42	P104220	1-1/2"	420
43	P104220	2"	560
44	P104230	3"	630
61 13 45	P104240	4"	740

45° Universal Pipe Wrenches S-Shape



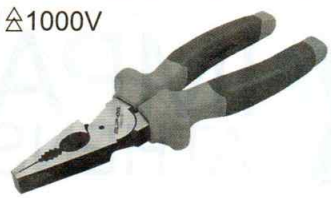
Unit Per Pr.

CODE	Art. No.	Size	Length mm
61 13 15	P104301	1/2"	235
16	P104310	1"	330
17	P104315	1-1/2"	420
18	P104320	2"	535
19	P104330	3"	652

VDE Insulated Linesman Pliers

CR-V ≙1000V

IEC 60900
DIN EN 60900



Unit Per Pr.

CODE	Art. No.	Size	Capacity Steel Wire mm	Length mm
61 16 37	V46010	6"	Ø2.0	162
38	V46011	7"	Ø2.0	185
39	V46012	8"	Ø3.0	200

VDE Insulated H/D Diagonal Cutters

CR-V ≙1000V

IEC 60900
DIN EN 60900



Unit Per Pr.

CODE	Art. No.	Size	Capacity Steel Wire mm	Length mm
61 16 76	V46015	6"	Ø2.0	160
77	V46009	7"	Ø2.0	180
78	V46016	8"	Ø3.0	200

VDE Insulated Round Nose Pliers

CR-V ⚠1000V

IEC 60900
DIN EN 60900



Unit Per Pr.

CODE	Art. No.	Size	Length mm
61 16 79	V46018	6"	170

Bearing Puller Set

BPK55 For Inner Ring

The slide hammer bearing puller set is designed for removing "hard-to-puller" bearings without damaging the bearing housing.

BPK65 For Inner & Outer Ring

The bearing puller set is designed to remove the internal and external bearing rings from bearings mounted to various fittings, shafts, etc.



Unit Per Set.

CODE	Art. No.	Content
61 50 81	A113061	Sliding Hammer * 1 Set Internal Claw * 5 Pcs Steel Case * 1 Pc
61 50 82	A113062	Sliding Hammer * 1 Set Internal Claw * 8 Pcs Gear Puller * 1 Pc Flare Nut Wrench * 1 Pc Hexagon Key Wrench * 1 Pc Steel Case * 1 Pc

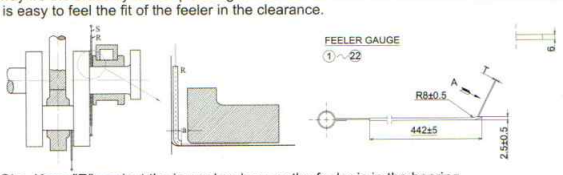
Bearing Feeler Gauges





Used for measuring main bearing clearance of marine engine.

When the rod "S" has been pressed through the pipe "R", the pipe "R" can be pushed away fro the brass by further pressing on the rod "S" and when a distance "a" is obtained it is easy to feel the fit of the feeler in the clearance.



Obs. Keep "R" against the journal as long as the feeler is in the bearing.

Unit Per Set.

CODE	Art No.	Range mm	Contents mm
65 05 87	M90012	0.75-0.95	0.75, 0.80, 0.85, 0.90, 0.95
88	M90022	0.65-0.85	0.65, 0.70, 0.75, 0.80, 0.85
89	M90032	0.05-0.35	0.05, 0.1, 0.15, 0.2, 0.25, 0.30, 0.35
90	M90042	0.40-0.70	0.40, 0.45, 0.50 ,0.55, 0.60, 0.65, 0.70
91	M90052	0.75-1.05	0.75, 0.80, 0.85, 0.90, 0.95, 1.00, 1.05
65 05 92	M90062	0.40-0.60	0.40, 0.45, 0.50, 0.55, 0.60
93	M90072	0.10-1.10	0.10, 0.20, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00, 1.10
94	M90082	0.15-0.6*	(0.15, 0.20, 0.25, 0.30, 0.35), (0.40, 0.45, 0.50, 0.55, 0.60)

*All Blades are consist of: 0.05, 0.10 and 0.15mm thickness gauges.

Micro Adjusting Torque Wrenches

GY Series Preset



Accuracy +/-3%

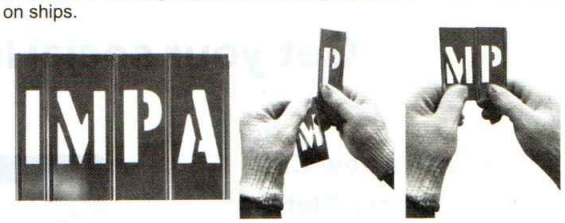
Unit Per Pc.

CODE	Art. No.	Square Drive	Torque Range Nm/lb-in	Graduation	Length mm	Weight g
61 14 71	K16801	1/4"	2.5-12/20-105	0.05	280	680
72	K16802	1/4"	4~20/30-180	0.15	280	680
73	K16804	3/8"	6.0-30/50-250	0.25	315	820

CODE	Art. No.	Square Drive	Torque Range Nm/lb-in	Graduation	Length mm	Weight g
61 14 74	K16805	3/8"	20~100/15-75	0.5	443	1,040
75	K16806	1/2"	40~200/30-150	1.0	465	1,160
76	K16807	1/2"	50-350/37-260	2.0	525	1,300
77	K16808	3/4"	100-500/80-400	5.0	700	3,000
78	K16809	3/4"	160-800/120-600	5.0	1,040	5,900
61 14 79	K16810	3/4"	200~1,000/150-750	5.0	1,040	5,900
80	K16811	1"	160~800/120-600	5.0	1,040	5,900
81	K16812	1"	200~1,000/150-750	5.0	1,040	5,900
82	K16813	1"	300~1,500/258-1,069	10.0	1,260	9,200

Reusable Interlocking Stencils

Reusable, adjustable and interlocking. Gothic-style characters for horizontal composition. Stencils adjust quickly for perfect character alignment, spacing and clean, bold characters. Made of brass, suitable for marking shipments, making signs and other identification on ships.



45 Piece Letter & Figure Sets Unit Per Set.

CODE	Art. No.	Size	Content
61 31 61	M120151	1"	A-Z*1
62	M120152	1-1/2"	0-9*1
63	M120153	2"	Other:
64	M120154	2-1/2"	Plain Ender*2, Period*1,
65	M120155	3"	Ender*1, Comma*1,
61 31 66	M120156	4"	Dash*1, Period*1,
67	M120157	5"	Spacer*2, &*1"
68	M120158	6"	

78 Piece Letter & Figure Sets Unit Per Set.

CODE	Art. No.	Size	Content
61 31 31	M120161	1"	A-P*2, Q*1, R-U*2, V*1,
32	M120162	1-1/2"	W*2, X-Z*2,
33	M120163	2"	0-9*2
34	M120164	2-1/2"	Other:
35	M120165	3"	Plain Ender*2, Period*2,
61 31 36	M120166	4"	Spacer*2, Comma*1,
37	M120167	5"	Apostrophe*1, Dash*1,
38	M120168	6"	Period Ender*1,&*1"

S.Steel Allen Hexagon Wrenches

Llaves hexagonales Allen de acero inoxidable
ステンレス製六角棒スパナ　不锈钢内六角扳手



Unit Per Pc.

CODE	Across Flat (mm)	L (mm)	H (mm)	CODE	Across Flat (mm)	L (mm)	H (mm)
61 68 01	1.5	59	25	**61 68 11**	10	110	45
02	2	59	25	**12**	11	119	48
03	2.5	59	25	**13**	12	130	52
04	3	59	25	**14**	13	140	54
05	4	65	30	**15**	14	150	58
61 68 06	5	79	32	**61 68 16**	15	156	60
07	6	85	37	**17**	16	162	63
08	7	88	43	**18**	17	168	65
09	8	92	44	**19**	18	173	69
10	9	97	44	**20**	19	177	72

Stainless Steel Side Cutting Pliers

Alicates de corte lateral de acero inoxidable
ステンレス製ペンチ　不锈钢老虎钳



Unit Per Pr.

CODE	Length	Weight (grm)
61 68 21	150 mm	180
22	175 mm	355
23	200 mm	465

Stainless Steel Combination Pliers, Slip Joint

Alicates ajustables de acero inoxidable, junta deslizante
ステンレス製コンビネーションプライヤー　不锈钢鲤鱼钳



Unit Per Pr.

CODE	Length	Max Slip Opening
61 68 24	150 mm	8 mm
25	200 mm	13 mm

Stainless Steel Diagonal Cutting Pliers

Alicates de corte diagonal de acero inoxidable
ステンレス製斜ニッパー　不锈钢斜口钳

This heavy duty diagonal cutting pliers is designed for cutting hard wires, etc. at close quarters.



Unit Per Pr.

CODE	Length	Weight (grm)
61 68 26	150 mm	245
27	200 mm	410

Stainless Steel Long Nose Side Cutting Pliers

Plastic Covered Handle

Alicates de punta larga de corte lateral de acero inoxidable
ステンレス製ラジオペンチ　不锈钢尖嘴钳

An ideal tool for quick repair and electronic works.

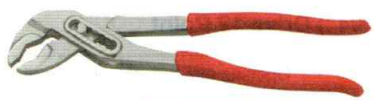


Unit Per Pr.

CODE	Length	Weight (grm)
61 68 28	150 mm	245
29	200 mm	410

Stainless Steel Water Pump Pliers

Alicates de bomba de agua de acero inoxidable
ステンレス製ウォーターポンププライヤー　不锈钢水泵钳



61 68 30	Water Pump Pliers, Stainless Steel Opening Max. 32 mm	Pr.

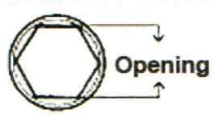
Stainless Steel Socket Wrenches

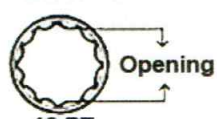
Llaves de tubo de acero inoxidable
ステンレス製ソケットレンチ　不锈钢套筒扳手



Made of stainless steel, suitable for work with stainless steel bolt to avoid "contact corrosion".

When ordering, please indicate the size of the square drive opening at the back of the socket : 9.5 mm (3/8"), 12.7 mm (1/2"), 19.0 mm (3/4").





9.5 mm (3/8") Drive 12 Point

Unit Per Pc.

CODE	Opening mm	Overall Length mm
61 68 31	5	28
32	5.5	28
33	6	28
34	7	28
35	8	28
61 68 36	9	28
37	10	32
38	11	32
39	12	32
40	13	32
61 68 41	14	32
42	16	32
43	17	32
44	19	32

12.7 mm (1/2") Drive 12 Point

Unit Per Pc.

CODE	Opening mm	Overall Length mm
61 68 45	6	40
46	7	40
47	8	40
48	9	40
49	10	40
61 68 50	11	40
51	12	40
52	13	40
53	14	40
54	15	40
61 68 55	17	40
56	19	42
57	20	42
58	21	43
59	22	43
61 68 60	23	43
61	24	43
62	26	43
63	27	46
64	30	46
61 68 65	32	46

19 mm (3/4") Drive 12 Point

Unit Per Pc.

CODE	Opening mm	Overall Length mm
61 68 66	17	50
67	19	50
68	21	55
69	22	55
70	24	55
61 68 71	26	55
72	27	55
73	30	60
74	32	60
75	35	60
61 68 76	36	60
77	38	60
78	41	65
79	46	65
80	50	70

Stainless Steel Ratchet Handles

for Socket Wrenches

Mango de trinquete de acero inoxidable para llaves de tubo

ステンレス製ラチェットハンドル　不锈钢棘轮手柄

Made of stainless steel, suitable for work together with stainless steel socket wrenches.



Unit Per Pc.

CODE	Square Drive	Overall Length mm	Weight (grm)
61 68 81	9.5 mm (3/8")	200	290
82	12.7 mm (1/2")	245	690
83	19.0 mm (3/4")	320	1,570

42. Non-Sparking Tools

Non-Sparking, Non-Magnetic & Non-Corrosive for Tankers, LPG and LNG Vessels

Two types of non-spark tools are available, a high quality grade beryllium copper alloy material and a standard grade aluminium bronze alloy. These tools are non magnetic and non corrosive. The sizes of the items specified below are standard, but larger or smaller sizes are available upon request.



Sparkless Safety Tool on Grinding



Sparking Alloy Tool on Grinding

Non-Spark Single Open End Wrenches

Llaves Planas Simple Ant-chispa

防爆用片口スパナー

防爆单开口扳子



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Opening mm	CODE	Opening mm
61 54 01	8	**61 54 21**	10
02	10	**22**	12
03	12	**23**	14
04	14	**24**	17
05	17	**25**	19
61 54 06	21	**61 54 26**	21
07	23	**19**	22
08	26	**27**	23
09	29	**20**	24
10	32	**28**	26
61 54 11	35	**61 54 38**	27
12	38	**29**	29
13	41	**39**	30
14	46	**30**	32
15	50	**31**	35
61 54 16	54	**61 54 40**	36
17	58	**32**	38
18	63	**33**	41
		34	46
		35	50
		61 54 36	58
		37	67

Non-Spark Double Open End Wrenches

Llaves Planas Doble anti-chispa

防爆用両口スパナ

防爆双开口扳子



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Opening mm	CODE	Opening mm
61 54 41	8 x 9	**61 54 60**	8 x 10
42	10 x 12	**61**	9 x 10
43	12 x 14	**62**	10 x 12
44	14 x 17	**63**	12 x 14
45	17 x 19	**64**	14 x 17

Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Opening mm	CODE	Opening mm
61 54 46	17 x 21	**61 54 65**	17 x 19
47	19 x 21	**66**	17 x 21
48	21 x 23	**67**	19 x 21
49	21 x 26	**56**	19 x 22
50	23 x 26	**68**	21 x 23
61 54 51	26 x 32	**61 54 69**	21 x 26
52	32 x 35	**57**	22 x 24
53	35 x 41	**70**	23 x 26
54	41 x 46	**58**	24 x 27
55	41 x 50	**59**	24 x 30
		61 54 71	26 x 29
		72	26 x 32
		77	27 x 30
		73	29 x 32
		78	30 x 32
		61 54 74	32 x 35
		79	32 x 36
		75	35 x 41
		88	36 x 41
		76	41 x 46

Non-Spark Open & 12 Point Box Wrenches

Llaves poligonales abiertas y de 12 puntos que no generan chispas
防爆用片目片口スパナー　防爆呆梅两用扳手

Made of beryllium copper alloy.



Unit Per Pc.

CODE	Opening mm	CODE	Opening mm
61 54 89	24	**61 55 11**	32
61 55 00	30	**12**	36

Non-Spark 12 Point Single End Offset Wrenches

Llaves de Estella Simple Acordada Anti-chispa
防爆用片目スパナ
防爆单头开口板手



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Opening mm	CODE	Opening mm
61 54 80	17	**61 54 90**	17
81	21	**91**	19
82	26	**92**	21
83	32	**93**	23
84	35	**94**	26
61 54 85	41	**61 54 95**	32
86	46	**96**	35
87	50	**97**	41
		98	46
		99	50

Non-Spark 12 Point Single End Angle Wrenches

Beryllium Copper Alloy

Llaves de Estrella Simple Angulada Anti-chispa
防爆用片目アングルスパナ　十二角单头弯颈防爆梅花板手



Unit Per Pc.

CODE	Opening mm	CODE	Opening mm
61 55 01	17	**61 55 06**	32
02	19	**07**	35
03	21	**08**	41
04	23	**09**	46
05	26	**10**	50

Non-Spark 12 Point Double End Wrenches

Llavas de Estrella Anti-chispa
防爆用两目スパナ　十二角双头防爆梅花板手



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Opening mm	CODE	Opening mm
61 55 13	10 x 12	**61 55 26**	12 x 14
14	10 x 13	**27**	14 x 17
15	12 x 14	**28**	17 x 19
16	14 x 17	**29**	17 x 21
17	17 x 19	**30**	19 x 21
61 55 18	17 x 21	**61 55 24**	19 x 22*
19	19 x 21	**31**	21 x 26
20	21 x 26	**25**	22 x 24*
21	26 x 32	**32**	23 x 26
22	32 x 35	**35**	24 x 27*
61 55 23	35 x 41	**61 55 42**	24 x 30*
		33	26 x 32
		43	27 x 30*
		50	30 x 32*
		34	32 x 35
		61 55 57	32 x 36*
		64	36 x 41*

Remark : * marked sizes are 45° Offset

Non-Spark Combination Open & Spud Wrenches

Llaves Plana 1 Boca para Estructuras Anti-chispa
防爆用シノ付片口スパナ　开口和尖端防爆板手



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Opening mm	CODE	Opening mm
61 55 36	17	**61 55 44**	17
37	21	**45**	21
38	26	**46**	26
39	32	**47**	32
40	35	**48**	35
61 55 41	41	**61 55 49**	41

Non-Spark Combination Ring & Spud Wrenches

Llaves Estrella 1 Boca para Estructuras Anti-chispa
防爆用シノ付片目スパナ
防爆尖尾梅花扳手



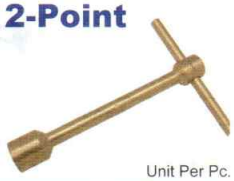
Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Opening mm	CODE	Opening mm
61 55 51	17	**61 55 58**	17
52	21	**59**	21
53	26	**65**	24*
54	32	**60**	26
55	35	**70**	27*
61 55 56	41	**61 55 76**	30*
		61	32
		62	35
		77	36*
		63	41

Remark : * marked sizes are 45° Offset

Non-Spark T-Type 12-Point Box Wrenches

Llaves Tipo-T Anti-chispa
防爆用 T 型ボックスレンチ
T 型十二角防爆套筒板手



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Opening mm	CODE	Opening mm
61 55 66	19	**61 55 71**	17
67	24	**72**	19
68	30	**73**	24
69	36	**74**	26
		75	30

Non-Spark Striking Single Open End Wrenches

Beryllium Copper Alloy

Llaves Fija de Golpe Anti-chispa
防爆用打撃スパナ　防爆用单端开口板手



Unit Per Pc.

Beryllium Copper Alloy			
CODE	Opening mm	CODE	Opening mm
61 55 80	30	**61 55 83**	36
81	32	**84**	41
82	35	**85**	46

Non-Spark Striking 12 Point Ring Wrenches

Llaves Estrella de Golpe anti-chispa
防爆用打撃メガネスパナ
敲击式十二角防爆棘轮板手



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Opening mm	CODE	Opening mm
61 55 90	26 (6 point)	**61 56 01**	26
91	32 (6 ")	**02**	27
92	35 (6 ")	**03**	30
93	41 (6 ")	**04**	32
94	46 (6 ")	**05**	35
61 55 95	50 (6 point)	**61 56 06**	36
96	58 (6 ")	**07**	41
97	63 (6 ")	**08**	46
98	71 (12 ")	**09**	50
		10	55

(to be continued)

Non-Spark Striking 12 Point Ring Wrenches with Spring Washer

Anillo de 12 puntas sin chispa Llaves con arandela elástica
スプリングワッシャー付き打撃メガネスパナー
带弹簧垫圈的敲击式巨型隔板



Aluminium Bronze safety striking wrench adapted two spring washers inside the 12 point ring, which enable the wrench to remain in place without having to hold it for free hand hammer striking.

Unit Per Pc.

CODE	Opening mm	Overall Length (mm)	For Bolt Size	
			MM	WW
61 55 78	24	160	M16	-
79	27	180	M18	-
86	30	190	M20	-
87	32	190	M22	W3/4
88	36	205	M24	-
61 55 89	41	225	M27	W1
99	46	240	M30	W1-1/8
61 56 00	50	255	M33	W1-1/4
11	55	272	M36	-
14	60	272	M39	-
61 56 27	65	300	-	-
28	70	330	-	-
29	75	330	-	-

Name of Mfr.: Ampco Safety Tools

Non-Spark Hook Spanner Wrenches

Special Aluminium Bronze

Llaves de Gas Anti-chispa　防爆用引掛スパナ　钩形防爆板手

A tool to tighten and loosen round nuts with notches. Sizes fit to the outer diameter of round nuts.



Unit Per Pc.

Special Aluminium Bronze		
CODE	**61 56 12**	**61 56 13**
For Hose Size mm	40	65

Non-Spark Adjustable Wrenches

Llaves Ajustables Anti-chispa　防爆用モンキー　活洛防爆板手



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	O' all Length mm	CODE	O' all Length mm
61 56 15	150	61 56 22	150
16	200	23	200
17	250	24	250
18	300	25	300
19	375	26	375
61 56 20	450		

Non-Spark Ratchet Wrenches for Socket

Llaves de Carraca Anti-chispa
防爆用ラチェットレンチ
棘轮套筒防爆板手



The size of this wrench is determined by its opening across flats, not by bolt diameter.

Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Opening Across Flat mm	CODE	Opening Across Flat mm
61 56 30	17	61 56 40	17
31	26	41	19
32	32	42	21
33	35	43	22
34	41	44	24
61 56 35	50	61 56 45	26
36	58	46	27
37	63	47	30
		48	32
		49	35
		61 56 50	36

Non-Spark Straight Pipe Wrenches

Llaves para Tubo "Stillson" Anti-chispa
防爆用パイレン　防爆直管子板手



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	O' all Length mm	CODE	O' all Length mm
61 56 51	200	61 56 59	200
52	250	60	250
53	300	61	300
54	350	62	350
55	450	63	450
61 56 56	600	61 56 64	600
57	900	65	900

Non-Spark Socket Wrench Sets

Juegos de Llaves de Vaso Anti-chispa
防爆用ソケットレンチセット
防爆套筒扳手

Able to furnish 12.7 mm square drive set only.



Unit Per Set

CODE	Rank	Square Drive	Contents
61 56 71	Special Aluminium Bronze	12.7 mm	8 sockets of m/m ... 10, 12, 14, 17, 19, 21, 23, 26 1 each of ... Speed T handle, Nut spinner handle, Sliding T handle, Universal Joint, Offset handle, Male ratchet handle and 3 length of extension bars.
61 56 72	Beryllium Copper Alloy	12.7 mm	15 sockets of m/m ... 9, 10, 12, 13, 14, 15, 16, 17, 17.5, 19, 21, 23, 26, 29, 32 1 each of ... Universal Joint, Cross bar, Male ratchet handle, Sliding T handle, Nut spinner handle, Speed T handle and 2 of extension bars.
61 56 73		12.7 mm	22 sockets of m/m... 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27, 28, 30, 32 1 each of... Deep socket, Universal joint, Male ratchet handle, Sliding T handle, Speed T handle, Driver socket, Offset handle and 2 of Extension bars.

Non-Spark Hexagon Allen Wrenches

Beryllium Copper Alloy

Llaves Allen (Hexagonal) anti-chispa
防爆用六角棒スパナ　内六角防爆板手



Unit Per Pc.

Beryllium Copper Alloy			
CODE	Size mm	CODE	Size mm
61 56 90	2.5 x 56	61 56 94	6 x 90
91	3 x 63	95	8 x 100
92	4 x 70	96	10 x 122
93	5 x 80		

Non-Spark Ball Pein Hammers

Martilos de bola anti-chispa　防爆用ハンドハンマー　防爆钳工锤

Reliable ball pein hammer, will not produce sparks.



Unit Per Pc.

Special Aluminium Bronze			Beryllium Copper Alloy		
CODE	Nominal Size	Weight Grm.	CODE	Nominal Size	Weight Grm.
61 57 01	1/4	115	61 57 10	1/4	115
02	1/2	225	11	1/2	225
03	3/4	340	12	3/4	340
04	1	453	13	1	453
05	1-1/2	680	14	1-1/2	680
61 57 06	2	900	61 57 15	2	900
07	3	1,350	16	3	1,350

Non-Spark Testing Hammers

Martillos de Inspección Anti-chispa
防爆用テストハンマー　防爆检测锤



Unit Per Pc.

Special Aluminium Bronze		Weight Grm	Beryllium Copper Alloy	
CODE	Nominal Size		CODE	Nominal Size
61 57 20	1/4	130	**61 57 25**	1/4
21	1/2	220	**26**	1/2
22	3/4	300	**27**	3/4
23	1	380	**28**	1

Non-Spark Double Face Hammers
with Handle

Mazas Doble Cara con Mango Anti-chispa
防爆用両口ハンマー　防爆双平面锤

This double face hammer head is furnished with a handle. If a handle is not required, please specify accordingly.



Unit Per Pc.

Special Aluminium Bronze		Weight kgs	Beryllium Copper Alloy	
CODE	Nominal Size		CODE	Nominal Size
61 57 30	3	1.36	**61 57 40**	3
31	4	1.81	**41**	4
32	5	2.27	**42**	5
33	6	2.72	**43**	6
34	8	3.63	**44**	8
61 57 35	10	4.53	**61 57 45**	10
36	12	5.45	**46**	12
37	15	6.8	**47**	15
38	20	9.0		

61 Hand Tools

Non-Spark Chipping Hammers
Handled

Piquetas con Mango Anti-chispa
防爆用ケレンハンマー　防爆敲锈锤

Designed for chipping of scale, rust or old paint in vessels where non-sparking safety tools are indispensable.



Unit Per Pc.

Special Aluminium Bronze		Weight Grm	Beryllium Copper Alloy	
CODE	Nominal Size		CODE	Nominal Size
61 57 51	1/2	225	**61 57 55**	1/2
52	1	340	**56**	3/4
		453	**57**	1
		680	**58**	1-1/2

Non-Spark Claw Hammers
Handled

Martilos Uñas con Mango Anti-chispa
防爆用釘抜きハンマー　防爆羊角锤

One side for hammering and the other for pulling out nails.



Unit Per Pc.

Special Aluminium Bronze		Weight Grm	Beryllium Copper Alloy	
CODE	Nominal Size		CODE	Nominal Size
61 57 70	1	453	**61 57 75**	1
		680	**76**	1-1/2

Non-Spark Cold Chisels

Cortafrios Anti-chispa
防爆用平タガネ　防爆冷凿

To be used on jobs where non-sparking cold chisels are required.



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Size mm	CODE	Size mm
61 58 01	10 x 150	**61 58 09**	20 x 200
02	15 x 150	**10**	27 x 200
03	17 x 180	**11**	27 x 250
04	21 x 200	**12**	27 x 300
05	23 x 200		
61 58 06	25 x 215		
07	25 x 300		

Non-Spark Concrete Chisels

Buril para Hormigón Anti-chispa
防爆用コンクリートタガネ　防爆水泥凿



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Size mm	CODE	Size mm
61 58 14	20 x 200	**61 58 18**	20 x 200
15	20 x 250	**19**	25 x 200
16	25 x 250	**20**	25 x 250
		21	30 x 300

Non-Spark Caulking Chisels
Special Aluminium Bronze

Cinceles de Calafate Anti-chispa
防爆用コーキングタガネ
防爆填缝凿（直形）



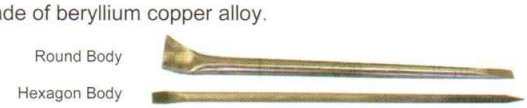
Unit Per Pc.

Special Aluminium Bronze					
CODE	Type	Size mm	CODE	Type	Size mm
61 58 24	Straight	25 x 150	**61 58 27**	Bent	17 x 170
25	"	25 x 170	**28**	"	17 x 200
26	"	25 x 200	**29**	W/handle	125

Non-Spark Crowbars

Palanquetas que no generan chispas　防爆用クローバー　防爆撬棍

Made of beryllium copper alloy.



Unit Per Pc.

Round Body		Hexagon Body	
CODE	Blade Width x Overall Length mm	CODE	Blade Width x Overall Length mm
61 58 30	52 x 600	**61 58 31**	22 x 1,000

Non-Spark Pinch Bars

Palancas de pie de cabra que no generan chispas
防爆用こじり棒　防爆撬棒

Made of beryllium copper alloy.



61 58 32	Bar, pinch, blade width 30 mm x overall length 1,200 mm, non-spark, beryllium copper alloy	Pc.

Non-Spark Hand Scrapers
with Handle, Beryllium Copper Alloy

Rasqueta Manaul con Mango Anti-chispa
防爆用スクレッパー　防爆手刮刀

Designed for scraping in areas where non-sparking tools are required.



Unit Per Pc.

Beryllium Copper Alloy		
CODE	SIZE mm	Remark
61 58 40	40 x 75	with handle
41	75 x 115	"

Non-Spark Deck Scrapers
with Handle

Palanquetas que no generan chispas
防爆用デッキスクレッパー　防爆撬棍

With 900 mm long handle.



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Size mm	CODE	Size mm
61 58 43	50 x 900	61 58 44	50 x 900

Non-Spark Angle Scrapers

Rasqueta Angular anti-chispa
防爆用アングルスクレッパー　防爆三角刮刀

Specify width and length when ordering.



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Size mm	CODE	Size mm
61 58 46	40 x 250	61 58 48	40 x 270
47	40 x 300	49	50 x 300

Non-Spark Combination Pliers, Slip Joint

Alicates Combinados Anti-chispa
防爆用コンビネーションプライヤー　防爆鲤鱼钳

Designed for maximum gripping capacity to round objects.



Unit Per Pr.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Length mm	CODE	Length mm
61 58 61	150	61 58 63	160
62	200	64	210

Non-Spark Side Cutting Pliers

Alicates Universales Anti-chispa　防爆用ペンチ　防爆钢丝钳

A non-sparking tool with powerful leverage and rigid side cutters.



Unit Per Pr.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Length mm	CODE	Length mm
61 58 67	180	61 58 70	150
68	250	71	170
		72	200

Non-Spark Radio Pliers

Alicates para radio sin chispa
防爆用ラジオペンチ　防爆无线电钳

Long thin taper nose for use in close quarters. An ideal tool for quick electrical and repair works.



Unit Per Pr.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Length mm	CODE	Length mm
61 58 75	150	61 58 76	160

Non-Spark Diagonal Cutting Pliers

Alicates diagonales Anti-chispa
防爆用斜角ニッパー　防爆斜口钳

This heavy duty diagonal cutting pliers is designed for cutting hard wires, etc. at close quarters.



Unit Per Pr.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Length mm	CODE	Length mm
61 58 80	150	61 58 81	150

Non-Spark Water Pump Pliers

Tenacillas de Canal Anti-chispa
防爆用ウォーターポンププライヤー
防爆水泵钳



61 58 85	Water pump pliers, special aluminium bronze	Pr.
86	Water pump pliers, beryllium copper alloy	"

Non-Spark Slotted Screwdrivers, Plastic Handle

Destornilladores Plaos Anti-chispa, Mango de Plástico
防爆用ドライバー　防爆塑料柄螺丝刀

Note: The sizes listed are of blade length only, not overall length.



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Blade mm	CODE	Blade mm
61 59 01	4.5 x 50	61 59 10	4.5 x 50
02	5 x 75	11	5.5 x 75
03	6 x 100	12	6 x 100
04	6 x 125	13	8 x 150
05	8 x 150	14	9 x 200
61 59 06	8 x 200	61 59 15	10 x 250
07	10 x 250	16	10 x 300
08	10 x 300		

Non-Spark Screwdrivers, Phillips, Plastic Handle

Destornilladores Anti-chispa, Philips, Mango de Plástico
防爆用プラスドライバー　防爆塑料柄十字螺丝刀

The sizes listed below are of blade size only, not overall length.



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Blade mm	CODE	Blade mm
61 59 20	No. 1 x 75	61 59 25	No. 1 x 75
21	2 x 100	26	2 x 100
22	3 x 150	27	3 x 150
23	4 x 200	28	4 x 200

Non-Spark Drum Opening Spanners

Llaves para Abrir Bidones Anti-chispa
防爆用ドラムスパナー　防爆开口板手

A tool specially designed to open drums, plugs, and caps of Japanese or foreign origin in an easy, quick, and safe way.



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Overall Length mm	CODE	Overall Length mm
61 59 36	520	61 59 37	560

Non-Spark Valve Wheel Wrenches

F Type

Llaves de Válvula anti-chispa/Tipo F
防爆用バルブホイールレンチＦ型　防爆阀盘板手

Specify length when ordering.



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Opening Width x Overall Length mm	CODE	Opening Width x Overall Length mm
61 59 40	30 x 300	**Round Bar**	
41	40 x 500	61 59 45	30 x 250
42	50 x 700	44	35 x 250
43	60 x 1,000	48	40 x 300
		49	44 x 350
		61 59 46	50 x 300
		47	65 x 500
		50	68 x 500
		56	68 x 600
		Square Bar	
		61 59 57	44 x 350
		62	60 x 500

Non-Spark Square Shovels

Palas Cuadrdas Anti-chispa　防爆用角スコップ　防爆方锹



Unit Per Pc.

Special Aluminium Bronze			Beryllium Copper Alloy		
CODE	Blade mm	O' all Length mm	CODE	Blade mm	O' all Length mm
61 59 51	180 x 225	910	61 59 54	180 x 220	910
52	250 x 300	970	55	255 x 300	970
53	280 x 355	1,060			

Non-Spark Round Shovels

Palas Redondas anti-chispa　防爆用丸型スコップ　防爆圆式铲



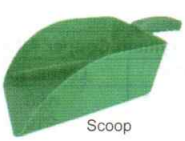
Unit Per Pc.

Special Aluminium Bronze			Beryllium Copper Alloy		
CODE	Blade mm	O' all Length mm	CODE	Blade mm	O' all Length mm
61 59 58	225 x 290	970	61 59 59	224 x 292	970

Non-Spark Fibreglass Square Scoops & Shovels

Palas Cuadradas de fibra de vidrio anti-chispa
防爆用ファイバーグラス角スコップ　防爆玻璃钢方形铲

Made of fibreglass, a non-sparking safety tool, also will not scrape or strip the protective coating of a tank when sludging. Heavy duty, lightweight and most suitable tool for sludging oil tanks. Available in Scoop & Shovel.



Scoop



Shovel

Unit Per Pc.

CODE	Description	Blade (mm)	O' all Length (mm)
61 59 60	Scoop, square fiberglass non-spark	167 x 220	330
61 59 61	Shovel, square fiberglass non-spark	290 x 445	1,040

Non-Spark Dust Pans

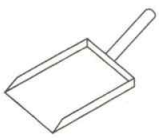
Recogedores anti-chispa　防爆用チリ取り　防爆簸箕



61 59 65



61 59 66



61 59 67

Unit Per Pc.

Aluminium			Special Aluminium Bronze		
CODE	Blade mm	O' all Length mm	CODE	Blade mm	O' all Length mm
61 59 65	160 x 240	460	**61 59 66**	100 x 150	320
			67	130 x 175	315

Non-Spark Putty Knives

Espátulas para Masilla Anti-chispa
防爆用パテナイフ　防爆油灰刀



Unit Per Pc.

Special Aluminium Bronze		Beryllium Copper Alloy	
CODE	Size mm	CODE	Size mm
61 59 70	75 x 175	**61 59 71**	35 x 190
		73	40 x 200
		74	50 x 200
		72	75 x 175
		76	75 x 200

Non-Spark Heavy Duty Knives

Espátulas Uso Intensivo Anti-chispa　防爆用シーナイフ　防曝水手刀

Edged cutting blade length is 150 mm and overall length is 265 mm.



61 59 75	Knife, heavy duty, beryllium copper alloy, non-spark	Pc.

Non-Spark Hatchets

Hachas que no generan chispas　防爆用手斧　防爆斧子

Made of beryllium copper alloy.



61 59 77	Hatchet, blade length 85 mm x overall length 365 mm, non-spark, beryllium copper alloy	Pc.

Non-Spark Leak Repair Tool Kits

Kits de herramientas de reparación de fugas sin chispa
防爆用漏洩補修工具キット　防爆泄漏维修工具包

The range of non-spark leak repair tool kit provides fire and explosion protection while you are doing pipe repair job in environments where there is concern about sparks igniting flammable solvents, vapors, liquids, dusts or residues.

This range consists of 5 different non-spark pipe repair tools and materials configuration based on different principles to provide solutions for different pipe repair demand.

Non-Spark Leak Repair Banding Tool Kits

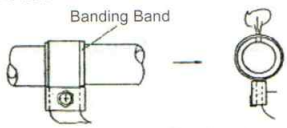
Kit de herramientas de bandas de reparación de fugas sin chispas
防爆用漏洩補修バンド工具キット　防爆泄漏维修工具包

This kit includes the banding band to compress the repaired part after sealing with sealing stick.

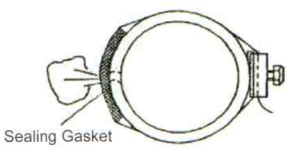
Features: Strong repair capacity but less consumables

Working temperature: −40 ~ +120°C,
Working pressure: 0 − 240 bar

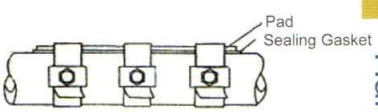




Small Diameter Pipe Repair



Big Diameteree Pipe Repair



Long Pipe Repair

Unit Per Set

CODE	61 59 78	
Model	XR-20a	
Content	Non-spark banding tool	1 pcs
	Non-spark banding band	2 rolls
	Non-spark banding buckle	10 pcs
	Non-spark wire brush	1 pcs
	Non-spark pad	9 pcs
	Magic steel repair stick 114 g	1 pcs
	Non-spark combination pliers	1 pcs
	Non-spark hammer	1 pcs
	Non-spark screwdriver (-)100 mm, (+)100 mm	2 pcs
	Non-spark adjustable wrench 150 mm, 300 mm	2 pcs
	Non-spark hexagon Allen key	1 pcs
	Non-spark flat chisel	1 pcs
	Rubber band 30 x 110 mm	2 rolls
	Aluminium storage box	1 pcs

Non-Spark Leak Repair Coupling Tools Kits

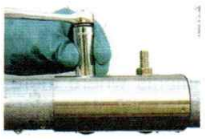
Kit de herramientas de acoplamiento de reparación de fugas sin chispa
防爆用漏洩補修カップリングキット　防爆泄漏修复耦合套件

This kit includes the coupling to compress the repaired part after sealing with magic steel stick. Can repair the pipe size from 3/8" to 5" in diameter.

Features: easy and quick operation

Working temperature: -35 ~ +91°C
Working pressure: 0 - 10 bar





Unit Per Set

CODE	61 59 79	
Model	XR-40c	
Content	Non-spark pipe repair coupling 10, 15, 25, 30, 38, 50, 64, 76, 100, 127 mm	7 pcs
	Non-spark bolt M12, M14	2 pcs
	Non-spark ratchet wrench 200 mm	1 pcs
	Non-spark double open wrench 17 × 19 mm	1 pcs
	Repair rubber pad 150 mm	10 pcs
	Magic-steel repair stick 114 g	1 pcs
	Non-spark deep socket 17 mm, 19 mm	2 pcs
	Aluminum storage box	1 pcs

Non-Spark Leak Repair Injection Tool Kits

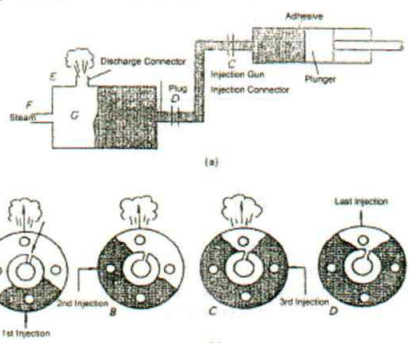
Kit de herramientas de inyección de reparación de fugas sin chispa
防爆用漏洩補修注入工具キット　防爆泄漏维修注射工具包

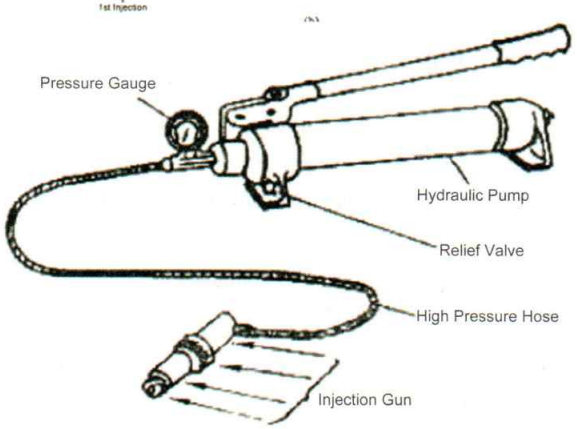


This kit is used to repair the high pressure and high temperature pipes or flanges. The hydraulic pump provides high power to the injection gun to penetrate the adhesives into the high pressure spraying leakage from cracks.

Features: High power, ideally to be used in extreme condition.

Working temperature: -200 ~ +600°C,
Working pressure: 0 – 320 bar





Unit Per Set

CODE	61 59 80	
Model	XR-31i	
Content	Hand hydraulic pump c/w coupler	1 pcs
	Hydraulic hose 2 m	1 pcs
	Non-spark injection gun	1 pcs
	Pressure Dial 60 MPa	1 pcs
	Non-spark piston valve	4 pcs
	Non-spark injection nut (M-12, 14, 16, 18, 20, 22, 24)	7 pcs
	Non-spark adjustable wrench 150 mm, 300 mm	2 pcs
	Non-spark double open wrench 14 x 17 mm, 19x22 mm	2 pcs
	Non-spark C-clamp	2 pcs
	Non-spark repair sticks red/green/white	3 box
	Aluminium storage box	1 pcs

Non-Spark Leak Repair Magnetic Pressing Tools Kits

Kit de herramientas de prensado magnético de reparación de fugas sin chispas
防爆用漏洩補修磁気プレス工具キット　防爆泄漏维修磁压工具包



This kit is suitable for using in the magnetically conductive metal surfaces. Place a magnet pad on the leaking surface while pressing the adhesive into the crack. The powerful magnetic force enhances the repairing ability.

Features: Precise and complicated operation is not required – only simply press and lift the magnet to fulfill the fixing process.

Working temperature: -40 ~ +80°C,
Working pressure: 0 - 30 bar

Unit Per Set

CODE	61 59 81	
Model	XR-11m	
Content	Non-spark magnet X300	1 pcs
	Non-spark connector 40 × 465 mm	1 pcs
	Non-spark bolt M14	2 pcs
	Non-spark wire brush	1 pcs
	Non-spark hammer	1 pcs
	Non-spark adjustable wrench 150 mm, 300 mm	2 pcs
	Non-spark double open wrench 14 × 17 mm, 19 × 22 mm	2 pcs
	Non-spark screwdriver (-)100 mm, (+)100 mm	2 pcs
	Lead Buckshot	9 pcs
	Non-spark repair plate 120 × 170 mm	4pcs
	Magic-steel repair stick 114 g	1 pcs
	Aluminium storage box	1 pcs

Non-Spark Leak Repair Wedges Kits

Kit de cuñas de reparación de fugas sin chispa
防爆用漏洩補修楔キット　防爆泄漏修复楔形工具包

This kit is used for all kinds of hole-like lower pressure repair operations. The wedges are made of red pine wood which is soft but tough, and can be easily and quickly fill the hole-like crack.

Features: Low cost and easiest operation, environment -friendly

Working temperature: -70 ~ +120°C,
Working pressure: -1 ~ 8 bar





Unit Per Set

CODE	61 59 82	
Model	XR-50w	
Content	Wood handle hammer Φ60 × 310 mm	1 pcs
	Cylinder taper wedge Φ7 x 50 × 255 mm	2 pcs
	Cylinder taper wedge Φ30 × 150 mm	2 pcs
	Taper wedge Φ25 × 100 × 60 mm	2 pcs
	Taper wedge Φ80 × 200 mm	2 pcs
	Taper wedge Φ45 × 100 mm	2 pcs
	Taper wedge Φ35 × 85 mm	2 pcs
	Taper wedge Φ30 × 85 mm	2 pcs
	Taper wedge Φ25 × 75 mm	2 pcs
	Triangle wedge 45 × 70 × 255 mm	2 pcs
	Triangle wedge 25 × 70 × 250 mm	2 pcs
	Triangle wedge 40 × 45 × 195 mm	2 pcs
	Triangle wedge 25 × 40 × 145 mm	2 pcs
	Triangle wedge 40 × 40 × 110 mm	2 pcs
	Aluminium storage box	1 pcs

43. Bahco Tools

Bahco tools are made of selected Swedish steel, produced from high-grade iron ore containing a minimum of impurities. High quality steel combined with precision manufacture, technical know-how and skilled craftsmanship have made Bahco Tools famous throughout the world

Adjustable Wrenches

Llaves Austables
バーコモンキースパナー
活动扳手



Unit Per Pc.

CODE	Length mm	Length inch	Max. Opening	Bahco Type No.
61 61 01	110	4-1/4	13 mm	8069
02	155	6	20 "	8070
03	205	8	27 "	8071
04	255	10	30 "	8072
05	305	12	34 "	8073
61 61 06	380	15	44 "	8074
07	455	18	53 "	8075
08	615	24	63 "	86
09	770	30	85 "	87

Pipe Wrenches

Bahco

Llaves para Tubo　バーコパイプレンチ　萬向管钳

Universal Pipe Wrench



Unit Per Pr.

CODE	Length mm	Max Opening	Bahco Type No.
61 61 11	215	30 mm	140
12	280	36 mm	141
13	370	52 mm	142
14	555	78 mm	143
15	720	110 mm	144
61 61 16	940	160 mm	147

Corner Pipe Wrench



Unit Per Pr.

CODE	Length mm	Max. Opening	Bahco Type No.
61 61 20	320	40 mm	442B
21	430	65 mm	443B
22	535	78 mm	444B

Open & 12 Point Box Wrenches

PU Type

Llaves Combinadas/Tipo PU
バーコ片目片口スパナー　开口和十二角套筒板手



Unit Per Pc.

CODE	Opening mm	Bahco Type No.	CODE	Opening mm	Bahco Type No.
61 61 29	6	PU 6	61 61 44	21	PU21
30	7	PU 7	45	22	PU22
31	8	PU 8	46	23	PU23
32	9	PU 9	47	24	PU24
33	10	PU10	48	25	PU25
61 61 34	11	PU11	61 61 49	26	PU26
35	12	PU12	50	27	PU27
36	13	PU13	51	28	PU28
37	14	PU14	52	29	PU29
38	15	PU15	53	30	PU30
61 61 39	16	PU16	61 61 54	32	PU32
40	17	PU17	57	36	PU36
41	18	PU18			
42	19	PU19			
43	20	PU20			

Pliers

Bahco

Alicates Boca　バーコペンチ　剪钳

Engineer's Sidecutting Pliers



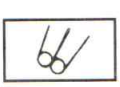
2628G

Unit Per Pr.

CODE	Length mm	Bahco Type No.
61 62 13	167	2628G - 160
14	187	2628G - 180
15	207	2628G - 200

Letter G stands for vinyl covered handle.

Round Nose Pliers




Unit Per Pr.

CODE	Length mm	Bahco Type No.
61 62 21	152	2521G - 140

Snipe Nose Pliers 60° offset



Unit Per Pr.

CODE	Length mm	Bahco Type No.
61 62 27	174	2427G - 160
28	190	2427G - 200

Nippers

Bahco

Alicates　バーコニッパー　剪钳

Side Cutting Nipper



Unit Per Pr.

CODE	Length mm	Bahco Type No.
61 62 31	140	1528 D

Bulldog End Cut Nipper



527D



1519D

Unit Per Pr.

CODE	Length mm	Bahco Type No.
61 62 36	160	527 D - 160
37	200	527 D - 200
40	230	1519 D

Cutters

Bahco

Herramientas de Corte　バーコカッター　切割工具

Bolt Cutter



Unit Per Pr.

CODE	Length mm	Capacity Wire ø	Bahco Type No.
61 62 51	465	6 mm	4559 -18
52	610	8 mm	4559 -24
53	760	9 mm	4559 -30
54	910	10 mm	4559 -36
55	1,070	11 mm	4559 -42

Cable Cutter



2520

Unit Per Pr.

CODE	Length mm	Cutting Capacity	Bahco Type No.
61 62 61	550	30 mm	2520

Screwdrivers

Destornilladores　バーコねじ回し　螺丝刀

Round Blade for Slot Head Screw.



Unit Per Pc.

CODE	Blade Length	Bahco Type No.
61 63 01	50 mm	BE-6110
02	75 mm	BE-6120
03	100 mm	BE-6130
04	125 mm	BE-6140
05	125 mm	BE-6150
61 63 06	150 mm	BE-6160

Round Blade for Cross Head Screw.



Unit Per Pc.

CODE	Tip No.	Blade Length	Bahco Type No.
61 63 10	0	60 mm	BE-5600
11	1	80 mm	BE-5610
12	2	100 mm	BE-5620
13	3	150 mm	BE-5630
14	4	200 mm	BE-5640

Blade with Hexagonal Section for Slot Head Screw.



Unit Per Pc.

CODE	Blade Length	Bahco Type No.
61 63 16	100 mm	BE-6850
17	150 mm	BE-6860
18	175 mm	BE-6870
19	200 mm	BE-6880
20	200 mm	BE-6890

Short Blade for Slot Head Screw.



Unit Per Pc.

CODE	Tip Size mm	Blade Length	Bahco Type No.
61 63 22	0.8 x 4.0	25 mm	BE-6540
23	1.2 x 8.0	25 mm	BE-6560

Short Round Blade for Cross Head Screw.

Unit Per Pc.

CODE	Tip No.	Blade Length	Bahco Type No.
61 63 27	1	25 mm	BE-5710
28	2	25 mm	BE-5720

44. Ridgid Tools

Adjustable Wrenches

Llaves Ajustables　リジッドモンキーレンチ　活动扳手



Unit Per Pc.

CODE	No.	Length		Jaw Open	
		inch	mm	inch	mm
		Chrome			
61 65 01	704	4	100	1/2	10
02	706	6	150	3/4	20
03	708	8	200	7/8	25
04	710	10	250	1-1/8	30
05	712	12	300	1-5/16	35
61 65 06	715	15	375	1-11/16	40
08	718	18	450	2-1/16	50
10	724	24	600	2-7/16	60
		Black			
61 65 11	704B	4	100	1/2	10
12	706B	6	150	3/4	20
13	708B	8	200	7/8	25
14	710B	10	250	1-1/8	30
15	712B	12	300	1-5/16	35
61 65 16	715B	15	375	1-11/16	40
18	718B	18	450	2-1/16	50

Straight Pipe Wrenches

Llaves "Stilson" リジッドストレートパイプレンチ 直管扳手



Unit Per Pc.

CODE	Overall Length in/mm	Jaw Opening in/mm	CODE	Overall Length in/mm	Jaw Opening in/mm
61 65 30	6/150	3/4 / 20	**61 65 35**	18/ 450	2-1/2 / 65
31	8/200	1 / 25	**36**	24/ 600	3 / 80
32	10/250	1-1/2 / 40	**37**	36/ 900	5 / 125
33	12/300	2 / 50	**38**	48/1,200	6 / 150
34	14/350	2 / 50	**39**	60/1,500	8 / 200

Aluminium Handle Straight Pipe Wrench

Llaves "Stillson" con Mango de Aluminio

リジッドアルミ柄ストレートパイプレンチ 铝柄管钳



Unit Per Pc.

CODE	No.	Handle Length inch/mm	Jaw Opening inch/mm	Weight lbs
61 65 42	810	10/ 250	1-1/2/ 40	1
43	814	14/ 350	2/ 50	2-1/2
44	818	18/ 450	2-1/2/ 65	3-3/4
61 65 45	824	24/ 600	3/ 80	6
46	836	36/ 900	5/125	11
47	848	48/1,200	6/150	18 - 1/2

Heavy-Duty Chain Wrenches

Llaves de Cadena Uso Intensivo

リジッド強力型 チェーンレンチ 重型链条扳手



Unit Per Pc.

CODE	No.	Capacity				Chain Length	
		Rated	Pipe	Actual O.D.			
		inch	mm	inch	mm	inch	mm
61 65 70	C-14	2	50	5	125	18-1/2	460
71	C-18	2-1/2	60	5	125	20-1/4	500
72	C-24	3	75	5	125	20-1/4	500
73	C-36	4-1/2	110	7-1/2	185	29	725

Strap Wrenches

Llaves con Correa (Llave de Fleje)

リジッドストラップレンチ 皮带扳手



Best for any polished pipe, strong woven nylon strap gives a tight grip and will not scratch the surface of the pipe.

Unit Per Pc.

CODE	No.	Capacity inch	Strap Width inch
61 65 76	1	1/8 ~ 2	1/2
77	2	1/8 ~ 2	1-1/8
78	5	1 ~ 5	1-3/4

Basin Wrenches

Llave Tuerca Lavabo Extensible リジッドベースンレンチ 盆扳手



An extension wrench specially designed for the installation or repair of sink basins. Spring loaded jaws provide fast one hand ratcheting in confined, difficult to reach areas.

Unit Per Pc.

CODE	No.	Shank Length	Capacity
61 65 90	1010	10"	3/8 - 1-1/4"
61 65 91	1017	1 -17"	3/8 - 1-1/4"
61 65 92	1019	1 -17"	1-1/4" - 2-1/2"

Offset Hex Wrenches

Llaves Allen (Hexagonal) Acodada

リジッドオフセットヘックスレンチ 弯形六角管钳



Unit Per Pc.

CODE	No.	Capacity	Jaw Opening	Length
61 65 94	E - 110	1-1/8" - 2-5/8"	2-5/8"	9-1/2"

Exposed Ratchet Drop Head Threaders

for Pipe Thread

Tarrajas co Carraca de Cabezas Intercambiables

リジッドドロップヘッドスレッダー 沉头棘轮功丝扳手



This ratchet allows you to thread easily with a manual operation. This drop head style threader comes with a complete set of the necessary die sizes. Ratchet will cut a clean thread on the first time, it is not necessary to make a secondary cut.

Unit Per Set

CODE	No.	Capacity for Thread BSPT
61 66 01	00-R	1/8 to 1
03	12-R	1/8 to 2
04	R-200	1/8 to 2

Die Head for Drop Head Threaders

Cabezas para Terrajas

リジッドドロップヘッドスレッダー用ダイヘッド 功丝头

British standard pipe taper threaded head will be delivered unless another type of thread is specified.

Unit Per Pc.

Size	No.00-R	No.12-R	No.R-200
	CODE		
1/8	**61 66 05**	**61 66 30**	**61 66 91**
1/4	**06**	**31**	**92**
3/8	**07**	**32**	**93**
1/2	**08**	**33**	**94**
3/4	**09**	**34**	**95**
1	**61 66 10**	**61 66 35**	**61 66 96**
1-1/4		**36**	**97**
1-1/2		**37**	**98**
2		**38**	**99**

Metal Carrying Cases

for Drop Head Pipe and Bolt Threader

Estuches Metálicos para Terrajas
リジッドドロップヘッドスレッダー用金属ケース
管纹和螺栓功丝板手工具箱



Unit Per Pc.

CODE	Threader Type for	Weight kg
61 66 45	00 - R	3.4
47	12 - R	6.3

Ratchet Bolt Threaders

Tarrajas Ajustables
リジッドラチェットボルトスレッダー　棘轮螺栓攻丝板手

When ordering, please specify type of thread.



Unit Per Pc.

CODE	No.	Capacity	
		inch	mm
61 66 54	00 - RB	1/4-1	6-25

Ratchet Threaders

Tarrajas co carraca
リジッドラチェットスレッダー　棘轮螺栓攻丝板手

British standard pipe taper thread will be delivered unless another type of thread is specified.



Unit Per Pc.

CODE	No.	Capacity	
		inch	mm
61 66 56	65R - TC	1-2	25-50

Dies for Ratchet Threaders

Peines para Terrajas con Carraca
リジッドラチェットスレッダー用ダイス　棘轮攻丝板牙



Unit Per Pc.

CODE	61 66 57	61 66 58	61 66 59	61 66 60
Size	1"	1-1/4"	1-1/2"	2"

Pipe Cutters

Ridgid

Corta-tubos Uso Intensivo
リジッド強力型パイプカッター　強力切管器

Heavy-Duty Pipe Cutters



1-A & 2-A



3-S, 4-S and 6-S

Unit Per Pc.

CODE	No.	Capacity	Weight lbs/kg
61 66 63	1 - A	1/8 - 1-1/4"	6-1/2 / 3.0
64	2 - A	1/8 - 2"	7-1/4 / 3.2
61 66 68	3 - S	1" - 3"	15 / 6.8
69	4 - S	2" - 4"	18 / 8.2
70	6 - S	4" - 6"	24 / 10.1

Wide Roll Pipe Cutters



Unit Per Pc.

CODE	No.	Capacity		Weight kg
		inch	mm	
61 66 66	202	1/8 - 2	3-50	3.5

Heavy Duty 4-Wheel Pipe Cutters



No. 42-A



No. 44-S

Unit Per Pc.

CODE	No.	Capacity	Weight lbs/kg
61 66 72	42 - A	3/4" - 2"	7/3.1
73	44 - S	2-1/2" - 4"	20/9.0

Spare Wheels for Ridgid Pipe Cutter



Unit Per Pc.

CODE	No.	Pipe Cutter Model	Range mm
61 66 75	F - 3	1-A, 2-A, 202, 42A	1/8 to 2"
76	F - 229	3-S, 4-S, 44-S	1 to 4"
77	F - 367	6-S	4 to 6"

Bolt Cutters

Corta-permos
リジットボルトカッター　螺栓剪刀



Unit Per Pr.

CODE	No.	Cut Diam inch/mm	Length inch/mm	Remark
61 66 80	N14S	1/4 / 6	15 / 379	Center Cut
81	N18S	5/16 / 8	19 / 485	"
82	N24S	3/8 / 10	26 / 652	"
83	N30S	7/16 / 11	31 / 800	"
84	N36S	1/2 / 13	38 / 958	"
61 66 85	N42S	9/16 / 14	44 / 1,115	Center Cut

Tubing Cutters

Ridgid

Cortatubos, Ridgid　リジットミゼットチューブカッター　切管器

Midget Tubing Cutters



Unit Per Pc.

CODE	No.	Capacity		Length
		inch	mm	
61 67 51	103	to 5/8" O.D.	to 16 O.D.	54
52	104	to 15/16" O.D.	to 24 O.D.	65

Tubing Cutters



Unit Per Pc.

CODE	No.	Capacity		Weight kg
		inch	mm	
61 67 54	150	1/8 - 1-1/8 O.D.	3-28 O.D	0.4

Quick Acting Tubing Cutters



Unit Per Pc.

CODE	No.	Capacity O.D.mm	Weight kg
61 67 60	151	6 - 42	0.4
61	152	6 - 66	0.9
62	153	32 - 90	0.9
63	154	48 - 116	1.4
64	156	100 - 170	1.9

Flaring Tools

Abocinadores フレアリング工具 扩管工具



Unit Per Set

CODE	No.	Flare	Tube Diameter O.D.
61 67 73	458	45°	1/8, 3/16, 1/4, 5/16, 3/8, 1/2, 5/8, 3/4
61 67 75	455	45°	1/2, 5/8, 3/4, 7/8, 1
61 67 76	377	37°	3/16, 1/4, 5/16, 3/8, 1/2, 5/8, 3/4
61 67 77	375	37°	1/2, 5/8, 3/4, 7/8, 1
61 67 78	458MM	45°	4, 4.75, 6, 8, 10, 12, 14, 16 mm

Tube Benders

Ridgid

Curvadoras de Tubo Tipo Palanca チューブベンダー 田埂式弯管机

Lever-Type Tube Benders



Unit Per Set

CODE	No.	Tube Diam O.D.	CODE	No.	Tube Diam O.D.
61 67 80	403	3/16"	**61 67 86**	406M	6 mm
81	404	1/4"	**87**	408M	8 mm
82	405	5/16"	**88**	410M	10 mm
83	406	3/8"	**89**	412M	12 mm
85	408	1/2"			

General Ratchet Lever-Type Tube Benders



Unit Per Set

CODE	No.	Tube Diam O.D.
61 67 92	358	For 5/8"
93	368	For 3/4"
94	378	For 7/8"

Hickey Type Heavy Wall Conduit Benders

Tenanza Curvadora Manual Uso Intensivo
リジッドヒッキー型コンジットベンダー
厚壁管弯管器



Unit Per Pc.

CODE	No.	Capacity mm	Weight kg
61 67 98	B - 1711	12, 19	1.3
99	B - 1712	25, 32	3.5

45. Torches / Leak Detectors

Kerosene Torches

(Blow Lamps)

Soplete de Keroseno ケロシントーチ 煤油喷灯

This powerful burner produces a strong blue blast. The flame can be regulated as required for the job. Only to be operated with kerosene.



Unit Per Pc.

CODE	Thank Capacity	CODE	Thank Capacity
61 70 05	1 ltr	**61 70 07**	2 ltr
06	1.5 ltr		

Compact Gas Torches

Soplete Butano de Cartucho コンパクトガストーチ 小型气体喷灯

Lightweight, compact torch for soldering or fusing wax, paint, etc. Be careful not to open the cartridge when there is still some propane remaining inside. Specify whether the full set or the spare cartridge only is required when ordering.



Wide Cartridge



Long Cargridge

61 70 16 17	Complete Set with Burner, wide cartridge Spare gas wide cartridge	Set Pc.
61 70 18 19	Complete set with burner, long cartridge Spare gas long cartridge	Set Pc.

Refrigerant Gas Leak Detectors

Detector de fugas de gas refrigerante
冷媒ガス漏れ検知器　制冷气体泄漏探测器



Used to quickly and accurately isolate leaks in all commercial, industrial and automotive air conditioning and refrigeration systems. It detects all HFC, CFC and HCFC refrigerants including R134A, R12 as well as blends such as R404A, R407C, R410A, and others.

Fully automatic and requires very little power to operate by using state of the art microprocessor controlled technologies.

A spare sensor housed in the battery compartment, also insures no down time when sensors are damaged or need replacing (For TA 430VA).

Features:
- Simple, one button operation.
- Four sensitivity modes, 2 zero-resets for enabling quick and easy location of large and small leaks.
- Both visual and audible leak detection signal.
- Low battery indicator.
- Automatic power-off to conserve battery life.

Unit Per Pc.

CODE	61 70 22	61 70 23
Model	TA430VA	TA430FR
Applicable refrigerants	HFC/CFC/HCFC	HFC/CFC/HCFC/HFO
Batteries	2 x 1.5V 'AA' Alkaline Batteries (3 VDC)	Rechargeable Lithium Battery (DC 3.7 V)
Working Temperature	5 - 40°C	0 - 40°C
Gas Sampling Method	Suction Type	NDIR Sensor
Sensitivity	< 3g/year	< 1g/year
Sensor Lifetime	Approx. 30 hours	-
Probe Length	300 mm	190 mm
Dimensions (mm)	190 × 57 × 38	290 × 320 × 110
Weight (kg)	0.19	1.42

Name of Mfr. : Core Enterprises Inc., Field piece

Foam Leak Detectors

Detectores de fugas de espuma
泡式ガス漏れ検知スプレー　泡沫气体泄漏检测喷雾器



A nonflammable, sensitive spray which will safely and effectively detect all kinds of gas or air leaks in seals, valves, cylinders, pipes, tanks, etc. When sprayed on the surface where a leak exists, it will detect by foaming, even in the low pressure leaks. It is not harmful to one's health and it has no effect upon the surface where sprayed. Foam leakage test shows foaming at 30 µm hole and differential pressure of 4-5 x 10^3 Pa. NSF or other standard approved type is also available where you can use in galley.

61 70 24	Foam leak detector, 345 grm	Tin

Leak Detectors Dye Check

Detectores de fugas Dye Check
リークディテクター カラーチェック　检漏仪 染色检查



Used for dye checking cracks for leaks. It consists of three different aerosol liquids to be used as cleaner, penetrant, and developer. Each aerosol can contains 300 cc (10 oz).

61 70 27	Leak detector, dye check, cleaner, 300 cc	Tin
61 70 28	Leak detector, dye check, penetrant, 300 cc	Tin
61 70 29	Leak detector, dye check, developer, 300 cc	Tin
61 70 30	Leak detector, dye check, 300 cc, 3 each/set	Set
61 70 26	Leak detector, dye check, 300 cc, 6's/set Cleaner x 3, Penetrant x 1, Developer x 2	Set

46. Ladders

Aluminium Alloy Ladders

Escaleras de Aluminio　アップラダー　铝合金梯

Straight Ladders



A common general purpose ladder made of aluminium alloy available up to 6.0 meters length. Non-slip round rungs and non-slip rubber guide shoes at the bottom. Has 35 cm (13-3/4") stepping space.

Unit Per Set

CODE	Length mtrs	Safety Load at 75° Lean kg	Weight kg
61 71 01	2.4	100	4.3
02	3.0	150	6.5
03	4.0	150	8.4
04	5.0	150	10.3
05	6.0	150	12.2

2-Extension Ladders

Escaleras con 2 Extensiones de Aluminio
アルミ合金二連伸縮はしご　铝合金双股伸缩梯



Made in two sections from aluminium alloy with round non-slip rungs. Has non-slip rubber shoes at the bottom end with an automatic spring lock on each step which has a 35 cm stepping space. Easy to carry and set up wherever it is required.

Unit Per Set

CODE	Length		Safety Load at 75° Lean kg	Weight kg
	Extended mtrs	Folded mtrs		
61 71 10	4.5	2.8	100	10.5
11	5.1	3.1	150	13.5
12	6.5	3.8	150	16.2
13	7.2	4.1	150	18.3
14	7.8	4.4	150	19.7
61 71 15	9.2	5.1	150	26.2
16	10.6	5.8	150	29.5

3-Extension Ladders

Escaleras con 3 Extensiones de Aluminio
アルミ合金三連伸縮はしご　铝合金三股伸缩梯

Made in three sections of aluminium alloy with non-slip rungs and self-aligning safety shoes. Please specify the extended length when ordering.



Unit Per Set

CODE	Length		Safety Load at 75° Lean kg	Weight kg
	Extended mtrs	Folded mtrs		
61 71 20	6.5	3.1	150	20.4
21	8.5	3.8	150	28.6
22	10.6	4.5	150	39.6
23	12.6	5.2	150	45.9
24	14.7	5.8	150	52.0

Aluminium Alloy Step Ladders

Escaleras Tijera de Alumino
ハイステップ　　铝合金踏步梯

A strong framed step ladder for use indoors or outdoors when cleaning, painting, or doing repair work. Each step is flat with non-slip gridding and there are non-slip rubber guide shoes at the bottom of the support legs. This ladder will safely support up to 100 kg of weight for up to 0.6 mtr height, and up to 160 kg of weight for 0.9 mtr height and more.



Unit Per Set

CODE	Height mtrs	Nos. of Steps	Weight kg
61 71 25	0.3	2	1.6
35	0.6	2	2.3
26	0.9	3	3
27	1.2	4	4
28	1.5	5	5
61 71 29	1.8	6	6
30	2.1	7	10
31	2.4	8	11.3
32	2.7	9	12.6
33	3.0	10	14
61 71 34	3.6	12	17

Aluminium Alloy Folding Ladders

Escaleras Plegables Tijera-Extensible de Aluminio
二つ折りアップラダー　　铝合金折叠梯

Can be used as an extended-straight-folded-or step ladder. Non-slip round steps and non-slip rubber shoes at the bottom ends. Please specify the extended length when ordering.



Unit Per Set

CODE	Length		Weight kg
	Extended mtrs	Folded mtrs	
61 71 36	2.0	0.9	6.2
37	2.7	1.2	7.6
38	3.4	1.5	9.3
39	4.1	1.9	11.2
40	4.8	2.2	13.2

Aluminium Alloy Extension Ladders

Escaleras de extensión de aleación de aluminio
アルミ合金製伸縮はしご　　铝合金伸缩梯

A compact storage size W:480 x D:83 x H:860 mm, and suitable for working at high place by extending to max length 3,800 mm. Max. withstand load: 100 kgs. Weight: 10 kg.



61 71 41	Ladder, extension, aluminium alloy, Max length 3,800 mm	Pc.

Aluminium Alloy Scaffolding Stands with Telescopic Leg

Andamios de aleación de aluminio con pata telescópica
アルミ製伸縮脚付足場台　　带伸缩支腿的铝制脚手架平台

Scaffolding stands equipped with telescopic legs made of aluminium alloy. The telescopic legs can be extended or retracted to achieve varying heights, ensuring adaptability to various environment for maintenance work.



Unit Per Pc.

CODE	Size mm		Load Capacity (kg)
	Top Panel	Adjustable Height	
61 71 06	400 × 881	730 – 1,030	100
07	400 × 1,200	730 – 1,030	100
08	400 × 1,200	1,030 – 1,470	100

Aluminium Alloy Foldable Working Benches

Bancos de trabajo plegables de aleación de aluminio
アルミ合金製折り畳み式作業台　　铝合金可折叠工作台

A foldable working bench made of aluminium alloy. Easy to carry and place it at your favorable working place. Please make sure to lock the foot holding stoppers before stepping on.



Outer size: W410 × D1,100 × H500 mm, Stage size: 300 × 680 mm. Max. withstand load: 100 kg. Weight: 3.5 kg.

61 71 42	Bench, working, foldable, Aluminium alloy, W410 x D1,100 x H500 mm	Pc.

Aluminium Alloy Working Benches

Banco de trabajo de aleación de aluminio
アルミ製作業台　　铝制工作台

Working bench made of aluminium alloy. You can select from 1 to 5 levels depending on your work applications. Handrail for high level bench is also available for your safety.



Unit Per Set

CODE	Level	Size mm		Load Capacity (kg)
		Panel	Height	
61 71 09	1	600 × 400	300	150
17	2	600 × 400	600	150
18	3	600 × 400	900	150
19	4	800 × 400	1,200	150
43	5	1,000 × 400	1,500	150

47. Trucks / Carriers

Wheelbarrows

Carretilla　手押し一輪車　手推车

A small hand-propelled vehicle with one or two wheels.





Unit Per Pc.

CODE	61 71 45	61 71 46
Wheel	One	Two

Spare Wheels for Wheelbarrow

Unit Per Pc.

CODE	For	Type	Size
61 71 47 **48**	One-wheel	Air inflated Puncture-less	13" x 3"
61 71 49	Two-wheels	Solid	26" x 2-1/2"

Platform Trucks

Carros-Plataformas　手動運搬車　手推车

With One Handle

For moving and handling all sorts of goods easily from on deck to storage facilities or accommodations. The cart has a steel platform and handle with solid cushion wheels. There are two swivel wheels located at the front and two straight wheels at the rear.



Unit Per Pc.

CODE	Platform mm	Loading kg	CODE	Platform mm	Loading kg
61 71 51	500 x 750	200	**61 71 54**	750 x 1,200	500
52	600 x 900	300	**55**	900 x 1,500	750
53	710 x 1,000	320			

With Two Handles

Steel plate platform and handles. Has two swivel solid cushion wheels on one side and two rigid on the other. Platform sizes larger than those listed below can be supplied but require some delivery time.



Unit Per Pc.

CODE	Platform mm	Loading kg	CODE	Platform mm	Loading kg
61 71 58	500 x 750	200	**61 71 61**	750 x 1,200	500
59	600 x 900	300	**62**	900 x 1,500	750
60	710 x 1,000	400			

Light Duty with Detachable Handle

For handling general merchandise. Has a steel platform and a pipe handle. The two front tires are swivel air cushion tires and the tires at the rear are straight set tires. Platform sizes smaller or larger than the size listed below are available but may require some delivery time.



61 71 64	Truck (lorry), detachable handle with 4 tires, light duty 800 x 1,200 mm	Pc.

Spare Wheels for Platform Truck

Solid rubber cushion wheel, available in free swivel and fixed types.





Unit Per Pc.

Free Swivel		Fixed	
CODE	Diam. mm	CODE	Diam. mm
61 71 66	100	**61 71 74**	100
67	130	**75**	130
68	150	**76**	150
69	180	**77**	180
70	200	**78**	200
61 71 71	250	**61 71 79**	250
72	300	**80**	300

Folding Handy Trucks

Carritos Prácticos Plegables
折りたたみ運搬車　折叠式平板手推车

Folding type handy truck. Lightweight and compact but sturdy.



Unit Per Pc.

CODE	Table Size	Weight kg	CODE	Table Size	Weight kg
61 71 82	450 × 710	11	**61 71 83**	600 × 900	24
81	515 × 815	17.5			

Shovel Nose Hand Trucks

Carretillas para Uso-general　丁稚車　普通型推车

Wood

For use in handling cartons, boxes, bags or crates of stores. Made of wood and iron reinforced. Has two solid cushion tires. Platform size is 450 mm in width and 1,750 mm overall length.



Unit Per Pc.

CODE	Wheel	Load Capacity
61 71 84 **85**	Rubber cushion solid tires Steel wheels	500 kg

Steel

For use in handling cartons, bags, etc. Has a steel frame and rubber solid cushion tires.



Unit Per Pc.

CODE	Size H x W x L mm	Load Capacity kg
61 71 86	1,180 x 500 x 500	120
87	1,180 x 480 x 480	180
88	1,780 x 630 x 530	500

Foldable Type

Foldable type aluminium alloy made hand truck for compact storage. It is surrounded on all four sides by boards, so even small items will not be dropped during transport.



Unit Per Pc.

CODE	Size LxWxH mm		Load Capacity (kg)
	In use	Folded	
61 71 89	1,860 × 870 × 630	1,020 × 370 × 750	150
98	2,110 × 1,090 × 810	1,340 × 370 ×810	150

Carriers

Carretillas Portabotellas　運搬車　搬运车

Gas Cylinder Carriers

For carrying acetylene oxygen and other gas cylinders. Made from strong steel frames with rubber solid cushion tires. One or two cylinder carriers are available.



Unit Per Pc.

CODE	For Gas Cylinder	Size H × W × L mm
61 71 90	Oxygen x 1	1,300 x 460 x 670
91	Oxygen x 1 / Acetylene x 1	1,200 x 830 x 600
92	Propane x 1	1,600 x 400 x 400

Drum Carriers

Made of sturdy steel frames and designed for the easy lifting and carrying of drums. Available with air cushioned tires or solid rubber tires. The width is 450 mm and the overall length including the handle is 1,550 mm.



Unit Per Pc.

CODE	Description
61 71 93	With two solid rubber tires
94	With two air cushion rubber tires

Hydraulic Hand Pallet Trucks

Transpaletas manuales hidráulicas

油圧手動パレットトラック　液压手动托盘搬运车

Hydraulic powered, hand fork-lift truck. Recommended for handling heavy materials and crates in warehouses and freight terminals. When ordering, please specify the capacity required.



Unit Per Set

CODE	Capacity	Fork Length	Weight
61 71 96	1.5 ton	1,070 mm	77 kg
97	2.5 ton	1,070 "	99 "

48. Roller Conveyors / Mesh Box Pallets

Aluminium Roller Conveyor Units

Transportador a Rodillos de Aluminio

アルミ製ローラーコンベヤ　铝制滚轮传送带

Lightweight aluminium conveyor belts which are easy to maneuver and convenient for moving or loading large amounts of stores or moving frozen and fresh provisions to refrigerated storage lockers. Any package with a smooth surface will roll easily on this conveyor. Please specify the length of the conveyor required when ordering.



61 72 01 ~ 03



61 72 04

Unit Per Pc.

CODE	Unit Length	Roller Width	Number of Rollers	Weight
61 72 01	1.5 Mtr	300 mm	15	9.8 kg
02	2.0 "	300 "	20	13.2 "
03	3.0 "	300 "	30	15.5 "
04	Corner 90°	300 "	19	13.2 "

Mesh Box Pallets

Pallets de Malla Metálica Plegable　ボックスパレット　搬运篮

A foldable container made of strong, galvanized iron wire mesh with steel pallets at the bottom. Useful for the loading, unloading, and transporting of stores. They can be piled one upon the other and handled by slings using suspenders, pallet jacks, or forklifts.



Unit Per Pc.

CODE	Dimensions mm.			Mesh mm.	Wire Diam. mm.	Weight Capacity kg
	W	L	H			
61 72 10	800	1,000	850	50 × 50	6.5	1,500
11	1,000	1,000	850	50 × 50	6.5	1,500
12	1,000	1,200	850	50 × 50	6.5	2,000

49. Universal Joints

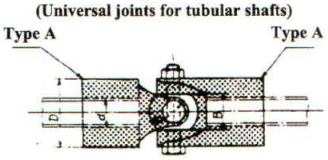
Marine Universal Joints

Unines Universales Marinos　船用自在継手　船用万向接头

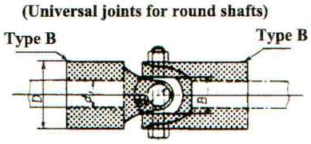
(Ref. JIS F-7452-1978)

These universal joints are used for such operating gears as water sliding doors, sky lights, valves for ventilation, valves for piping, main engine revolution indicators, or transmission gears in ships. They are classified into 4 main types according to the shape of the coupling applicable to the transmission shaft and fixing method of the shaft as shown below.

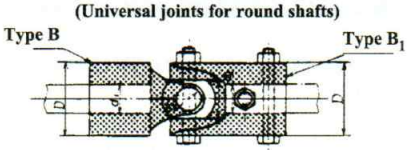
Type AA
(Universal joints for tubular shafts)



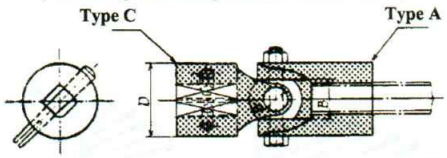
Type BB
(Universal joints for round shafts)



Type BB_1
(Universal joints for round shafts)



Type AC
(Universal joints for square and tubular shafts)



Type of Yoke	Shape of Coupling	Applicable Transmission Shaft	Fixing Method
A	Round Hole	Tubular Shaft	Welding
B	"	Round "	"
B_1	"	" "	Bolt
C	Square Hole	" "	Pin

And also classified into four types, AA, BB, BB_1 and AC by combining the above types. See illustrations above.

Shaft Size Table

Unit: mm

Nominal Size	Dia. of Applicable Trans. Shaft		Type A	Type B, B_1	Type C
	Tubular Shaft O.D.	Round Shaft	Tube Shaft Hole Dia.	Round Shaft Hole Dia.	Square Shaft Side Length
20	21.2	20	27.7	20.5	17
25	34	25	34.5	25.5	19
32	-	32	-	32.5	22
38	-	38	-	38.5	27
40	48.6	-	49.1	-	-
42	-	42	-	42.5	32
48	-	48	-	48.5	36

Dimensions of steel pipes for transmission shaft for Type A

Nominal Size of Universal Joint	Carbon Steel Pipe for Ordinary Piping		
	Outside Dia.	Thickness	Inner Dia.
20	27.2	2.8	21.6
25	34.0	3.2	27.6
40	48.6	3.5	41.6

Materials are usually steel or, stainless steel. Specify when ordering.

How to order: CODE

Universal joint, TYPE of COMBINATION, NOMINAL SIZE, MATERIAL

Unit Per Pc.

Nominal Size	Material	Type			
		AA CODE	BB CODE	BB_1 CODE	AC CODE
20	Steel	**61 72 40**	**61 72 47**	**61 72 54**	**61 72 61**
25		**41**	**48**	**55**	**62**
32		**42**	**49**	**56**	**63**
38		**43**	**50**	**57**	**64**
40		**44**	**51**	**58**	**65**
42		**61 72 45**	**61 72 52**	**61 72 59**	**61 72 66**
48		**46**	**53**	**60**	**67**
20	Stainless Steel	**61 72 70**	**61 72 77**	**61 72 84**	**61 72 91**
25		**71**	**78**	**85**	**92**
32		**72**	**79**	**86**	**93**
38		**73**	**80**	**87**	**94**
40		**74**	**81**	**88**	**95**
42		**61 72 75**	**61 72 82**	**61 72 89**	**61 72 96**
48		**76**	**83**	**90**	**97**

50. Lubricators / Grease Pumps

A pump unit for all types of lubricants which is easy to handle and maneuver making it suitable for work on ships as well as industrial plants or repair shops. The lubricant container is easy to open and refill. When ordering, please specify whether the lubricator you require is for oil or grease use.

Grease Pumps

Air Operated

Engrasadora/Neumática　エアグリース給油機　气动给油机



Air operated grease pump for use with 16 kg to 220 kg pail can. A set consists of a pump, drum cover, follow plate, and grease hose. Air inlet size is 1/4" G (PF).


Drum Cover


Hose


Follow Plate

Pump

How to order: CODE

Grease pump, air operated, for DRUM CAPACITY kg, PUMP RATIO

Unit Per Set

CODE	For Drum kg	Pump Ratio	Grease Feed Delivery	Shank mm	
				Diam	Length
61 74 01	16/ 20	44 : 1	500 grm/min.	30	410
02	20/ 30	44 : 1	500	30	470
03	50/ 60	44 : 1	500	30	730
04	180/ 220	44 : 1	500	30	940
05	50/ 60	54 : 1	900	30	730
61 74 06	180/ 220	54 : 1	900 grm/min.	30	940

Accessories for Air Operated Grease Pump

Accessorios para Engrasadora Neumática

エアグリース給油機用アクサリー　气动给油泵配件

For use with above air operated grease pumps.



CODE	Description		Unit
61 74 11	Grease gun	w/bent flexible pipe	Set
12	"	w/flexible pipe & swivel joint	"
13	"	w/straight flex pipe	"
14	"	w/rigid pipe	"
15	Triple swivel joint		Pc.
61 74 16	90° swivel joint		Pc.
17	Single swivel joint		"
18	Steel connection 1/4" x 1/4" - 3/8" x 1/4"		"
19	4 jaw grease fitting		"

Lubrication Piston Pumps

Bomba de Pistón de Aceite
ルブリケーションピストンポンプ　活塞泵

This pump is the ideal solution for pumping motor oil, gear oil and transmission fluid. For the purpose of making ordering easier, we have provided the following ordering table composed of the most practical specifications for marine use. For any further detailed information please contact your local supplier.



LM2203A Series



LM2305A Series

Performance Specifications

Model	LM2203A Series	LM2305A Series
Ratio	3:1	5:1
Air Motor Diameter	2"	3"
Stroke	3"	
Air Inlet Pressure	150 psi max.	

Unit Per Set

CODE	Model	Thread	Max. GPM		Air Inlet NPT (F)	Fluid Inlet / Outlet NPT (F)	Container Size
			Max. Flow	Free Flow			
2" Diameter Air Motor							
61 74 21	LM2203A-11-C	NPT	6	9	1/4"	3/4 / 1/2	Stub
22	LM2203A-12-C	BSP					
23	LM2203A-31-C	NPT	6	9	1/4"	3/4 / 1/2	16 Gallon
24	LM2203A-32-C	BSP					
25	LM2203A-41-C	NPT	6	9	1/4"	3/4 / 1/2	55 Gallon
26	LM2203A-42-C	BSP					
27	LM2203A-51-C	NPT	6	9	1/4"	3/4 / 1/2	275 Gallon
28	LM2203A-52-C	BSP					
3" Diameter Air Motor							
61 74 31	LM2305A-11-B	NPT	6	9	1/4"	1-1/2 / 1/2	Stub
32	LM2305A-12-B	BSP					
33	LM2305A-31-B	NPT	6	9	1/4"	1-1/2 / 1/2	16 Gallon
34	LM2305A-32-B	BSP					
35	LM2305A-41-B	NPT	6	9	1/4"	1-1/2 / 1/2	55 Gallon
36	LM2305A-42-B	BSP					
37	LM2305A-51-B	NPT	6	9	1/4"	1-1/2 / 1/2	275 Gallon
38	LM2305A-52-B	BSP					

Name of Mfr.: Ingersoll-Rand

Grease Piston Pumps

Bomba de Pistón Grasa　グリースピストンポンプ　活塞泵

These Pumps deliver unmatched performance for pumping grease with sizes to fit 35 to 400 lb. containers and working flow rates from two to four gallons per minute. For the purpose of making ordering easier, we have provided the following ordering table composed of the most practical specifications for marine use. For any further detailed information please contact your local supplier.



LM2250E Series



LM2350E Series

Performance Specifications

Model	LM2250E Series	LM2350E Series
Ratio	50:1	
Air Motor Diameter	2"	3"
Stroke	3"	
Air Inlet Pressure	150 psi max.	

Unit Per Set

CODE	Model	Thread	Flow Lbs. per Min.		Air Inlet NPT (F)	Fluid Outlet NPT (F)	Container Size
			Working	Free			
2" Diameter Air Motor							
61 74 41	LM2250E-21-B	NPT	2 lbs	9.0 lbs	1/4"	3/8	35 lbs
42	LM2250E-22-B	BSP					
43	LM2250E-31-B	NPT	2 lbs	9.0 lbs	1/4"	3/8	120 lbs
44	LM2250E-32-B	BSP					
45	LM2250E-41-B	NPT	2 lbs	9.0 lbs	1/4"	3/8	40 lbs
46	LM2250E-42-B	BSP					
47	LM2250E-61-B	NPT	2 lbs	9.0 lbs	1/4"	3/8	60 lbs
48	LM2250E-62-B	BSP					
3" Diameter Air Motor							
61 74 51	LM2350E-21-B	NPT	4 lbs	7.5 lbs	1/4"	3/8	35 lbs
52	LM2350E-22-B	BSP					
53	LM2350E-61-B	NPT	4 lbs	7.5 lbs	1/4"	3/8	60 lbs
54	LM2350E-31-B	NPT	4 lbs	7.5 lbs	1/4"	3/8	120 lbs
55	LM2350E-32-B	BSP					
56	LM2350E-41-B	NPT	4 lbs	7.5 lbs	1/4"	3/8	400 lbs
57	LM2350E-42-B	BSP					

Name of Mfr.: Ingersoll-Rand

Oil and Grease Pumps

Bombas de aceite y grasa　オイル＆グリースポンプ　油和油脂泵

Oil Pumps


Fast-Ball®


Mini Fire-Ball® 225


Fire-Ball® 300


Fire-Ball® 425

Model	Features
Fast-Ball®	Ideal for onboard lower volume and short-run transfers of petroleum and synthetic based oils. The in-line design features fewer parts for minimal pump wear.
Mini Fire-Ball® 225	Great for low to medium volume applications. Available in 3:1 and 50:1 packages.
Fire-Ball® 300	Ideal for medium volume applications, the Fire-Ball 300 set the industry standard for years of reliable service. Available in ratios of 5:1, 15:1 and 50:1.
Fire-Ball® 425	With a robust design, the Fire-Ball is the pump of choice for your most demanding high volume applications. Available in ratios of 3:1, 6:1, 10:1, 50:1 and 75:1.

Unit Per Pc.

CODE	61 74 61	61 74 62	61 74 63	61 74 64
Model	Fast-Ball	Fast-Flo	Fast-Flo SST	Mini Fire-Ball 225
Pump Ratio	1 :1			3 : 1
Max. Fluid Output Pressure	12.4 bar			31 bar
Fluid Flow @ 80 cpm	18-22.7 lpm	19-22.7 lpm	20-22.7 lpm	7 lpm
Universal Pump Only	222051	226944	226945	246775
60 Ltr Cover Mount Package	N/A			24M262
200 Ltr Bung Mounted Package	222103	N/A	N/A	24M264
200 Ltr Cover Mounted Package	N/A			24M263
1,040 Ltr Bung Mounted Package	222104	N/A		24M264

Name of Mfr.: Graco

Unit Per Pc.

CODE	61 74 65	61 74 66	61 74 67	61 74 68
Model	Fire-Ball 300	Fire-Ball 425		
Pump Ratio	5 :1	3 : 1	6 : 1	10 : 1
Max. Fluid Output Pressure	62 bar	37 bar	76 bar	124 bar
Fluid Flow @ 80 cpm	9.3 lpm	50.6 lpm	25.3 lpm	15.4 lpm
Universal Pump Only	203876	237526	238108	205626
60 Ltr Cover Mount Package	241046	N/A		
200 Ltr Bung Mounted Package	201048	N/A		222095
200 Ltr Cover Mounted Package	241047	N/A		222065
1,040 Ltr Bung Mounted Package	241049	N/A		

Name of Mfr.: Graco

Grease Pump

Unit Per Pc.

CODE	61 74 69	61 74 70	61 74 80
Model	Mini Fire-Ball 225	Fire-Ball 300	
Pump Ratio	50:1	15:1	50:1
Application	High-pressure grease dispense	Medium-pressure grease dispense	High-pressure grease dispense
Max. Fluid Output Pressure	578 bar	186 bar	580 bar
Continuous Duty Flow Rate	0.15 kg/min	2.7 lpm	1.52 kg/min
16 kg Drum-Pump only	246909	206405	239877
16 kg Drum-Package	253384	241043	240885
31 kg Drum-Pump only	N/A	N/A	239877
31 kg Drum-Package	N/A	N/A	N/A
55 kg Drum-Pump only	246780	206699	239887
55 kg Drum-Package	253387	241044	240880
180 kg Drum-Pump only	246781	206700	239888
180 kg Drum-Package	253390	241045	N/A

Name of Mfr. : Graco

Unit Per Pc.

CODE	61 74 87	61 74 88	61 74 89
Model	Fire-Ball 425		
Pump Ratio	10:1	50:1	75:1
Application	High-pressure grease dispense	High-pressure grease dispense	High-pressure grease dispense
Max. Fluid Output Pressure	124 bar	517 bar	517 bar
Continuous Duty Flow Rate	13.3 lpm	1.52 kg/min	1.3 kg/min
16 kg Drum-Pump only	N/A	N/A	239731
16 kg Drum-Package	N/A	N/A	N/A
31 kg Drum-Pump only	N/A	N/A	239731
31 kg Drum-Package	N/A	N/A	N/A
55 kg Drum-Pump only	N/A	205394	239729
55 kg Drum-Package	N/A	241039	24M271
180 kg Drum-Pump only	965124	205395	239730
180 kg Drum-Package	965129	N/A	N/A

Name of Mfr. : Graco

Grease Lubricators

Air Operated

Lubricadores de grasa accionados por aire
ポータブルエアグリース給油機
润滑脂润滑器空气动力



Standard Accessories

SKR-66	H.P. Grease Gun HPG-G	1 Pc.
	Grease Hose 2.5 Mtr.	1 Pc.
	Follower Plate 300 mmø	1 Pc.
	Check Valve	1 Pc.
	Air Regulator SKR-AR	1 Pc.
DSR-80	H.P. Grease Gun HPG-G	1 Pc.
	Grease Hose 2.5Mtr	1 Pc.
	Air Chuck PS-20PM	1 Pc.
	Flow plate 300 mmΦ	1 Pc.
	Carrier	1 Pc.
	Flex. Ext. Hose for Pin Type	1 Pc.
	Flex. Ext. Hose for Buttonhead Type	1 Pc.
	Flex. Ext. Hose for Hydraulic Type	1 Pc.
SKR-110A50	Pump PD110A50	1 Pc.
	Grease Hose 2.5 Mtr.	1 Pc.
	Follower Plate 300 mmΦ	1 Pc.
	Check Valve	1 Pc.
	Air Regulator	1 Pc.

Note: Additional Hose is available on request to extend the reach of the lubricator.

Unit Per Set

CODE	61 75 02	61 75 03	61 75 04
Model	SKR-66	DSR-80	SKR-110A50
Feature	For rather hard grease use. Follower plate equipped.	For rather hard grease use. Follow plate equipped.	High efficiency with large output capacity. Follower plate equipped.
Range of Applicable Grease	NLGI No.1	NLGI No.2	NLGI No.1
Pump Ratio	65 : 1	65 : 1	50 : 1
Max. Output Pressure	40.0 MPa	40.0 MPa	35.0 MPa
Max. Outlet Quantity	320 grm/min	320 grm/min	1,200 grm/min
Max. Air Consumption	212 ltr/min	212 ltr/min	320 ltr/min
Grease Capacity	16 - 18 kg	16 kg	16 - 18 kg

Name of Mfr.: Yamada Corporation

Grease Lubricators

Macnaught Air Operated

Bomba Engrase Manual Macnaught
マクノートエアグリース給油機　手动高压牛油泵



PLC



P3L

Unit Per Set

CODE	61 75 11	61 75 12
Model	PLC	P3L
Feature	Common type, simple construction, long life. Follow-Plate equipped.	Anti corrosive air motor and Follow Plate equipped. Very useful for choked nipples, because can increase output pressure up to 850 kgf/cm² by booster gun if necessary.
Range of Applicable Grease	NLGI #2	NLGI #2
Pump Ration Max.	50 : 1	50 : 1
Output Pressure	350 kgf/cm²	350 kgf/cm²
Max. Outlet Quantity	660 grm/min	540 grm/min
Standard Accessories		
PLC	Grease Gun Grease Hose Carrier	1 Pc. 2.5 Mtr. Equipped
P3L	Booster Gun Grease Hose Carrier	1 Pc. 2.5 Mtr. Equipped

High Pressure Grease Bucket Pumps

Hand Operated

Bomba Engrase Manual con Bidón de Alta Presión
高圧ハンドバケットグリースポンプ　手动活塞式高压牛油泵

Specially designed plunger easily builds lube pressure up to 25 MPa even under low loading pressure. The same extension hoses as from hand grease guns are available for various applications.



SK-55　SK-77

Unit Per Set

CODE	61 75 16	61 75 17
Model	SK-55	SK-77
Output Pressue	25.0 MPa	
Output / Stroke	3.2 grm / stroke	
Stroke	38 - 43 mm	
Container Capacity	20 Ltr.	
Dimensions mm	281ø x 499H	281ø x 795H
Name of Mfr	Yamada Corporation	
Standard Accessories		
SK-55	Grease Gun SK-G Grease Hose 2Mtr. Follower Plate	1 Pc. 1 Pc. 1 Pc.
SK-77	HP. Grease Gun Grease Hose 2Mtr. Follower Plate Dolly S-20	1 Pc. 1 Pc. 1 Pc. 1 Pc.

Grease Lubricators

Macnaught Hand Operated

Bombas de Engrase Neumáticas, Macnaught
マクノート手動グリース給油機
气体式牛油泵

A very useful outfit. Compact, lightweight, and applicable for a variety of lubricating jobs with a pressure capacity of up to 700 kgs/cm².



K-6 K-3

Unit Per Set

CODE	61 75 21	61 75 22
Model	Mini K-6	Super K-3
Feature	Can be fitted with standard 2.5 kg small grease can. Capable of feeding 30 grease nipples at one time pump charge	Can be fitted with standard 16 kg grease pail can. Capable of feeding 80 grease nipples at one time pump charge
Max. Output Pressure	700 kgf/cm²	700 kgf/cm²
Pump Charge	50 cc	130 cc
Output/Stroke	3 cc/stroke	3 cc/stroke
Demensions mm	200ø × 450H	300ø × 890H
Grease Hose	1.5 mtrs.	3 mtrs.

Oil Lubricators

Air Operated

Dispensador Neumático de Aceite
ポータブルエアオイル給油機　气动注油器



SGR-55 SGR-110A5

Unit Per Set

CODE	61 75 31	61 75 32
Model	SGR-55	SGR-110A5
Pump Ratio	1.8 : 1	5 : 1
Max. Output Pressure	1.2 MPa	3.5 MPa
Max. Output Capacity	7 ltr / min.	11 ltr / min.
Max. Air Consumption	200 ltr / min.	390 ltr / min.
Container Capacity	20 Ltr	50 Ltr
Height mm	784	953

Name of Mfr.: Yamada Corporation.

Standard Accessories

SGR-55	Digital Oil Gun ODV-30D Oil Hose 1.5Mtr. Oil Tank Air Chuck PS-20M	1 Pc. 1 Pc. 1 Pc. 1 Pc.
SGR-110A5	Digital Oil Gun ODV-30D Oil Hose 3Mtr. Air Regulator	1 Pc. 1 Pc. 1 Pc.

Oil Bucket Pumps

Hand Operated

Dispensador Neumático de Aceite con Pistola, Manual
ハンドバケットオイルポンプ　手动式润滑油加注泵

Dispenses all types of fluid lubricant such as gear oil, motor oil, A.T.F. (Automatic Transfer Fluid) and others with easy operation. A limited movement of the lever provides high volume lubricant delivery.



STB-60 STB-70

Unit Per Set

CODE	61 75 36	61 75 37
Model	STB-60	STB-70
Pump Output	40 cc / stroke	
Container Capacity	20 Ltr.	
Height	795 mm	
Standard Accessories	Oil Hose 2 Mtr. 1 Pc. Hose 2 Mtr. w/ Nozzle 1 Pc. Dolly S-20 1 Pc. Digital Flowmeter with Filter 1 Pc.	Oil Hose 2 Mtr. 1 Pc. Hose 2 Mtr. w/ Nozzle 1 Pc. Dolly S-20 1 Pc. -

Name of Mfr.: Yamada Corporation.

Oil Volume Bucket Pumps

Hand Operated

Disposador Neumático de Aceilte, Manual a Palanca
ハンドバケットボリュームポンプ　大容量手动式润滑油加注泵

Handles either mobile grease or oil especially to serve button head fittings on earth-moving equipment, farm equipment, industrial machines, etc. Volume lubricant delivery gives fast and positive lubrication under maximum lube pressure of 5 MPa on the VO-50 and 2 MPa on the VO-8.



VO-8 VO-50

Unit Per Set

CODE	61 75 41	61 75 42
Model	VO-8	VO-50
Output/Stroke	20 cc/stroke	24 cc/stroke
Container Capacity	8 Ltr	15 Ltr
Dimensions mm	200Φ × 477H	300Φ × 530H
Standard Accessories	Oil Hose 1 Mtr. 1 Pc. Button Head Coupler 1 Pc.	Oil Hose 1.5 Mtr.1 Pc. Button Head Coupler 1 Pc.

Name of Mfr.: Yamada Corporation.

Lubricating Hose

for Model SKR and SGR Series

Manguera lubricante/para Modelo de Series SKR y SGR

給油機用ホース　油管



Max. Working Pressure

SKR Grease Hose	34.5 MPa	H.P.
SGR Oil Hose	7 MPa	L.P.

How to order: CODE

GREASE or OIL hose, DIAM x LENGTH, with fitting, PART/NO.

Unit Per Lgh

CODE	P/N	Size		Fitting at Both Ends
		Diam.	Length	
SKR Grease Hose				
61 75 51	695062	1/4	1.5 Mtrs.	PF1/4 Male Thread (G)
52	695050		2 "	
53	695034		2.5 "	
54	695049		3 "	
55	695098		5 "	
56	695099		10 "	
SGR Oil Hose				
61 75 57	695052	3/8	1.5 Mtrs.	PT3/8 Male Thread (R)
58	695051		2 "	
59	695103		3 "	
60	695700	1/2	3 "	PT1/2 Male Thread (R)

Accessories

for Model SKR and SGR Series and GLC

Accesorios/para Modelo de Series SKR y SGR y GLC

給油機用アクセサリー　注油机 SKR & SGR 用配件

Control Valves

Válvulas de Control　コントロールバルブ　控制阀



61 75 65
H.P. Grease-Gun HPG-G
P/N 851985
Standard for Model SKR-55/66/110A50
Containing Nozzle CNP-2
P/N 804911
Swivel Joint ass'y P/N 802910
Inlet PS 1/4 Female (G)



61 75 68
Oil Gun ODV-30
P/N 686857
Max. Working Pressure 7 MPa
Inlet PT 3/8 Female (Rc)



61 75 69
Digital Oil Gun ODV-30D
P/N 686858
Max. Working Pressure 7 MPa
Inlet PT 3/8 Female (Rc)

Unit Per Pc.

CODE	P/N	Description
61 75 65	851985	H.P. Grease Gun w/Swivel Joint
61 75 68	686857	Oil Gun ODV-30
69	686858	Digital Oil Gun ODV-30D

Specifications for Extension Couplers & Adaptors

Especificaciones de Extensiones y Adaptadores

エクステンションカップラーアダプター　油杯



61 75 75
Straight Adaptor HSP-1 P/N 804903, L=120 mm, PT 1/8" Male (R)

61 75 76
Straight Long Adaptor HSP-2 P/N 804904, L=240 mm, PT 1/8" Male (R)



61 75 77
Needle Adaptor HSP-3 P/N 800701 for concealed hinges or tight spots, L=135 mm, PT 1/8" Male (R)

61 75 79
Straight Extra Long Adaptor HSP-10 P/N 804907, L=450mm, PT 1/8" Male (R)



61 75 80
Standard Hydraulic Adaptor CNP-1, P/N 804910, L=185 mm, PT 1/8" Male (R)



61 75 81
Small Dia. Hydraulic Adaptor CNP-2 P/N 804911 for use with hand grease gun, L=185 mm, PT 1/8" Male (R)



61 75 82
Long Hydraulic Adaptor CNP-13 P/N 804912, L=335 mm PT 1/8" Male (R)



61 75 83
Standard Hydraulic Coupler CNP-1H, P/N 686445, L=38.5 mm
PT 1/8" Female (Rc)



61 75 84
Small Dia. Hydraulic Coupler CNP-2H P/N 686446, L=39 mm, PT 1/8" Female (Rc)



61 75 85
Hydraulic Coupler Extension Hose SPK-5 P/N 850392, L=420 mm

Unit Per Pc.

CODE	Model	P/N	Name
61 75 75	HSP- 1	804903	Straight Adaptor
76	2	804904	Straight Long Adaptor
77	3	800701	Needle Adaptor
79	10	804907	Straight Extra Long Adaptor
61 75 80	CNP- 1	804910	Straight Hydraulic Adaptor
81	2	804911	Small Dia. Hydraulic Adaptor
82	13	804912	Long Hydraulic Adaptor
83	1H	686445	Straight Hydraulic Coupler
84	2H	686446	Small Dia. Hydraulic Coupler
61 75 85	SPK- 5	850392	Hydraulic Coupler Ext. Hose

Grease Lock Couplers

Engrasadores グリースロックカプラー 油脂锁定耦合器

GLC-70

Easy coupling - leak proof greasing - easy release. Easy connect and disconnect to/from grease fitting, by operating the lever.



Unit Per Pc.

CODE	61 75 87
Model	GLC-70
Operating Pressure	69 MPa (703 kgf/cm²)
Connection	Rc 1/8"
Dimensions mm	L : 89.6 x ø16
Weight grm	100

Microhose Type Grease Lock Couplers



Unit Per Pc.

CODE	Model	Specification
61 75 88	SPK-500S	500 mm (Micro hose connection R 1/8")
89	SPK-1000S	1,000 mm (Micro hose connection R 1/8")
90	SPK-1500S	1,500 mm (Micro hose connection R 1/8")

Grease Pump Packages

Equipo de Engrase
グリースポンプパッケージ 气动给油泵

These Grease Pump Packages are available in two models. For the purpose of making ordering easier, we have provided the following ordering table composed of the most practical specifications for marine use. For any further detailed information please contact your local supplier.



Unit Per Set

CODE	61 75 45	61 75 46
Model	LP2009-2-B	LP2010-2-B
Follower Plate	286 mm	332 mm
Ratio	50 : 1	
Air Motor Diameter	2"	
Air Inlet (Female)	Rp 1/4	
Air Inlet Pressure Range Psi (bar)	0-150 (0-10.3)	
Fluid Pressure Range Psi (bar)	0-7,500 (0-517.2)	
Volume/Cycle oz (ml)	0.17 (4.91)	
Maximum Delivery/ Minute Kg (lbs)	4.1 (9)	
Cycles/Minutes Rec'd @ Working Flow	80	
Displacement In³ per cycle	0.300	
Pump Construction	Carbon Steel	

Name of Mfr.: Ingersoll-Rand

51. Grease Nipples / Grease Guns

Grease Nipples

for Hydraulic Fittings

Engrasadores para accesorios hidráulicos
グリースニップル 油嘴液压配件

Chrome or brass plated steel material.

How to order: CODE

Grease nipple, TYPE, NOMINAL SIZE

Unit Per Pc.

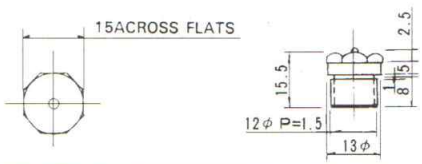
Illustration	CODE	Type	Nominal Size (Thread)	Remark
	61 76 05	A Straight	M6x0.5	
	06		M6x1.0	
	07		PT 1/8	
	08		PT 1/4	
	09		PT 3/8	
	10		NPT 1/8	
	11		NPT 1/4	
	61 76 13	B 67.5°	PT 1/8	JIS B 1575
	14		PT 1/4	
	15		NPT 1/8	
	61 76 16	C 90°	PT 1/8	
	17		PT 1/4	
	61 76 18	Straight	6 mm	
	61 76 21	Pin Type	PF 1/8	
	22		PF 1/4	
	23		PF 3/8	
	24		PT 1/8	
	25		PT 1/4	
	26		PT 3/8	
	27		PT 1/2	
	61 76 30	Button Head	PF 1/8x15	Thread x Across Flat
	31		PF 1/4x15	
	32		PF 1/8x17	
	33		PF 1/4x17	
	34		PF 3/8x17	
	35		PF 1/2x22	
	36		M12x1.5	
	37		PT 1/8x17	
	38		PT 1/4x17	

Grease Nipples

for MacGregor Cargo Hatches

Engrasadores para Escotilla de Carga Macgregor
マックグレゴーハッチ用グリースニップル
马克革雷干舱盖偏心轮牛油嘴

Specially designed to fit MacGregor type cargo hatches which can not accept other types of grease nipples. Available only in one type and size. Thread : 12 mmø x 1.5 Pitch.



23 32 83	Grease nipple for MacGregor hatch cover Item No. 20.00.09	Pc.

Grease Cups

Engrasadores Stauffer
グリースカップ　牛油杯



Brass made plain type cups for grease.

Unit Per Pc.

CODE	Cup Diam. mm	Male Thread	CODE	Cup Diam. mm	Male Thread
61 76 51	20	PF1/8	**61 76 55**	38	PF1/4
52	25	PF1/8	**56**	50	PF3/8
53	32	PF1/8	**57**	65	PF3/8
54	32	PF1/4	**58**	75	PF1/2

Oil Cups

Engrasadores Staffer
オイルカップ　油杯



Brass made oil cups. Caps close automatically for dust proofing. Two types, either straight or elbow type are available.

Unit Per Pc.

Straight Type			Elbow Type		
CODE	Cup Diam. mm	Male Thread	CODE	Cup Diam. mm	Male Thread
61 76 61	18	PF 1/8	**61 76 71**	20	PF 1/8
62	22	" 1/8	**72**	25	" 1/8
63	22	" 1/4	**73**	25	" 1/4
64	28	" 1/4	**74**	32	" 1/4
65	34	" 1/4	**75**	32	" 3/8
61 76 66	34	" 3/8			

Flexible Extension Hose

Latiguillo Engrase　マイクロホース　软伸长管

Used for hand lever grease guns only for hydraulic grease lubrication. All are 4.75 mm I.D. one-wire nylon braided, 210 kgf/cm² working and 420 kgf/cm² burst pressure.

For Pin type Grease Nipple SPK-1C



For Button Head type Grease Nipple SPK-2C



For Hydraulic or Straight type Grease Nipple SPK-3C



Unit Per Pc.

CODE	Grease Nipple Type	Male Thread	Length mm
61 76 80	Pin Type SPK-1C	PT 1/8	355
81	Button Head Type SPK-2C	"	375
82	Hydraulic or Straight Type SPK-3C	"	330

Air Powered Grease Lubricators

Pistolas Neumáticas de Engrase
エアーパワーグリースガン　气动式黄油枪



Works with compressed air for easy speed greasing by just pulling the trigger. Pressure is maintained constantly and the lubrication level is consistent. Works with a replaceable grease cartridge which is easy to attach and keeps dust and dirt out of the grease.

Grease level inside the cartridge can be checked at a glance so the grease will not run out unexpectedly.

Unit Per Set

CODE	**61 76 91**
Model	AMG-400N
Max Discharge Pressure	28 MPa
Output	280 g/min.
Capacity	420 ml with use of the cartridge
Standard Accessory	Hydraulic Adaptor CNP-2 Quick Coupler PS-20PM Air Regulator
Size	365 × 411 × 68 mm
Weight	1.8 kg

Lever Type Hand Grease Guns

Bomba de Engrase a Planca
レバー式グリースガン　手动式黄油枪

These spring primed grease guns are designed for maximum efficiency and easy operation. These rugged lubricators are available in high pressure, medium pressure and volume delivery models to cover the complete range of pressure gun applications.



Standard Type



Suction Filling Type

Unit Per Pc.

CODE	Model	Capacity grm	Max. Working Pressure MPa	Wt. kg	Size mm	
					Cyl. Diam.	Length
Standard Type Grease Gun						
61 77 01	KH-120	130	20	0.51	38.0	232
02	KH-35	380	25	1.11	59.6	290
03	KH-500S	500	50	1.30	59.6	368
04	GC-57K	500	50	1.55	57	371
Suction Filling Type Grease Gun						
61 77 07	KH-32	200	25	1.27	59.6	412

52. Oilers/Oil Containers

Oil Syringes

Inyectores de Valvolina y Aceite　オイルシリンジ　注油器

Provide fast, clean servicing for rapid transfer of any fluid or lubricant. Pulling or pushing the handle intakes or discharges the lubricant.



Unit Per Pc.

CODE	Capacity cc	Length mm	Weight kg
61 77 16	200	490	0.57
17	600	696	1.28
18	1,000	886	1.77

Oilers

Aceiteras　油差し　油壺

Plastic Oilers

Made of oil resistant hard plastic. A thin pump nozzle forces the oil out in a strong stream.



Straight Type



Angle Type



Pistol Pump Type

Unit Per Pc.

CODE	Type	Capacity cc
61 77 21	Straight	180
22		300
61 77 24	Angle	130
25		200
26		300
61 77 28	Pistol Pump	500

Metallic Oilers



Unit Per Pc.

CODE	Type	Capacity	Material
61 77 33	Pistol Pump	250 "	Cast Iron
34	"	330 "	"

Heavy Duty Pump Oilers

Heavy duty industrial type angled pump oiler. Two types of spout, flexible and solid are available.



Flexible Spout Type



Solid Spout Type

Unit Per Pc.

CODE	Spout Type	Capacity cc	Wt. gms.
61 77 36	Flexible	175	145
37	"	350	290
38	Solid	125	135
39	"	250	250

Oil Jugs

Medidores de Aceite　オイルジョッキ　油壺

Made of plastic or copperrite (tin copper plated). So called Engineer's filler.





Unit Per Pc.

Copperrite		Plastic	
CODE	Capacity	CODE	Capacity
61 77 41	1 ltr	**61 77 45**	1 ltr
42	2 "	**46**	2 "
		47	3 "
		48	4 "
		49	5 "

Galvanized Oil Funnels

Embudos de aceite galvanizados　亜鉛めっき油漏斗　镀锌油漏斗

Made from heavy galvanized tin plate with a brass strainer.



Unit Per Pc.

CODE	Diam. mm	CODE	Diam. mm
23 26 01	100	**23 26 05**	225
02	125	**06**	250
03	150	**07**	280
04	200	**08**	350

Oil Containers/Jerry Cans

Jerry Cans o Petacas　オイルコンテナー　油箱 / 加油壺

Available in plastic or tin. This plastic container is suitable for almost all liquid while the tin container (so called Jerry Can) is ideal for gasoline.



Unit Per Pc.

CODE	Material	Capacity Ltr.	CODE	Material	Capacity Ltr.
61 77 61	Plastic	5	**61 77 66**	Tin	10
62	"	10	**67**	"	20
63	"	20			

Nozzle & Cock for Tin/Plastic Containers

Boquilla y grifo para envases de hojalata/plástico
ブリキ／プラスチック容器用ノズルとコック
用于锡／塑料容器的喷嘴和插座



Nozzle



Cock

Unit Per Pc.

CODE	Nozzle	CODE	Nozzle
61 77 68	Plastic	**61 77 69**	Plastic
		70	Brass

Oil Pans

Bandejas de aceite　オイルパン　油底壳

Designed to make it easy to transfer oil for proper disposal or recycling. Available in steel type, and also available in rugged high-density polypropylene or polyethylene type (oil drain pan) with resistant to chemicals and solvents.



Oil Pans



Oil Drain Pans

Steel Type

Unit Per Pc.

CODE	W x L x H mm	Volume ltr	CODE	W x L x H mm	Volume ltr
61 77 71	510 × 320 × 45	5	**61 77 74**	595 × 360 × 115	18
72	465 × 265 × 96	8	**75**	604 × 452 × 149	30
73	470 × 320 × 120	12	**76**	908 x 616 x 148	60

Plastic Type

Unit Per Pc.

CODE	W x L x H mm	Volume ltr	CODE	W x L x H mm	Volume ltr
Oil Pan (Polypropylene)			**Oil Drain Pan (Polyethylene)**		
61 77 77	345 × 265 × 82	5	**61 77 80**	520 × 145 × 390	8
78	390 × 296 × 104	8	**81**	600 × 170 × 450	16
79	460 × 340 × 110	10			

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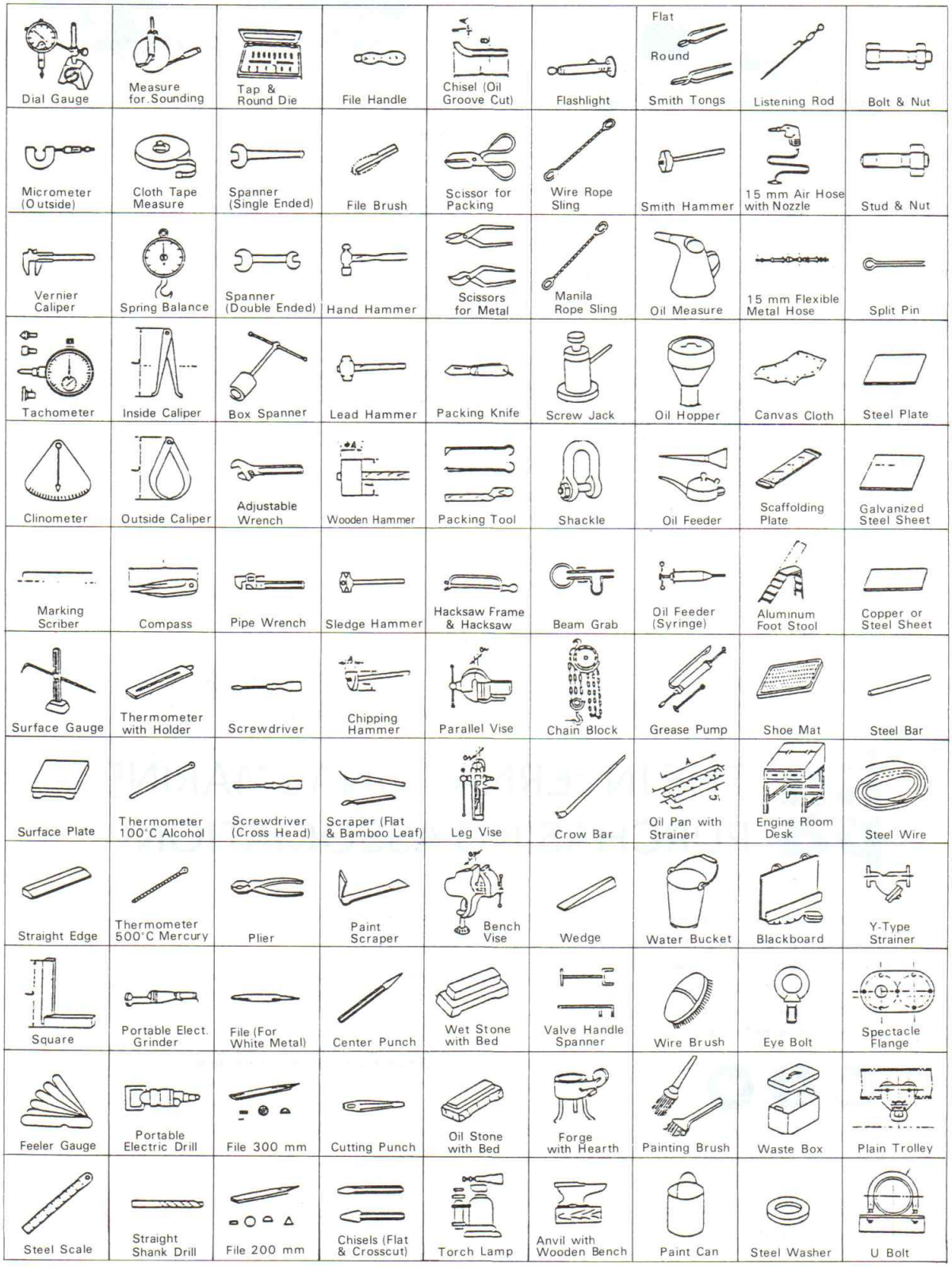
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A Guide for Engine Stores



63
Cutting Tools

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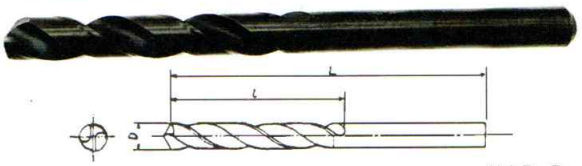
Straight Shank Twist Drills

High Speed Steel

Brocas de Mango Cilindrico H.S.S.
ストレートシャンクドリル　　直柄麻花钻

(Ref. JIS B 4301 – 88)

The drills are of the correctional two-flute design with helix angles, flute and point shapes selected for general purpose applications. They may be used very successfully in cast iron, steel forging and other materials.



Unit Per Pc.

CODE	Diameter mm	Length mm	
		Flute	Overall
63 01 01	0.3	3	19
02	0.4	5	20
03	0.5	6	22
04	0.6	7	24
05	0.7	9	28
63 01 06	0.8	10	30
07	0.9	11	32
08	1.0	12	34
09	1.1	14	36
10	1.2	16	38
63 01 11	1.3	16	38
12	1.4	18	40
13	1.5	18	40
14	1.6	20	43
15	1.7	20	43
63 01 16	1.8	22	46
17	1.9	22	46
18	2.0	29	55
19	2.1	29	55
20	2.2	33	58
63 01 21	2.3	33	58
22	2.4	35	61
23	2.5	35	61
24	2.6	37	64
25	2.7	37	64
63 01 26	2.8	39	67
27	2.9	42	71
28	3.0	42	71
29	3.1	42	71
30	3.2	42	71
63 01 31	3.3	45	73
32	3.4	45	73
33	3.5	45	73
34	3.6	48	76
35	3.7	48	76
63 01 36	3.8	48	76
37	3.9	51	79
38	4.0	54	83
39	4.1	54	83
40	4.2	54	83
63 01 41	4.3	54	83
42	4.4	56	86
43	4.5	56	86
44	4.6	56	86
45	4.7	59	89
63 01 46	4.8	59	89
47	4.9	62	92
48	5.0	62	92
49	5.1	62	92
50	5.2	64	95
63 01 51	5.3	64	95
52	5.4	64	95
53	5.5	64	95
54	5.6	67	98
55	5.7	67	98

(to be continued)

Unit Per Pc.

CODE	Diameter mm	Length mm	
		Flute	Overall
63 01 56	5.8	67	98
57	5.9	67	98
58	6.0	70	102
59	6.1	70	102
60	6.2	70	102
63 01 61	6.3	70	102
62	6.4	73	105
63	6.5	73	105
64	6.6	73	105
65	6.7	73	105
63 01 66	6.8	73	105
67	6.9	73	105
68	7.0	73	105
69	7.1	75	108
70	7.2	75	108
63 01 71	7.3	75	108
72	7.4	78	111
73	7.5	78	111
74	7.6	78	111
75	7.7	81	114
63 01 76	7.8	81	114
77	7.9	81	114
78	8.0	81	114
79	8.1	84	117
80	8.2	84	117
63 01 81	8.3	84	117
82	8.4	87	121
83	8.5	87	121
84	8.6	87	121
85	8.7	87	121
63 01 86	8.8	89	124
87	8.9	89	124
88	9.0	89	124
89	9.1	89	124
90	9.2	92	127
63 01 91	9.3	92	127
92	9.4	92	127
93	9.5	92	127
94	9.6	95	130
95	9.7	95	130
63 01 96	9.8	95	130
97	9.9	95	130
98	10.0	95	130
99	10.5	100	137
63 02 01	11.0	103	140
63 02 02	11.5	106	143
03	12.0	111	149
04	12.5	114	152
05	13.0	114	152

Cobalt Straight Shank Twist Drills

Brocas espirales de cobalto de vástago recto
コバルトストレートドリル　　含钴直柄麻花钻

Cobalt is harder and stronger than high speed steel and provides better wear resistance. Designed for machine and hand drilling tough materials such as stainless steel.

Unit Per Pc.

CODE	Diameter mm	Length mm	
		Flute	Overall
63 02 06	1.0	10	40
07	1.5	14	48
08	2.0	19	55
09	2.5	24	61
10	3.0	36	71
63 02 11	3.5	31	73
12	4.0	34	83
13	4.5	38	86
14	5.0	42	92
15	5.5	46	95

(to be continued)

Unit Per Pc.

CODE	Diameter mm	Length mm	
		Flute	Overall
63 02 16	6.0	46	102
17	6.5	50	105
18	7.0	55	105
19	7.5	55	111
20	8.0	60	114
63 02 21	8.5	60	121
22	9.0	65	124
23	9.5	65	127
24	10.0	70	130
25	10.5	70	137
63 02 26	11.0	75	140
27	11.5	75	143
28	12.0	81	149
29	12.5	81	152
30	13.0	81	152

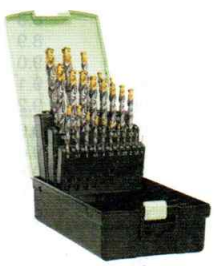
Straight Shank Twist Drill Sets

High Speed Steel

Juegos de Brocs Mango Cilíndrico H.S.S.
ドリルセット　　直柄麻花钻组

The drills in these sets are high speed steel, general purpose, straight shank twist drills for portable or machine drilling in metric sizes. Sets are all furnished in polyethylene or steel folding cases.





How to order: CODE

Drill set, high speed steel, SIZE (MINIMUM – MAXIMUM) mm, NUMBERS/set

Unit Per Set

CODE	Set Contents	Range of Size	Container
63 02 51	8 s	2.0, 3.0, 3.2, 4.0, 4.8, 5.0, 6.0, 6.5 mm	Poly Case
63 02 52	13 s	1.5, 2.0, 2.5, 3.0, 3.2, 3.5, 4.0, 4.5, 4.8, 5.0, 5.5, 6.0, 6.5 mm	"
63 02 53	13 s	1.5, 2.0, 2.5, 3.0, 3.2, 3.5, 4.0, 4.5, 4.8, 5.0, 5.5, 6.0, 6.5 mm	Steel Case
63 02 54	19 s	1 mm to 10 mm by 0.5 mm	"
63 02 55	25 s	1 mm to 13 mm by 0.5 mm	"
63 02 56	41 s	6 mm to 10 mm by 0.1 mm	"
63 02 57	50 s	1 mm to 5.9 mm by 0.1 mm	"

Drill Stands

Soportes para Brocas　　ドリルスタンド　　钻架

This drill stand is suitable for straight shank drills indicating each drill hole with the right size mark.



How to order: CODE

Drill stand, SIZE (MINIMUM – MAXIMUM) mm, NUMBER of HOLES

Unit Per Pc.

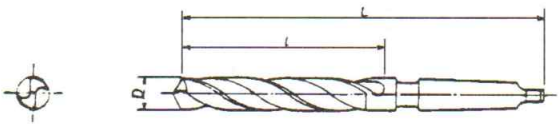
CODE	Size	Number of Holes
63 02 71	1.0 mm - 6.5 mm by 0.1 mm	56
63 02 72	0.5 mm - 13.0 mm by 0.5 mm	26
63 02 73	6.6 mm - 13.0 mm by 0.1 mm	65

Morse Taper Shank Twist Drills

High Speed Steel

Сверла с твистским хвостовиком Morse Taper
モールステーパシャンクドリル　　莫氏锥柄麻花钻

(Ref. JIS B 4302 – 88)



Unit Per Pc.

CODE	Diameter mm	Length mm		Morse Taper No.
		Flute	Overall	
63 03 01	10.0	95	178	1
02	10.5	98	182	1
03	11.0	102	185	1
04	11.5	105	188	1
05	12.0	108	192	1
63 03 06	12.5	112	195	1
07	13.0	115	198	1
08	13.5	118	202	1
09	14.0	122	205	1
10	14.5	122	222	1
63 03 11	15.0	125	225	2
12	15.5	128	228	2
13	16.0	130	230	2
14	16.5	132	232	2
15	17.0	135	235	2
63 03 16	17.5	140	240	2
17	18.0	140	240	2
18	18.5	145	245	2
19	19.0	145	245	2
20	19.5	150	250	2
63 03 21	20.0	150	250	2
22	20.5	155	255	2
23	21.0	155	255	2
24	21.5	160	260	2
25	22.0	160	260	2
63 03 26	22.5	165	265	2
27	23.0	165	265	2
28	23.5	165	285	2
29	24.0	165	285	2
30	24.5	165	285	2
63 03 31	25.0	165	285	3
32	25.5	165	285	3
33	26.0	165	285	3
34	26.5	170	290	3
35	27.0	170	290	3
63 03 36	27.5	175	295	3
37	28.0	175	295	3
38	28.5	180	300	3
39	29.0	180	300	3
40	29.5	185	305	3
63 03 41	30.0	185	305	3
42	30.5	190	310	3
43	31.0	190	310	3
44	31.5	195	315	3
45	32	195	315	3
63 03 46	33	200	345	4
47	34	205	350	4
48	35	205	350	4
49	36	210	355	4
50	37	210	355	4

(to be continued)

Unit Per Pc.

CODE	Diameter mm	Length mm		Morse Taper No.
		Flute	Overall	
63 03 51	38	215	360	4
52	39	215	360	4
53	40	220	365	4
54	41	220	365	4
55	42	225	370	4
63 03 56	43	225	370	4
57	44	230	375	4
58	45	230	375	4
59	46	235	380	4
60	47	235	380	4
63 03 61	48	240	385	4
62	49	240	385	4
63	50	245	390	4
64	51	245	425	5
65	52	250	430	5
63 03 66	53	250	430	5
67	54	255	435	5
68	55	255	435	5
69	56	260	440	5
70	57	260	440	5
63 03 71	58	265	445	5
72	59	265	445	5
73	60	270	450	5
74	61	270	450	5
75	62	275	455	5
63 03 76	63	275	455	5
77	64	280	460	5
78	65	280	460	5
79	66	285	465	5
80	67	285	465	5
63 03 81	68	290	470	5
82	69	290	470	5
83	70	295	475	5
84	71	295	475	5
85	72	300	480	5
63 03 86	73	300	480	5
87	74	305	485	5
88	75	305	485	5
89	76	310	490	5

Straight Shank Long Twist Drills

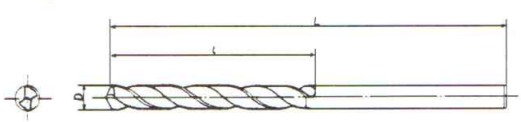
High Speed Steel

Rectas largas Brocas Vástago

ストレートシャンクロングドリル　直柄长麻花钻

(Ref. JIS B 4305 – 88)

These drills are designed for holes required several times deeper than the diameter. In addition to the sizes listed below, there are drills available in other lengths for the diameters shown.



Unit Per Pc.

CODE	Diameter mm	Length mm	
		Flute	Overall
63 04 01	1.0	30	75
02	1.5	35	75
03	2.0	50	100
04	2.5	65	125
05	3.0	65	125
63 04 06	3.5	75	150
07	4.0	100	200
08	4.5	100	200
09	5.0	100	200
10	5.5	100	200

(to be continued)

63 04 11	6.0	100	200
12	6.5	100	200
13	7.0	100	200
14	7.5	125	250
15	8.0	150	250
63 04 16	8.5	150	250
17	9.0	150	250
18	9.5	150	250
19	10.0	150	250
20	10.5	150	250
63 04 21	11.0	150	250
22	11.5	150	250
23	11.5	175	300
24	12.0	150	250
25	12.0	175	300
63 04 26	12.5	150	250
27	12.5	175	300
28	13.0	150	250
29	13.0	175	300

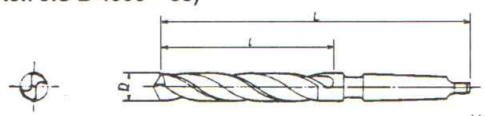
Morse Taper Shank Long Twist Drills

High Speed Steel

Сверла с твистским хвостовиком Morse Taper Largo

モールステーパシャンクロングドリル　莫氏锥柄麻花钻长

(Ref. JIS B 4306 – 88)



Unit Per Pc.

CODE	Diameter mm	Length mm		Morse Taper No.
		Flute	Overall	
63 04 51	10.0	150	250	1
52	11.0	150	250	1
53	12.0	150	250	1
54	13.0	200	300	1
55	14.0	225	350	1
63 04 56	15.0	225	350	2
57	16.0	225	350	2
58	17.0	225	350	2
59	18.0	225	350	2
60	19.0	225	350	2
63 04 61	20.0	250	400	2
62	21.0	250	400	2
63	22.0	250	400	2
64	23.0	300	450	2
65	24.0	300	450	3
63 04 66	25.0	300	450	3
67	26.0	350	500	3
68	27.0	350	500	3
69	28.0	350	500	3
70	29.0	350	500	3
63 04 71	29.0	400	600	3
72	30.0	350	500	3
73	30.0	400	600	3
74	31.0	350	500	3
75	31.0	400	600	3
63 04 76	32.0	300	450	3
77	32.0	350	500	3
78	32.0	400	600	3

Center Drills for Center Holes

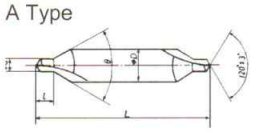
High Speed Steel

Brocas Central H.S.S.

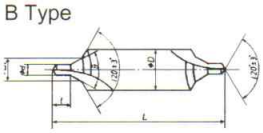
センタ穴ドリル　中心孔的中心钻

(Ref. JIS B 4304 – 88)

A Type

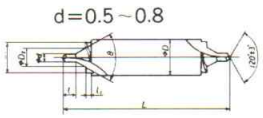


B Type

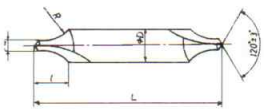


C Type

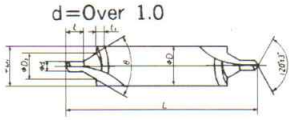
d=0.5～0.8



R Type



d=Over 1.0



How to order: CODE

Center drill, TYPE, DRILL DIAM mm, ANGLE θ

Unit Per Pc.

CODE	Nominal Size: Drill Diam. mm	θ	Body Diam. mm	CODE	Nominal Size: Drill Diam. mm	θ	Body Diam. mm
A Type				**B Type**			
63 05 01	1.0	60°	3.15	**63 05 31**	1.0	60°	4.0
02	1.6		4.0	**32**	1.6		6.3
03	2.0		5.0	**33**	2.0		8.0
04	2.5		6.3	**34**	2.5		10.0
05	3.15		8.0	**35**	3.15		11.2
06	4.0		10.0	**36**	4.0		14.0
07	6.3		16.0	**37**	6.3		20.0
08	10.0		25.0	**38**	10.0		31.5
63 05 11	1.0	75°	3.15	**63 05 41**	1.0	75°	5.0
12	1.6		5.0	**42**	1.6		8.0
13	2.0		6.3	**43**	2.0		10.0
14	2.5		8.0	**44**	2.5		11.2
15	3.15		10.0	**45**	3.15		14.0
16	4.0		12.5	**46**	4.0		18.0
17	6.3		18.0	**47**	6.3		25.0
18	10.0		28.0	**48**	10.0		35.5
19	12.5		35.5	**49**	12.5		45.0
63 05 21	1.0	90°	4.0	**63 05 51**	1.0	90°	5.0
22	2.0		8.0	**52**	2.0		10.0
23	2.5		10.0	**53**	2.5		11.2
24	3.15		11.2	**54**	3.15		14.0
25	4.0		12.5	**55**	4.0		18.0
26	6.3		20.0	**56**	6.3		25.0
27	10.0		31.5	**57**	10.0		40.0
28	12.5		35.5	**58**	12.5		45.0

Unit Per Pc.

CODE	Nominal Size: Drill Diam. mm	θ	Body Diam. mm	CODE	Nominal Size: Drill Diam. mm	θ	Body Diam. mm
C Type							
63 05 61	1.0	60°	3.15	**63 05 81**	1.0	90°	5.0
62	1.6		5.0	**82**	1.6		8.0
63	2.0		6.3	**83**	2.0		10.0
64	2.5		8.0	**84**	2.5		12.5
65	3.15		10.0	**85**	3.15		16.0
66	4.0		12.5	**86**	4.0		18.0
67	6.3		18.0	**87**	6.3		25.0
68	10.0		28.0	**88**	10.0		40.0
				89	12.5		45.0
63 05 71	1.0	75°	4.0	**R Type**			
72	1.6		6.3	**63 05 91**	1.0		3.15
73	2.0		8.0	**92**	1.6		4.0
74	2.5		10.0	**93**	2.0		5.0
75	3.15		12.5	**94**	2.5		6.3
76	4.0		14.0	**95**	3.15		8.0
77	6.3		22.4	**96**	4.0		10.0
78	10.0		35.5	**97**	6.3		16.0
79	12.5		45.0	**98**	10.0		25.0

Step Drills

Broca Escalonada　　ステップビット　　阶梯钻头

Made of heat treated steel and can create various hole sizes by single drill in steel, stainless steel, plastic or wood up to 6 mm depth.



Unit Per Pc.

CODE	Model	Size mm	Max. hole Depth
63 38 01	ST - 1	4, 5, 6, 7, 8, 9, 10, 11, 12	3 mm
02	ST - 2	6, 8, 10, 12, 14, 16, 18	5 mm
03	ST - 3	6, 9, 11, 13, 15, 17, 19, 21, 24, 27, 30, 33	3 mm
04	ST - 4	6, 9, 12, 15, 18, 21, 24, 27, 30, 32, 34, 36, 38, 40, 42	3 mm

Hand Reamers

High Speed Steel

Escariadores H.S.S. De Mano, Mango Cilíndrico

ハンドリーマ　　手动绞刀

(Ref. JIS B 4405 – 90)

These reamers are driven by hand to finish the inside walls of drilled holes. To achieve an improved starting performance, the cutting edge is slightly chamfered. The flutes are normally straight and helical. Spiral flutes are recommended for operations involving an interruption to the cut, such as a keyway.



Straight Flute



Helical Flute

Unit Per Pc.

Straight CODE	Dimensions mm: Diameter	Length mm: Flute	Length mm: Overall	Helical CODE
63 06 01	0.5	12	30	**63 07 01**
02	0.8	15	35	**02**
03	1.0	20	40	**03**
04	1.2	25	45	**04**
05	1.5	25	50	**05**
63 06 06	1.8	30	55	**63 07 06**
07	2.0	30	60	**07**
08	2.2	30	60	**08**
09	2.5	35	65	**09**
10	2.8	35	65	**10**
63 06 11	3.0	40	72	**63 07 11**
12	3.5	40	75	**12**
13	4.0	40	80	**13**
14	4.5	45	85	**14**
15	5.0	45	90	**15**
63 06 16	5.5	45	95	**63 07 16**
17	6.0	50	100	**17**
18	6.5	50	100	**18**
19	7.0	55	105	**19**
20	7.5	55	110	**20**
63 06 21	8.0	60	115	**63 07 21**
22	8.5	60	120	**22**
23	9.0	65	125	**23**
24	9.5	65	125	**24**
25	10.0	70	130	**25**
63 06 26	10.5	70	135	**63 07 26**
27	11.0	75	140	**27**
28	11.5	75	145	**28**
29	12.0	75	150	**29**
30	12.5	80	155	**30**
63 06 31	13.0	80	160	**63 07 31**
32	13.5	85	165	**32**
33	14.0	85	165	**33**
34	14.5	90	170	**34**
35	15.0	90	175	**35**

(to be continued)

Unit Per Pc.

Straight CODE	Dimensions mm Diameter	Length mm Flute	Overall	Helical CODE
63 06 36	16.0	95	185	63 07 36
37	17.0	100	190	37
38	18.0	105	200	38
39	19.0	105	210	39
40	20.0	110	220	40
63 06 41	21.0	120	230	63 07 41
42	22.0	120	235	42
43	23.0	130	250	43
44	24.0	130	255	44
45	25.0	130	260	45
63 06 46	26.0	140	270	63 07 46
47	28.0	140	290	47
48	30.0	150	305	48
49	32.0	160	315	49
50	34.0	160	315	50
63 06 51	36.0	165	320	63 07 51
52	38.0	165	325	52
53	40.0	165	330	53
54	42.0	170	335	54
55	44.0	170	340	55
63 06 56	46.0	175	345	63 07 56
57	48.0	180	350	57
58	50.0	180	355	58

Hand Taper Pin Reamers 1/50

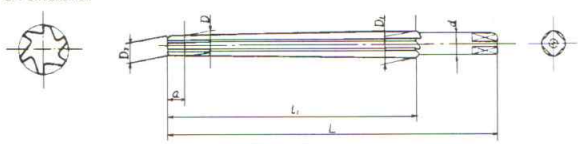
High Speed Steel

Escariadores de Mano, v Pasador Cónico

ハンドテーパピンリーマ 1/50　　直槽锥柄手用铰刀

(Ref. JIS B 4411 – 88)

This type of reamer is used in finishing taper pin holes. Straight Flutes are standard but Helical Flutes are also available.



Straight Flute



Helical Flute

Unit Per Pc.

Straight Flute CODE	Dimensions mm Nominal Size Diam D	Large Size Diam D_1	Flute Length L_1	Overall Length L	Helical Flute CODE
63 08 01	0.6	0.90	20	38	63 08 31
02	0.8	1.18	24	42	32
03	1.0	1.46	28	46	33
04	1.2	1.74	32	50	34
05	1.6	2.24	37	57	35
63 08 06	2.0	2.86	48	68	63 08 36
07	2.5	3.36	48	68	37
08	3.0	4.16	63	85	38
09	4.0	5.42	76	100	39
10	5.0	6.56	83	110	40
63 08 11	6.0	8.00	105	135	63 08 41
12	8.0	10.80	145	180	42
13	10.0	13.40	175	215	43
14	13.0	17.00	210	255	44
15	16.0	20.40	230	280	45
63 08 16	20.0	24.80	250	310	63 08 46
17	25.0	30.70	300	370	47
18	30.0	36.10	320	400	48
19	40.0	46.50	340	430	49
20	50.0	56.90	360	460	50

Hand Taper Pin Reamers 1/48

Straight Flute, American Standard High Speed Steel

Escariadores anuales Pasador Cónico 1ç48 Flauta Recta, Estándar Americano

1/48 テーパピンリーマーアメリカ標準規格

直槽手用锥销孔铰刀

1/48 Taper pins according to U.S. Standard have a taper of 6.35 mm per 25.4 mm. These reamers are designed in nominal numbers but since the standards are not unified, there are minor differences in tip diameter and small end diameter.



Unit Per Pc.

CODE	Diameter mm Size No	Small End	Large End	Length mm Flute	Overall
63 08 61	0000	2.21	2.90	33	59
62	000	2.61	3.30	33	59
63	00	2.89	3.72	40	65
64	0	3.27	4.17	43	75
65	1	3.68	4.58	43	75
63 08 66	2	4.08	5.10	49	81
67	3	4.61	5.84	59	94
68	4	5.26	6.61	65	103
69	5	6.12	7.60	71	110
70	6	7.04	9.00	94	138
63 08 71	7	8.37	10.72	113	160
72	8	10.09	12.84	132	183
73	9	12.21	15.42	154	211
74	10	14.73	18.33	173	237
75	11	17.93	22.31	210	285
63 08 76	12	21.38	26.69	255	340
77	13	25.93	31.98	305	405
78	14	31.75	39.15	355	465

Morse Taper Reamers

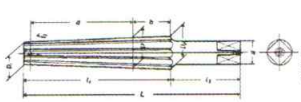
High Speed Steel

Escariadores para Pasadores Cpónicos

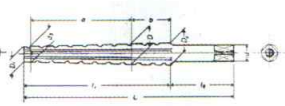
モールステーパリーマ　　莫氏锥度铰刀

(Ref. JIS B 4401 – 87)

Used for finishing Morse taper holes, these reamers come in finishing and rough-cutting grades. The rough cutting reamer has a helical arrangement of chip breakers at the cutting edges which fragment the chips for easy removal.



For Finishing



For Rough Cutting

Unit Per Pc.

CODE	Morse Taper No.	Diameter mm Small End D1	Large End D2	Length mm Flute L1	Overall L
		Finishing			
63 09 01	0	6.547	9.930	65	95
02	1	9.571	12.963	68	100
03	2	14.733	18.729	80	125
04	3	20.010	24.929	98	150
05	4	26.229	32.462	120	180
63 09 06	5	37.873	45.767	150	230
07	6	54.388	65.069	205	310
08	7	70.578	84.878	275	400

(to be continued)

Unit Per Pc.

CODE	Morse Taper No.	Diameter mm Small End D1	Diameter mm Large End D2	Length mm Flute L1	Length mm Overall L
Rough Cutting					
63 09 11	0	6.297	9.680	65	95
12	1	9.321	12.713	68	100
13	2	14.483	18.479	80	125
14	3	19.760	24.679	98	150
15	4	25.979	32.212	120	180
63 09 16	5	37.623	45.517	150	230
17	6	54.130	64.319	205	310
18	7	70.328	84.628	275	400

Adjustable Reamer Sets

Juegos de Escariadores Extensibles
アジャスタブルリーマーセット 可调整绞刀组

Different sets of reamers in various size combinations are available to give maximum economy, and convenience of use for different requirements.



Unit Per Set

CODE	Range mm	Number of Reamers
63 09 51	4.5 - 6.35	5
52	6.35 - 9.5	4
53	9.5 - 12.0	3
54	12.0 - 27.0	8
55	12.0 - 38.0	11
63 09 56	15.0 - 27.0	6
57	15.0 - 38.0	9
58	9.5 - 56.0	16

Metric Coarse Thread Hand Taps 3's/Set

Carbon Steel or High Speed Steel

Machos de Mano para Rosca Métrica Gruesa
メートル並目ねじ用等径ハンドタップ 碳钢公制粗牙螺纹攻

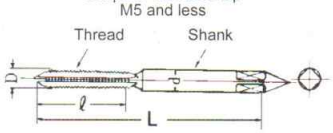
(Ref. JIS B 4430 – 87)

The hand taps most commonly employed today are used in conjunction with a machine, e.g. a tapping machine, rather than by hand. Thus, it is more common to employ a tap with a cutter shape most suitable for the conditions of use than using in sequence, three taps, i.e. the taper tap, plug tap and bottoming tap. Two kinds of materials of Carbon Steel and High Speed Steel are available. When ordering, please specify which one.

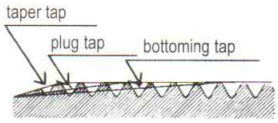
A set of 3 hand taps



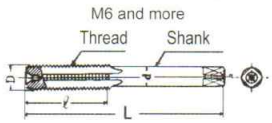
Shape of the hand tap M5 and less



Detailed view of chamfer



M6 and more



How to order: CODE

Hand tap, metric coarse, MATERIAL, DIAMETER, PITCH mm, 3's/set

Unit Per Set

Carbon Steel CODE	Designation Diameter mm D	Pitch mm	Length mm Flute	Length mm Overall L	High Speed Steel CODE
63 10 01	M 1.0	0.25	8	30	**63 10 51**
02	M 1.1	0.25	9	32	**52**
03	M 1.2	0.25	9	32	**53**
04	M 1.4	0.30	11	34	**54**
05	M 1.6	0.35	13	36	**55**
63 10 06	M 1.7	0.35	13	36	**63 10 56**
07	M 1.8	0.35	13	36	**57**
08	M 2.0	0.40	15	40	**58**
09	M 2.2	0.45	15	42	**59**
10	M 2.3	0.40	15	42	**60**
63 10 11	M 2.5	0.45	16	44	**63 10 61**
12	M 2.6	0.45	16	44	**62**
13	M 3.0	0.50	18	46	**63**
14	M 3.5	0.60	18	48	**64**
15	M 4.0	0.70	20	52	**65**
63 10 16	M 4.5	0.75	20	55	**63 10 66**
17	M 5.0	0.80	22	60	**67**
18	M 6.0	1.00	24	62	**68**
19	M 7.0	1.00	26	65	**69**
20	M 8.0	1.25	30	70	**70**
63 10 21	M 9.0	1.25	30	72	**63 10 71**
22	M 10	1.50	32	75	**72**
23	M 11	1.50	38	80	**73**
24	M 12	1.75	38	82	**74**
25	M 14	2.0	42	88	**75**
63 10 26	M 16	2.0	45	95	**63 10 76**
27	M 18	2.5	48	100	**77**
28	M 20	2.5	50	105	**78**
29	M 22	2.5	55	115	**79**
30	M 24	3.0	58	120	**80**
63 10 31	M 27	3.0	62	130	**63 10 81**
32	M 30	3.5	65	135	**82**
33	M 33	3.5	70	145	**83**
34	M 36	4.0	75	155	**84**
35	M 39	4.0	80	165	**85**
63 10 36	M 42	4.5	85	175	**63 10 86**
37	M 45	4.5	85	180	**87**
38	M 48	5.0	90	185	**88**

Metric Fine Thread Hand Taps 3's/Set

Carbon Steel or High Speed Steel

Machos de Mano para Rosca Fina Métrica 3'/Juego
メートル細目ねじ用等径ハンドタップ 碳钢公制细牙螺纹丝攻

How to order: CODE

Hand tap, metric fine, MATERIAL,DIAMETER, PITCH mm, 3's/set

Unit Per Set

Carbon Steel CODE	Designation Diameter mm D	Pitch mm	Length mm Flute	Length mm Overall L	High Speed Steel CODE
63 11 01	M 1.0	0.2	6	30	**63 12 01**
02	M 1.1	0.2	6	32	**02**
03	M 1.2	0.2	6	32	**03**
04	M 1.4	0.2	6	34	**04**
05	M 1.6	0.2	6	36	**05**
63 11 06	M 1.8	0.2	6	36	**63 12 06**
07	M 2.0	0.25	8	40	**07**
08	M 2.2	0.25	8	42	**08**
09	M 2.5	0.35	10	44	**09**
10	M 3.0	0.35	10	46	**10**
63 11 11	M 3.5	0.5	10	48	**63 12 11**
12	M 4.0	0.5	15	52	**12**
13	M 4.5	0.5	15	52	**13**
14	M 5.0	0.5	15	52	**14**
15	M 5.5	0.5	15	52	**15**

(to be continued)

Unit Per Set

Carbon Steel	Designation Diameter mm D	Pitch mm	Length mm		High Speed Steel
CODE			Flute	Overall L	CODE
63 11 16	M 6.0	0.75	20	62	63 12 16
17	M 7.0	0.75	20	62	17
18	M 8.0	1	30	70	18
19	M 8.0	0.75	20	62	19
20	M 9.0	1	30	70	20
63 11 21	M 9.0	0.75	20	62	63 12 21
22	M 10	1.25	32	75	22
23	M 10	1	30	70	23
24	M 10	0.75	20	62	24
25	M 11	1	30	70	25
63 11 26	M 11	0.75	20	62	63 12 26
27	M 12	1.5	38	82	27
28	M 12	1.25	38	80	28
29	M 12	1	30	70	29
30	M 14	1.5	42	88	30
63 11 31	M 14	1	30	70	63 12 31
32	M 15	1.5	42	90	32
33	M 15	1	30	70	33
34	M 16	1.5	45	95	34
35	M 16	1	30	75	35
63 11 36	M 17	1.5	45	95	63 12 36
37	M 17	1	30	80	37
38	M 18	2	45	95	38
39	M 18	1.5	45	95	39
40	M 18	1	30	80	40
63 11 41	M 20	2	45	95	63 12 41
42	M 20	1.5	45	95	42
43	M 20	1	30	80	43
44	M 22	2	45	95	44
45	M 22	1.5	45	95	45
63 11 46	M 22	1	30	85	63 12 46
47	M 24	2	45	95	47
48	M 24	1.5	45	95	48
49	M 24	1	30	90	49
50	M 25	2	45	95	50
63 11 51	M 25	1.5	45	95	63 12 51
52	M 25	1	30	95	52
53	M 26	1.5	45	95	53
54	M 27	2	45	95	54
55	M 27	1.5	45	95	55
63 11 56	M 27	1	30	95	63 12 56
57	M 28	2	45	105	57
58	M 28	1.5	45	105	58
59	M 28	1	30	105	59
60	M 30	3	65	135	60
63 11 61	M 30	2	45	105	63 12 61
62	M 30	1.5	45	105	62
63	M 30	1	30	105	63
64	M 32	2	45	105	64
65	M 32	1.5	45	105	65
63 11 66	M 33	3	70	145	63 12 66
67	M 33	2	45	110	67
68	M 33	1.5	45	110	68
69	M 35	1.5	45	110	69
70	M 36	3	75	155	70
63 11 71	M 36	2	45	110	63 12 71
72	M 36	1.5	45	110	72
73	M 38	1.5	45	115	73
74	M 39	3	80	165	74
75	M 39	2	45	115	75
63 11 76	M 39	1.5	45	115	63 12 76
77	M 40	3	80	165	77
78	M 40	2	45	115	78
79	M 40	1.5	45	115	79
80	M 42	4	80	175	80
63 11 81	M 42	3	80	175	63 12 81
82	M 42	2	45	120	82
83	M 45	1.5	45	120	83
84	M 45	4	80	180	84
85	M 45	3	80	180	85

(to be continued)

Unit Per Set

Carbon Steel	Designation Diameter mm D	Pitch mm	Length mm		High Speed Steel
CODE			Flute	Overall L	CODE
63 11 86	M 45	2	45	120	63 12 86
87	M 45	1.5	45	120	87
88	M 48	4	80	180	88
89	M 48	3	80	180	89
90	M 48	2	45	125	90
63 11 91	M 48	1.5	45	125	63 12 91
92	M 50	3	80	180	92
93	M 50	2	45	130	93
94	M 50	1.5	45	130	94

Whitworth Coarse Thread Hand Taps 3's/Set

Carbon Steel or High Speed Steel

Machos de Mano para Rosca Gruesa Whitworth 3'sçJuego

ウィット並目ねじ用等径ハンドタップ

碳钢惠氏英制粗牙螺丝攻

How to orde: CODE

Hand tap, whitworth coarse, MATERIAL, DIAMETER, THREAD, 3's/set

Unit Per Set

Carbon Steel	Designation Diam. inch D	Threads Per Inch	Length mm		High Speed Steel
CODE			Flute	Overall L	CODE
63 13 01	1/16	60	13	36	63 13 26
02	3/32	48	15	42	27
03	1/8	40	18	46	28
04	5/32	32	20	52	29
05	3/16	24	22	60	30
63 13 06	7/32	24	22	60	63 13 31
07	1/4	20	24	62	32
08	5/16	18	30	70	33
09	3/8	16	35	75	34
10	7/16	14	38	80	35
63 13 11	1/2	12	42	85	63 13 36
12	9/16	12	42	90	37
13	5/8	11	45	95	38
14	3/4	10	50	105	39
15	7/8	9	55	115	40
63 13 16	1	8	60	125	63 13 41
17	1-1/8	7	65	135	42
18	1-1/4	7	70	145	43
19	1-3/8	6	75	155	44
20	1-1/2	6	78	160	45
63 13 21	1-5/8	5	82	170	63 13 46
22	1-3/4	5	85	175	47
23	1-7/8	4-1/2	90	185	48
24	2	4-1/2	92	195	49

Unified Coarse Thread Hand Taps 3's/Set

Carbon Steel or High Speed Steel

Machos de Mano para Rosc Gruesa Unificada 3'sçJuego

ユニファイ並目ねじ用等径ハンドタップ

碳钢统一标准粗牙螺丝攻

How to order : CODE

Hand tap, unified coarse, MATERIAL,NOMINAL SIZE, PITCH mm

Unit Per Set

Carbon Steel CODE	Nominal Size	Diam. mm D	Threads Per Inch	Length mm Flute	Length mm Overall L	High Speed Steel CODE
63 13 50	No.1 - 64UNC	1.854	64	13	36	63 13 75
51	No.2 - 56UNC	2.184	56	15	42	76
52	No.3 - 48UNC	2.515	48	16	44	77
53	No.4 - 40UNC	2.845	40	16	44	78
54	No.5 - 40UNC	3.175	40	18	46	79
63 13 55	No.6 - 32UNC	3.505	32	18	48	63 13 80
56	No.8 - 32UNC	4.166	32	20	52	81
57	No.10 - 24UNC	4.826	24	22	60	82
58	No.12 - 24UNC	5.486	24	22	60	83
59	1/4 - 20UNC	6.350	20	24	62	84
63 13 60	5/16 - 18UNC	7.938	18	30	70	63 13 85
61	3/8 - 16UNC	9.525	16	35	75	86
62	7/16 - 14UNC	11.112	14	38	80	87
63	1/2 - 13UNC	12.700	13	42	85	88
64	9/16 - 12UNC	14.288	12	42	90	89
63 13 65	5/8 - 11UNC	15.875	11	45	95	63 13 90
66	3/4 - 10UNC	19.050	10	50	105	91
67	7/8 - 9UNC	22.225	9	55	115	92
68	1 - 8UNC	25.400	8	60	125	93
69	1-1/8 - 7UNC	28.575	7	65	135	94
63 13 70	1-1/4 - 7UNC	31.750	7	70	145	63 13 95
71	1-3/8 - 6UNC	34.925	6	75	155	96
72	1-1/2 - 6UNC	38.100	6	78	160	97
73	1-3/4 - 5UNC	44.450	5	85	175	98
74	2 - 4-1/2UNC	50.800	4-1/2	92	195	99

Pipe Tap Combination

Standard	Straight of Taper	Thread Male	Thread Female	Combination
JIS B 4445 ISO 2284	Straight Pipe Thread	PF (G)	PF (G)	Combination of straight male threads for pipes (PF) with straight female thread for pipe (PF)
JIS B 4446 ISO 2284	Taper Pipe Threads	PT (RC)	PT (RC)	Combination of taper male threads for pipe taper threads (PT) with taper female threads for pipe taper threads
			PS (RP)	Combination of taper male threads for pipe taper threads (PT) with straight female threads for pipe taper threads (PS)

63

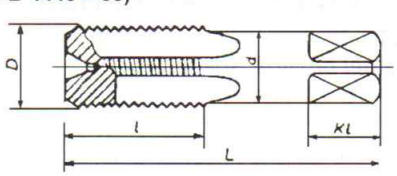
Cutting Tools

Straight Pipe Taps for Straight Pipe Thread

G (ISO) or PF Type

Machos apra Roscar a Máquina
管用並行ねじ用タップ　　直式管用丝锥

(Ref. JIS B 4445 – 88)



How to order: CODE

Straight pipe tap for straight pipe thread, MATERIAL, TYPE of THREAD,NOMINAL SIZE, PITCH mm

Carbon Steel

Unit Per Pc.

CODE	Nominal Size	Thread Per 25.4 mm	Overall Length mm	CODE	Nominal Size	Thread Per 25.4 mm	Overall Length mm
G (ISO) TYPE				PF TYPE			
63 14 01	G 1/16	28	52				
02	" 1/8	28	59	63 14 26	PF 1/8	28	55
03	" 1/4	19	67	27	" 1/4	19	62
04	" 3/8	19	75	28	" 3/8	19	65
05	" 1/2	14	87	29	" 1/2	14	80
63 14 06	G 5/8	14	91	63 14 30	PF 5/8	14	82
07	" 3/4	14	96	31	" 3/4	14	85
08	" 7/8	14	102	32	" 7/8	14	90
09	" 1	11	109	33	" 1	11	95
10	" 1-1/8	11	115	34	" 1-1/8	11	100
63 14 11	G 1-1/4	11	119	63 14 35	PF 1-1/4	11	105
12	" 1-1/2	11	125	36	" 1-1/2	11	110
13	" 1-3/4	11	132	37	" 1-3/4	11	115
14	" 2	11	140	38	" 2	11	120
15	" 2-1/4	11	142				
63 14 16	G 2-1/2	11	153				
17	" 2-3/4	11	160				
18	" 3	11	164				
19	" 3-1/2	11	173				
20	" 4	11	185				

High Speed Steel

Unit Per Pc.

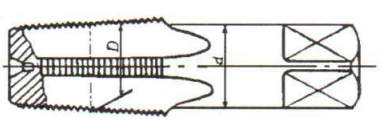
CODE	Nominal Size	Thread Per 25.4 mm	Overall Length mm	CODE	Nominal Size	Thread Per 25.4 mm	Overall Length mm
G (ISO) TYPE				PF TYPE			
63 14 51	G 1/16	28	52				
52	" 1/8	28	59	63 14 76	PF 1/8	28	55
53	" 1/4	19	67	77	" 1/4	19	62
54	" 3/8	19	75	78	" 3/8	19	65
55	" 1/2	14	87	79	" 1/2	14	80
63 14 56	G 5/8	14	91	63 14 80	PF 5/8	14	82
57	" 3/4	14	96	81	" 3/4	14	85
58	" 7/8	14	102	82	" 7/8	14	90
59	" 1	11	109	83	" 1	11	95
60	" 1-1/8	11	115	84	" 1-1/8	11	100
63 14 61	G 1-1/4	11	119	63 14 85	PF 1-1/4	11	105
62	" 1-1/2	11	125	86	" 1-1/2	11	110
63	" 1-3/4	11	132	87	" 1-3/4	11	115
64	" 2	11	140	88	" 2	11	120
65	" 2-1/4	11	142				
63 14 66	G 2-1/2	11	153				
67	" 2-3/4	11	160				
68	" 3	11	164				
69	" 3-1/2	11	173				
70	" 4	11	185				

Taper Pipe Taps for Taper Pipe Thread

Rc (ISO) and PT Type

Machos para Roscar a Máquina para Rosca Cónica
管用テーパーねじ用テーパータップ
锥形管子丝锥

(Ref. JIS B 4446 – 88)



How to order : CODE

Taper pipe tap for taper pipe thread, MATERIAL, TYPE of THREAD, NOMINAL SIZE, PITCH mm

Carbon Steel

Unit Per Pc.

CODE	Nominal Size	Thread Per 25.4 mm	Overall Length mm	CODE	Nominal Size	Thread Per 25.4 mm	Overall Length mm
Rc (ISO) TYPE				PT TYPE			
63 15 01	Rc 1/16	28	52				
02	" 1/8	28	59	63 15 16	PT 1/8	28	55
03	" 1/4	19	67	17	" 1/4	19	62
04	" 3/8	19	75	18	" 3/8	19	65
05	" 1/2	14	87	19	" 1/2	14	80
63 15 06	Rc 3/4	14	96	63 15 20	PT 3/4	14	85
07	" 1	11	109	21	" 1	11	95
08	" 1-1/4	11	119	22	" 1-1/4	11	105
09	" 1-1/2	11	125	23	" 1-1/2	11	110
10	" 2	11	140	24	" 2	11	120
63 15 11	Rc 2-1/2	11	153				
12	" 3	11	164				
13	" 3-1/2	11	173				
14	" 4	11	185				

High Speed Steel

Unit Per Pc.

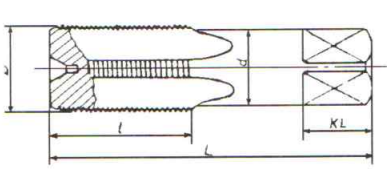
CODE	Nominal Size	Thread Per 25.4 mm	Overall Length mm	CODE	Nominal Size	Thread Per 25.4 mm	Overall Length mm
Rc (ISO) TYPE				PT TYPE			
63 15 26	Rc 1/16	28	52				
27	" 1/8	28	59	63 15 41	PT 1/8	28	55
28	" 1/4	19	67	42	" 1/4	19	62
29	" 3/8	19	75	43	" 3/8	19	65
30	" 1/2	14	87	44	" 1/2	14	80
63 15 31	Rc 3/4	14	96	63 15 45	PT 3/4	14	85
32	" 1	11	109	46	" 1	11	95
33	" 1-1/4	11	119	47	" 1-1/4	11	105
34	" 1-1/2	11	125	48	" 1-1/2	11	110
35	" 2	11	140	49	" 2	11	120
63 15 36	Rc 2-1/2	11	153				
37	" 3	11	164				
38	" 3-1/2	11	173				
39	" 4	11	185				

Straight Pipe Taps for Taper Pipe Thread

Rp (ISO) and PS Type

Machos para Rosca a Máquina para Rosca ISO y Ps
管用テーパーねじ用平行タップ　直式管用丝锥

(Ref. JIS B 4446 – 88)



How to order: CODE

Straight pipe tap for taper pipe thread, MATERIAL, TYPE of THREAD, NOMINAL SIZE, PITCH mm

Carbon Steel

Unit Per Pc.

CODE	Nominal Size	Thread Per 25.4 mm	Overall Length mm	CODE	Nominal Size	Thread Per 25.4 mm	Overall Length mm
Rp (ISO) TYPE				PS TYPE			
63 15 51	Rp 1/16	28	52				
52	" 1/8	28	59	63 15 66	PS 1/8	28	55
53	" 1/4	19	67	67	" 1/4	19	62
54	" 3/8	19	75	68	" 3/8	19	65
55	" 1/2	14	87	69	" 1/2	14	80
63 15 56	Rp 3/4	14	96	63 15 70	PS 3/4	14	85
57	" 1	11	109	71	" 1	11	95
58	" 1-1/4	11	119	72	" 1-1/4	11	105
59	" 1-1/2	11	125	73	" 1-1/2	11	110
60	" 2	11	140	74	" 2	11	120
63 15 61	Rp 2-1/2	11	153				
62	" 3	11	164				
63	" 3-1/2	11	173				
64	" 4	11	185				

High Speed Steel

Unit Per Pc.

CODE	Nominal Size	Thread Per 25.4 mm	Overall Length mm	CODE	Nominal Size	Thread Per 25.4 mm	Overall Length mm
Rp (ISO) TYPE				PS TYPE			
63 15 76	Rp 1/16	28	52				
77	" 1/8	28	59	63 15 91	PS1/8	28	55
78	" 1/4	19	67	92	" 1/4	19	62
79	" 3/8	19	75	93	" 3/8	19	65
80	" 1/2	14	87	94	" 1/2	14	80
63 15 81	Rp 3/4	14	96	63 15 95	PS 3/4	14	85
82	" 1	11	109	96	" 1	11	95
83	" 1-1/4	11	119	97	" 1-1/4	11	105
84	" 1-1/2	11	125	98	" 1-1/2	11	110
85	" 2	11	140	99	" 2	11	120
63 15 86	Rp 2-1/2	11	153				
87	" 3	11	164				
88	" 3-1/2	11	173				
89	" 4	11	185				

Straight Pipe Taps for Straight American Pipe Thread

Carbon Steel

Machos para Roscar Máquina para Rosca Americana
アメリカ管用平行ねじ用タップ
碳钢美标直管牙直管用螺纹攻

Unit Per Pc.

CODE	Nominal Size	Diam. mm D	Thread Per Inch	Length mm Flute	Length mm Overall L
63 16 01	NPS 1/8	10.117	27	19	55
02	" 1/4	13.426	18	28	62
03	" 3/8	16.866	18	28	65
04	" 1/2	20.980	14	35	80
05	" 3/4	26.325	14	35	85
63 16 06	NPS 1/8	32.934	11-1/2	45	95

Taper Pipe Taps for Taper American Pipe Thread

Carbon Steel

Machos para Roscar Máquina para Rosca Cónica-Americana
アメリカ管用テーパーねじ用タップ
碳钢美标锥形管牙锥管

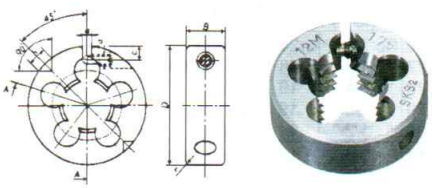
Unit Per Pc.

CODE	Nominal Size	Diam. mm D	Thread Per Inch	Length mm Flute	Length mm Overall L
63 16 11	NPT 1/16	7.770	27	18	55
12	" 1/8	10.117	27	19	55
13	" 1/4	13.426	18	28	62
14	" 3/8	16.866	18	28	65
15	" 1/2	20.980	14	35	80
63 16 16	NPT 3/4	26.325	14	35	85
17	" 1	32.934	11-1/2	45	95
18	" 1-1/4	41.689	11-1/2	45	105
19	" 1-1/2	47.760	11-1/2	45	110
20	" 2	59.797	11-1/2	50	120
63 16 21	NPT 2-1/2	72.273	8	65	145
22	" 3	88.184	8	65	155

Round Dies, Adjustable

Cojinetes　丸駒ダイス調整式　圆框骰子调整类型

These round adjustable dies are used in either hand stock holders or machine holders. These dies can be adjusted by turning a small set screw which will change the nominal size of the dies giving them a tight or loose fit to the threads. Most commonly made of carbon steel, but high speed steel threads are also available.



Metric Coarse Thread Dies Carbon Steel

Cojinetes Rosca Ordinaria Mpétrica
メートル並目ねじ用ダイス　可调式圆板牙

(Ref. JIS B 4451 – 88)

How to order : CODE

Round die, adjustable, metric coarse thread, carbon steel, NOMINAL SIZE, PITCH, DIAM mm

Unit Per Pc.

CODE	Nominal Size	Pitch mm	O.D. mm D	Th'k mm B
63 17 01	M 1.0	0.25	16	5
02	M 1.1	0.25		
03	M 1.2	0.25		
04	M 1.4	0.3		
05	M 1.6	0.35		
63 17 06	M 1.7	0.35		
07	M 1.8	0.35		
08	M 2.0	0.4		
09	M 2.2	0.45		
10	M 2.3	0.4		
63 17 11	M 2.5	0.45		
12	M 2.6	0.45		
13	M 3.0	0.5	20	7
14	M 3.5	0.6		
15	M 4.0	0.7		
63 17 16	M 4.5	0.75		
17	M 5.0	0.8		
18	M 6.0	1		
19	M 7.0	1	25	9
20	M 8.0	1.25		
63 17 21	M 9.0	1.25		
22	M 10	1.5		
23	M 11	1.5	38	13
24	M 12	1.75		
25	M 14	2		

(to be continued)

Unit Per Pc.

CODE	Nominal Size	Pitch mm	O.D. mm D	Th'k mm B
63 17 26	M 16	2	50	16
27	M 18	2.5		
28	M 20	2.5		
29	M 22	2.5		
30	M 24	3		
63 17 31	M 27	3	63	20
32	M 30	3.5	75	25
33	M 33	3.5		
34	M 36	4		
35	M 39	4		
63 17 36	M 42	4.5		

Metric Fine Thread Dies Carbon Steel

Cojinetes Rosca Fina Métrica
メートル細目ねじ用ダイス　可调式公制细牙圆板牙

(Ref. JIS B 4451 – 88)

How to order: CODE

Round die, adjustable, metric fine thread, carbon steel, NOMINAL SIZE, PITCH, DIAM mm

Unit Per Pc.

CODE	Nominal Size	O.D. mm D	Th'k mm B
63 18 01	M 1.0 × 0.2	16	5
02	M 1.1 × 0.2		
03	M 1.2 × 0.2		
04	M 1.4 × 0.2		
05	M 1.6 × 0.2		
63 18 06	M 1.8 × 0.2		
07	M 2 × 0.25		
08	M 2.2 × 0.25		
09	M 2.5 × 0.35		
10	M 3 × 0.35		
63 18 11	M 3.5 × 0.35	20	7
12	M 4 × 0.5		
13	M 4.5 × 0.5		
14	M 5 × 0.5		
15	M 5.5 × 0.5		
63 18 16	M 6 × 0.75		
17	M 7 × 0.75		
18	M 8 × 1	25	9
19	M 8 × 0.75		
20	M 9 × 1		
63 18 21	M 9 × 0.75		
22	M 10 × 1.25		
23	M 10 × 1		
24	M 10 × 0.75	38	13
25	M 11 × 1		
63 18 26	M 11 × 0.75		
27	M 12 × 1.5		
28	M 12 × 1.25		
29	M 12 × 1		
30	M 14 × 1.5		
63 18 31	M 14 × 1		
32	M 15 × 1.5		
33	M 15 × 1		
34	M 16 × 1.5	50	16
35	M 16 × 1		
63 18 36	M 17 × 1.5		
37	M 17 × 1		
38	M 18 × 2		
39	M 18 × 1.5		
40	M 18 × 1		
63 18 41	M 20 × 2		
42	M 20 × 1.5		
43	M 20 × 1		
44	M 22 × 2		
45	M 22 × 1.5		

(to be continued)

Unit Per Pc.

CODE	Nominal Size	O.D. mm D	Th'k mm B
63 18 46	M 22 × 1	50	16
47	M 24 × 2		
48	M 24 × 1.5		
49	M 24 × 1		
50	M 25 × 2		
63 18 51	M 25 × 1.5		
52	M 25 × 1		
53	M 26 × 1.5	63	20
54	M 27 × 2		
55	M 27 × 1.5		
63 18 56	M 27 × 1		
57	M 28 × 2		
58	M 28 × 1.5		
59	M 28 × 1		
60	M 30 × 3	75	25
63 18 61	M 30 × 2		
62	M 30 × 1.5		
63	M 30 × 1		
64	M 32 × 2		
65	M 32 × 1.5		
63 18 66	M 33 × 3		
67	M 33 × 2		
68	M 33 × 1.5		
69	M 35 × 1.5		
70	M 36 × 3		
63 18 71	M 36 × 2		
72	M 36 × 1.5		
73	M 38 × 1.5		
74	M 39 × 3		
75	M 39 × 2		
63 18 76	M 39 × 1.5		
77	M 40 × 3		
78	M 40 × 2		
79	M 40 × 1.5		
80	M 42 × 4		
63 18 81	M 42 × 3		
82	M 42 × 2		
83	M 42 × 1.5		

Unified Coarse Thread Dies
Carbon Steel

Cojinetes Rosca Ordinaria Unificada
ユニファイ並目ねじ用ダイス　可调式统一标准粗圆板牙（碳钢）

(Ref. JIS B 4451 – 88)

How to order: CODE

Round die, adjustable, unified coarse thread, carbon steel, MATERIAL, NOMINAL SIZE, DIAM mm

Unit Per Pc.

CODE	Nominal Size	O.D. mm D	Th'k mm B
63 19 01	No. 1 - 64UNC	16	5
02	No. 2 - 56UNC		
03	No. 3 - 48UNC		
04	No. 4 - 40UNC		
05	No. 5 - 40UNC	20	7
63 19 06	No. 6 - 32UNC		
07	No. 8 - 32UNC		
08	No.10 - 24UNC		
09	No.12 - 24UNC		
10	1/4 - 20UNC	25	9
63 19 11	5/16 - 18UNC	38	13
12	3/8 - 16UNC		
13	7/16 - 14UNC		
14	1/2 - 13UNC		
15	9/16 - 12UNC		

(to be continued)

Unit Per Pc.

CODE	Nominal Size	O.D. mm D	Th'k mm B
63 19 16	5/8 - 11UNC	50	16
17	3/4 - 10UNC		
18	7/8 - 9UNC		
19	1 - 8UNC	63	20
20	1-1/8 - 7UNC	75	25
63 19 21	1 1/4 - 7UNC		
22	1 3/8 - 6UNC		
23	1 1/2 - 6UNC		

Whitworth Coarse Thread Dies
Carbon Steel

Cojinetes Rosca Oridinaria Whitworth
ウイット並目ねじ用ダイス　可调式惠氏粗圆板牙（碳钢）

How to order: CODE

Round die, adjustable, whitworth coarse thread, carbon steel, NOMINAL SIZE, THREAD, DIAM mm

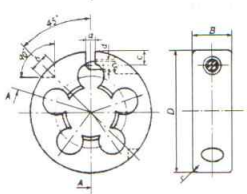
Unit Per Pc.

CODE	Nominal Size	Thread Per Inch	O.D. mm D	Th'k mm B
63 19 31	W 1/16	60	16	5
32	W 3/32	48		
33	W 1/8	40	20	7
34	W 5/32	32		
35	W 3/16	24		
63 19 36	W 7/32	24	25	9
37	W 1/4	20		
38	W 5/16	18		
39	W 3/8	16	38	13
40	W 7/16	14		
63 19 41	W 1/2	12		
42	W 9/16	12		
43	W 5/8	11	50	16
44	W 3/4	10		
45	W 7/8	9		
63 19 46	W 1	8	63	20

Adjustable Round Dies for Pipe Threads

Cojinetes Redondos Ajustables para Roscas de Tubería
管用ねじ用丸駒ダイス調整式　管用可调式螺模

Designed to cut pipe threads, these dies are made for one type of cut either for taper threads or straight threads just as in the case of taps.





Straight Pipe Thread Dies
Carbon Steel

Cojinetes Rosca de tubería Recta
管用平行ねじ用丸ダイス　可调式直管螺纹圆板牙（碳钢）

(Ref. JIS B 4455 - 88)

How to order: CODE

Round die, adjustable, straight pipe thread, carbon steel, NOMINAL SIZE,THREAD, DIAM mm

Unit Per Pc.

CODE	Nominal Size	Thread Per 25.4 mm	O.D. mm D	Th'k mm B
63 20 01	PF 1/16	28	38	13
02	PF 1/8	28		
03	PF 1/4	19		
04	PF 3/8	19	50	16
05	PF 1/2	14		
63 20 06	PF 5/8	14	63	20
07	PF 3/4	14		
08	PF 7/8	14	75	25
09	PF 1	11		
10	PF 1 - 1/8	11		
63 20 11	PF 1 - 1/4	11		
12	PF 1 - 1/2	11	90	30
13	PF 1 - 3/4	11	105	30
14	PF 2	11		
15	PF 2 - 1/4	11	120	30

Taper Pipe Thread Dies
Carbon Steel

Cojinetes Rosca de Tubería Cónica
管用テーパねじ用丸ダイス 可调式锥形螺纹圆板牙（碳钢）

(Ref. JIS B 4455 – 88)

How to order: CODE

Round die, adjustable, taper pipe thread, carbon steel, NOMINAL SIZE, THREAD, DIAM mm

Unit Per Pc.

CODE	Nominal Size	Thread Per 25.4 mm	O.D. mm D	Th'k mm B
63 20 21	PF 1/16	28	38	13
22	PF 1/8	28		
23	PF 1/4	19		
24	PF 3/8	19	50	16
25	PF 1/2	14		
63 20 26	PF 3/4	14	63	20
27	PF 1	11	75	25
28	PF 1-1/4	11		
29	PF 1-1/2	11	90	30
30	PF 2	11	105	

Straight American Thread Dies
Carbon Steel

Cojinetes Rosca de tubería Recta Americana
アメリカ管用平行ねじ用ダイス
美标可调式直管平行螺纹圆板牙（碳钢）

How to order: CODE

Round die, adjustable, straight pipe American thread, carbon steel, NOMINAL SIZE, THREAD, DIAM mm

Unit Per Pc.

CODE	Nominal Size	Thread Per 25.4 mm	O.D. mm D	Th'k mm B
63 20 41	NPS 1/8	27	38	13
42	NPS 1/4	18		
43	NPS 3/8	18	50	16
44	NPS 1/2	14		
45	NPS 3/4	14	63	20
63 20 46	NPS 1	11-1/2	75	25
47	NPS 1-1/4	11-1/2		

Taper Pipe American Thread Dies
Carbon Steel

Cojinetes Rosca de Tubería Americana
アメリカ管用テーパねじ用ダイス
美标可调式锥形螺纹圆板牙（碳钢）

How to order: CODE

Round die, adjustable, taper pipe American thread, carbon steel, NOMINAL SIZE, THREAD, DIAM mm

Unit Per Pc.

CODE	Nominal Size	Thread Per Inch	O.D. mm D	Th'k mm B
63 20 51	NPT 1/8	27	38	13
52	NPT 1/4	18		
53	NPT 3/8	18	50	16
54	NPT 1/2	14		
55	NPT 3/4	14	63	20
63 20 56	NPT 1	11-1/2	75	25
57	NPT 1-1/4	11-1/2		

Hexagon Rethreading Dies

Carbon Steel

Cojinetes "Rethreading" Hexagonales
六角サラエダイス 六角螺模



For dressing over bruised or rusty threads, or for cutting occasional new threads. No special holder required for these dies, simply use the appropriate sized wrench.

Metric Coarse Thread

Rosc Ordinaria Métrica メートル並目ねじ 公制粗牙螺纹

How to order: CODE

Hexagon rethreading die, metric coarse, carbon steel, NOMINAL SIZE, PITCH mm

Unit Per Pc.

CODE	Nominal Size	Pitch mm	Across Flat mm
63 21 01	M 3	0.5	14
02	M 3	0.6	14
03	M 3.5	0.6	14
04	M 4	0.7	14
05	M 4	0.75	14
63 21 06	M 4.5	0.75	14
07	M 5	0.8	17
08	M 5	0.9	17
09	M 5.5	0.9	17
10	M 6	1.0	19
63 21 11	M 7	1.0	19
12	M 8	1.25	21
13	M 9	1.25	21
14	M 10	1.5	26
15	M 11	1.5	26
63 21 16	M 12	1.75	32
17	M 14	2.0	35
18	M 16	2.0	35
19	M 18	2.5	41
20	M 20	2.5	46
63 21 21	M 22	2.5	46
22	M 24	3.0	50
23	M 27	3.0	54
24	M 30	3.5	54

Whitworth Coarse Thread

Rosca Ordinaria Whitworth
ウィット並目ねじ 惠氏粗牙螺纹

How to order: CODE

Hexagon rethreading die, whitworth coarse thread, carbon steel, NOMINAL SIZE , THREAD

Unit Per Pc.

CODE	Nominal Size	Thread Per inch	Across Flat mm
63 21 31	W 1/8	40	17
32	W 3/16	24	17
33	W 1/4	20	19
34	W 5/16	18	21
35	W 3/8	16	26
63 21 36	W 7/16	14	26
37	W 1/2	12	32
38	W 9/16	12	35
39	W 5/8	11	35
40	W 3/4	10	41
63 21 41	W 7/8	9	46
42	W 1	8	50
43	W 1-1/8	7	54
44	W 1-1/4	7	58
45	W 1-3/8	6	63
63 21 46	W 1-1/2	6	71
47	W 1-5/8	5	77
48	W 1-3/4	5	85
49	W 1-7/8	4-1/2	85
50	W 2	4-1/2	90

Straight or Taper Pipe Thread

Rosca para Tubería Recta o Cónica

管用平行及テーパねじ　圓柱管螺纹六角校牙板牙

How to order: CODE

Hexagon rethreading die, TYPE of PIPE THREAD, NOMINAL SIZE, THREAD

Unit Per Pc.

CODE	Nominal Size	Thread Per 25.4 mm	Across Flat mm
	Straight		
63 21 61	PF 1/8	28	38
62	PF 1/4	19	38
63	PF 3/8	19	50
64	PF 1/2	14	50
65	PF 3/4	14	63
63 21 66	PF 1	11	75
67	PF 1-1/4	11	75
68	PF 1-3/8	11	75
69	PF 1-1/2	11	75
70	PF 1-3/4	11	90
63 21 71	PF 2	11	90
	Taper		
63 21 76	PT 1/8	28	38
77	PT 1/4	19	38
78	PT 3/8	19	50
79	PT 1/2	14	50
80	PT 3/4	14	63
63 21 81	PT 1	11	75
82	PT 1-1/4	11	75
83	PT 1-3/8	11	75
84	PT 1-1/2	11	75
85	PT 1-3/4	11	90
63 21 86	PT 2	11	90

Screw Plate Sets

(Stocks & Dies)

Juegos de Machos y Cojinetes

丸駒式タップ、ダイスセット　搓丝板组



These sets are designed for cutting threads of a variety of sizes, easily, and all with one set. Suitable for jobs involving a wide range of on site threading work. There are single tap or three tap sets available in the same thread cutting range. When ordering, please specify the set number, thread cutting range, and thread type, (whitworth, metric, etc.), by indicating the exact code number.

For Metric Coarse Threading with One Tap & One Round Split Die for each size

Para Rosca Ordinaria Métrica con 1 Macho y Cojinete de cada Medida

一本タップメートル並目ねじ用　公制粗牙螺纹丝攻组

How to order: CODE

Screw plate set, metric coarse thread, CAPACITY of THREAD CUTTING (MINIMUM – MAXIMUM in mm), NUMBERS/set

Unit Per Set

CODE	Model	Thread Cutting Size	Diam of Die mm	Pcs/ Set
63 22 01	OK41	M - 6, 7, 8, 10, 12	38	12
63 22 02	OK45	M - 6, 8, 10, 12, 14, 16, 18	50	16
63 22 03	OK47	M - 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	50	22
63 22 04	OK100	M - 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30	50 57	28
63 22 05	D413	M - 1.0, 1.2, 1.4, 1.7, 2.0, 2.3, 2.6, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5	20	28
63 22 06	D47	M - 2.0, 2.5, 3.0, 3.5, 4.0, 5.0, 6.0	20	16
63 22 07	D47-1/2	M - 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0	20	16
63 22 08	D48	M - 2.0, 2.5, 3.0, 3.5, 4.0, 5.0, 6.0, 7.0	20	18
63 22 09	F46	M - 4, 5, 6, 8, 10, 12	25	14
63 22 10	F48	M - 3, 4, 5, 6, 7, 8, 9, 10	25	18
63 22 11	M10	M - 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0	20	20
63 22 12	M11	M - 5.0, 5.5, 6.0, 7.0, 8.0, 9.0, 10.0	25	16
63 22 13	M12	M - 6, 7, 8, 9, 10, 11, 12, 14, 16	38	20
63 22 14	M13	M - 6, 7, 8, 10, 11, 12, 14, 16, 18, 20	50	22
63 22 15	M14	M - 10, 11, 12, 14, 16, 18, 20, 22, 24, 26	50	22
63 22 16	M15	M - 6, 7, 8, 10, 11, 12, 14, 16, 18, 20, 22, 24	50	26

For Unified Coarse Threading with One Tap & One Round Split Die for each size

Para Rosca Ordinaria Unifacada con 1 Macho y Cojinete de cada Medida

一本タップユニファイ並目ねじ用　公制粗牙螺纹丝攻组

How to order: CODE

Screw plate set, unified coarse thread, CAPACITY of THREAD CUTTING(MINIMUM – MAXIMUM in mm), NUMBERS/set

Unit Per Set

CODE	Model	Thread Cutting Size	Diam of Die mm	Pcs/ Set
63 22 21	OK31	1/4, 5/16 ,3/8, 7/16, 1/2	38	12
63 22 22	OK35	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4	50	16
63 22 23	OK35-1/2	1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 3/4	50	18
63 22 24	OK37	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1	50	20
63 22 25	OK37-1/2	1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 3/4, 7/8, 1	50	22

For Whitworth Coarse Threading with One Tap & One Round Split Die for each size

Para Rosca Ordinaria Whitworth con 1 Macho y Cojinete de cada Medida

一本タップウィット並目ねじ用

惠氏英制粗牙单头螺纹丝攻组

How to order: CODE

Screw plate set, whitworth coarse thread, CAPACITY of THREAD CUTTING (MINIMUM – MAXIMUM in mm), NUMBERS/set

Unit Per Set

CODE	Model	Thread Cutting Size	Diam. of Die mm	Pcs/ Set
63 22 31	OK 1	1/4, 5/16, 3/8, 7/16, 1/2	38	12
63 22 32	OK 2	1/4, 3/8, 1/2, 5/8, 3/4	50	12
63 22 33	OK 5	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4	50	16
63 22 35	OK 7	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1	50	20
63 22 36	OK 7-1/2	1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 3/4, 7/8, 1	50	22
63 22 37	OK 40	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1, 1-1/8, 1-1/4	50 57	11
63 22 38	OK 50	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1, 1-1/8, 1-1/4, 1-3/8, 1-1/2	50 75	28

For Whitworth Coarse Threading with 3 Taps & One Round Split Die for each size

Para Rosca Ordinaria Whitworth con 3 Macho y Cojinete de cada Medida

三本タップウィット並目ねじ用

惠氏英制粗牙单头螺丝攻组

How to order: CODE

Screw plate set, whitworth coarse thread with 3 taps, CAPACITY of THREAD CUTTING (MINIMUM – MAXIMUM in mm), NUMBERS/set

Unit Per Set

CODE	Model	Thread Cutting Size	Diam. of Die mm	Pcs/ Set
63 22 41	OK 101	1/4, 5/16, 3/8, 7/16, 1/2	38	22
63 22 42	OK 102	1/4, 3/8, 1/2, 5/8, 3/4	50	22
63 22 43	OK 105	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4	50	30
63 22 45	OK 107	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1	50	38
63 22 46	OK 107-1/2	1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 3/4, 7/8, 1	50	42
63 22 47	OK 140	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1, 1-1/8, 1-1/4	50 57	46
63 22 48	OK 150	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1, 1-1/8, 1-1/4, 1-3/8, 1-1/2	50 75	54

For Straight Pipe Threading (PS) with One Tap & One Round Split Die for each size

Para Rosca de Tubería Recta con 1 Macho y Cojinete de cada Medida

一本タップ管用ねじ用　　管螺纹丝锥和板牙全套

How to order: CODE

Screw plate set, straight pipe threading, CAPACITY of THREAD CUTTING (MINIMUM – MAXIMUM in mm), NUMBERS/set

Unit Per Set

CODE	Model	Thread Cutting Size	Diam. of Die mm	Pcs/ Set
63 22 51	R1	1/8, 1/4, 3/8, 1/2	50	10
63 22 52	R2	1/8, 1/4, 3/8, 1/2, 5/8, 3/4	50	14
63 22 53	R3	1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1	50 57	18
63 22 54	R4	1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1-1/8, 1-1/4	50 63	22

Remarks: Arrangement of Taper or straight thread for above sizes is according to users selection.

Tap Wrenches

Giramachos　　タップハンドル　　丝锥扳手

The jaws are made of tool steel, carefully hardened and tempered for perfect performance. The handle is knurled for safe, easy operation.



Straight Type



T-Type

Unit Per Pc.

CODE	Nominal Size	Applicable Size	Overall Length mm
	Straight Type		
63 34 01	6.0	M 1- 6	170
02	10.0	M 1-10	200
03	13.0	M 4-13	255
04	20.0	M 6-20	350
05	25.0	M 10-25	450
06	32.0	M 19-32	780
07	38.0	M 19-38	900
08	50.0	M 25-50	1,000
	T Type		
63 34 11	5.0	M 3- 5	80
12	6.0	M 3- 6	90
13	10.0	M 5-10	115
14	13.0	M 10-13	125

Round Die Stocks

Volvedor para Cojinetes

丸駒ダイス用ハンドル　　圆形螺纹扳手

Adjustable round die stocks. Made of steel. Select suitable diameter of stock to fit your round dies.



Unit Per Pc.

CODE	Round Die O.D. mm	CODE	Round Die O.D. mm
63 34 21	16	**63 34 27**	63
22	20	**28**	70
23	25	**29**	75
24	38	**30**	100
25	50	**31**	115
63 34 26	57	**63 34 32**	125

Drill Chucks with Key

Portabrocas con Llave

ドリルチャックドリルチャック

带钥匙的钻头夹盘

These drill chucks are offered for light-duty and heavy- duty portable, bench, or floor type power tools in a wide range of capacities for either threaded or tapered mounting spindles.



Unit Per Pc.

CODE	Capacity mm	Dimensions		Jacobs Taper Hole No.
		Length mm	Diam mm	
63 23 31	4.0	40	26	J#D
32	5.0	40	26	"
33	5.0	50	33	J#1
34	6.5	50	33	"
35	6.5	58	38	"
63 23 36	8.0	58	38	J#1
37	10.0	70	46	J#2 Short
38	13.0	90	55	J#6
39	14.0	98	60	J#3
40	16.0	98	60	J#3
63 23 41	19.0	125	75	J#4
42	22.0	125	75	"
43	25.0	142	80	J#5

Keyless Drill Chucks

Portabrocas de Cierre Rápido
キーレスドリルチャック　无钥匙的钻头夹盘

The keyless drill chuck is usually used on precision drilling machinery where close tolerance drilling is essential. Designed for both toolroom and production machinery where accuracy, gripping power and keyless features are desired.



Size mm Capacity	Dimensions mm		Taper No.
	Diam.	Length	
13	50	103	JT No.6 or (JT No.25)

63 23 46	Keyless drill chuck 13 mm	Pc.

Drill Sleeves

Casquillos Reductor Cono Morse
ドリルスリーブ　短钻头套筒

Designed for drilling with Morse taper shanks. The smaller Morse taper number is for the hole size of the drill insertion and the larger Morse taper number for the outside socket fitting.



Unit Per Pc.

CODE	Size MT No.	For MT No.		Overall Lenght mm
		Hole	Shank	
63 23 51	MT 1 x 2	1	2	92
52	MT 1 x 3	1	3	99
53	MT 2 x 3	2	3	112
54	MT 2 x 4	2	4	124
55	MT 3 x 4	3	4	140
63 23 56	MT 3 x 5	3	5	156
57	MT 3 x 6	3	6	218
58	MT 4 x 5	4	5	171
59	MT 4 x 6	4	6	218
60	MT 5 x 6	5	6	218

Morse Taper Shank Drill Sockets

Alargaderas para Cono Morse
MT用ドリルソケット　莫氏锥柄钻承口

Designed to be used with drill, reamer and other shanks which have a morse taper shank.



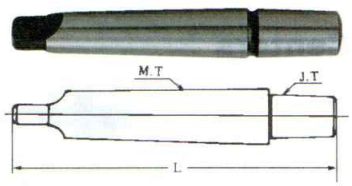
Unit Per Pc.

CODE	Size MT No.	For MT No.		Overall Length mm
		Hole	Shank	
63 23 61	MT 1 x 1	1	1	145
62	MT 1 x 2	1	2	160
63	MT 2 x 2	2	2	175
64	MT 1 x 3	1	3	175
65	MT 2 x 3	2	3	194
63 23 66	MT 3 x 3	3	3	215
67	MT 2 x 4	2	4	215
68	MT 3 x 4	3	4	240
69	MT 4 x 4	4	4	265
70	MT 3 x 5	3	5	268
63 23 71	MT 4 x 5	4	5	300
72	MT 5 x 5	5	5	335
73	MT 4 x 6	4	6	355
74	MT 5 x 6	5	6	390

Drill Chuck Arbors

Espigas de Asiento para Mandriles Portabrocas
ドリルチャックアーバー　钻头夹头刀杆

For use with drilling machines, lathes, etc. When ordering, please specify nominal numbers.



Unit Per Pc.

CODE	Nominal No.	J.T. No.	M.T. No.	Overall Length mm
63 23 76	1 x 1	1	1	88
77	1 x 2	1	2	100
78	1 x 3	1	3	108
79	2 x 1	2	1	92
80	2 x 2	2	2	110
63 23 81	2 x 3	2	3	130
82	2-1/2 x 2	2-1/2	2	110
83	2-1/2 x 3	2-1/2	3	130
84	3 x 2	3	2	120
85	3 x 3	3	3	140
63 23 86	3 x 4	3	4	160
87	4 x 3	4	3	150
88	4 x 4	4	4	175
89	5 x 4	5	4	185

Drifts (Center Keys), Drill
for Sockets & Sleeves

Expulsores para Cono Morse
ドリルドリフト　冲头锥形销（中心键拆锥楔套），钻头

For removing taper shanks without any damage from drill sockets or drilling machines. This improved type works more efficiently and is safer.



Ordinary Type



Improved Type

Unit Per Pc.

CODE	No.	For
63 23 91	1	For Sleeve #1
92	2	" #2
93	3	" #3
94	4	" #4, 5 & 6
63 23 95	Improve - 2	For MT. #1 ~ 2
96	" - 3	" #3 ~ 4

Lathe Centers

Contrapuntos Fijos "Cono Morse" para Torno
旋盤用センター　車床顶尖

Body is made of tool steel with a high speed steel tip or a carbide tip. Both types of tip ends are properly hardened. The shank is ground to morse tapers and the included angle of the point is 60°.



High Speed Steel Tipped



Carbide Tipped

Unit Per Pc.

High Speed Steel CODE	Morse Taper No.	Overall Length mm	Carbide Tipped CODE
63 24 01	0	72	**63 24 11**
02	1	82	**12**
03	2	100	**13**
04	3	125	**14**
05	4	155	**15**
63 24 06	5	200	**63 24 16**
07	6	270	**17**

Rolling Centers

Contrapuntos Giratorios "Cono Morse"
回転センター　回转中心顶（活络顶）



Specially designed to withstand high-speed heavy-duty operations. Incorporated are a taper roller bearing, thrust ball bearing, ball bearing and other special bearings.

Unit Per Pc.

CODE	MT No.	Center Angle
63 24 21	1	60°
22	2	60°
23	3	60°
24	4	60°
25	5	60°
63 24 26	6	75°
27	7	75°

Live Centers

Contrapuntos Giratorios
回転センター　回转中心顶（活络顶）



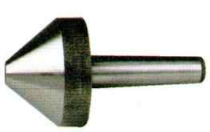
This S type is recommended for use on precision finishing work with high speed revolution.

Unit Per Pc.

CODE	MT No.	Overall Length mm
63 24 31	2	121
32	3	146
33	4	195
34	5	245
35	6	340

Bevel Rolling Centers

Contrapuntos Biselados
傘型回転センター　伞形回转中心顶



Used in combination with a lathe or an external grinding machine, the bevel rolling center serves as a center pusher for steel pipe or a workpiece with a large central opening and without a centering hole.

Unit Per Pc.

CODE	MT No.	Hand Angle A	Bevel Diam. mm Small d	Bevel Diam. mm Large D
63 24 41	2	70°	12	62
42	3A	70°	19	75
43	3B	75°	30	105
44	4	75°	30	130
45	4B	75°	32	150
63 24 46	5	75°	32	150
47	5B	75°	90	200
48	6	75°	90	200
49	6B	75°	120	250
50	7	75°	120	250

Screw Extractors

Extractores de Tornillo/Espárragos
スクリューエキストラクター　螺栓拆卸器

With the screw extractor, the broken bolt or screw in a threaded hole can be easily removed without injuring the threads.



Unit Per Pc.

CODE	Applicable Drill Size mm	Overall Length mm	Applicable Bolt mm	Applicable Pipe mm
63 24 71	2.0	50	4.8 ~ 6.4	
72	2.7	60	6.8 ~ 8	
73	4.0	68	8 ~ 11	
74	6.4	76	11 ~ 14.3	
75	7.2	86	14.3 ~ 19	3.2
63 24 76	9.1	86	17.5 ~ 24	6.5
77	10.3	95	19 ~ 25	
78	12.3	95	24 ~ 28	10.0
79	13.5	105	25 ~ 35	
80	15.5	105	28 ~ 38	13.0
63 24 81	20.5	111	35 ~ 44	19.0
82	27	118	44 ~ 54	25.0
83	33	127	54 ~ 64	
84	40	143	64 ~ 76	
85	49	159	76 ~ 90	

Screw Extractor Set

Juego de Extracores para Tomillos/Espárragos
スクリューエキストラクターセット　启螺栓器组件

How to order: CODE
Screw extractor set, APPLICABLE SIZE (MINIMUM – MAXIMUM in mm), NUMBERS/set



Unit Per Set

CODE	Applicable Drill Size mm	No. of pieces
63 24 86	2.0, 2.7, 4.0, 6.4, 7.2	5
87	2.0, 2.7, 4.0, 6.4, 7.2, 10.3	6
88	6.4, 7.2, 10.3	3

Carbide Rotary Burs

Fresas Rotativa de Metal Duro
超硬ロータリーバー　硬质合金回转磨削杆

Designed for the efficient bevelling of gears, burring, planing, shaping, and milling. These rotary burs are advantageous for use with portable grinding tools of 10,000 R.P.M. or more. Please specify the type, size of the blade and the shank when ordering.

How to order: CODE

Rotary bur, carbide, TYPE, DIAM of SHANK mm, DIAM of BLADE mm

Unit Per Pc.

CODE	Type	Figure	Diameter		Overall Length mm
			Shank mm	Blade mm	
63 25 01	Cylindrical Flat End (A)		3	3	38
02			6	4	60
03			6	6	55
04			6	8	55
05			6	9	55
06			6	13	70
63 25 11	Cylindrical Radius End (B)		3	3	38
12			6	4	60
13			6	6	55
14			6	8	55
15			6	9	58
16			6	13	70H
17			6	13	70
63 25 21	Ball Shape (C)		3	3	38
22			6	4	60
23			6	8	50
24			6	9	50
25			6	13	60
63 25 31	Tree Shape Radius End (D)		6	4	60
32			6	6	55
33			6	8	55
34			6	9	55
35			6	13	70
63 25 41	Cone Shape Radius End (E)		3	3	38
42			6	4	60
43			6	6	57
44			6	8	57
45			6	9	70
46			6	13	84H
47			6	13	84
63 25 51	Tree Shape Pointed End (F)		3	3	38
52			6	4	60
53			6	8	50
63 25 56	Flame Shape (G)		6	8	50
57			6	9	50
58			6	13	75H
59			6	13	75
63 25 61	Cone Shape (H)		6	8	50
62			6	9	55

High Speed Steel Tool Bits

Herramientas Torneado H.S.S.

高速度鋼付刃バイト　　高速钢刀具

(Ref. JIS B 4151 – 87)



For use in cutting hard materials like heat-treated alloy steels, die steels, bronze, stainless steels, etc. Ground on all 4 sides. Cut to standard tool holder lengths with a standard bevel on each end. Bits require grinding only to make them ready for use in tool holders.

Square Tool Bits

Cuchillas Cuadradas　方形バイト　高速钢方形车刀



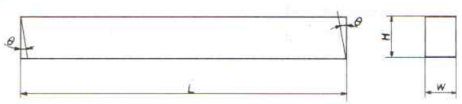
For turning, boring, threading tool holders.

Unit Per Pc.

CODE	Size mm		CODE	Size mm	
	Square H & W	Length L		Square H & W	Length L
63 26 01	5	50	**63 26 08**	25	200
02	6	63	**09**	5	80
03	8	63	**10**	6	160
04	10	80	**11**	8	160
05	12	100	**12**	10	160
63 26 06	16	125	**63 26 13**	12	160
07	20	160			

Rectangular Flat Tool Bits

Cuchilla Rectangular　長方形バイト　高速钢矩形车刀



For planing tool holders.

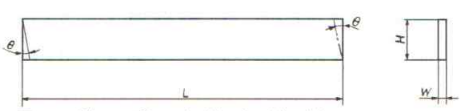
Unit Per Pc.

CODE	Size mm W x H x L	CODE	Size mm W x H x L
63 26 16	6 x 10 x 160	**63 26 22**	6 x 10 x 200
17	6 x 12 x 160	**23**	6 x 12 x 200
18	8 x 12 x 160	**24**	8 x 12 x 200
19	8 x 16 x 160	**25**	8 x 16 x 200
20	10 x 12 x 160	**26**	10 x 12 x 200
63 26 21	10 x 16 x 160	**63 26 27**	10 x 16 x 200

Rectangular Plate Tool Bits

Cuchillas para Lámina Rectangular

板バイト　高速钢割刀



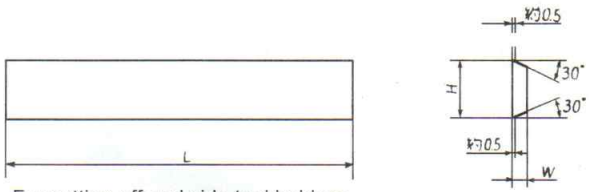
For cutting off and side tool holders.

Unit Per Pc.

CODE	Size mm W x H x L	CODE	Size mm W x H x L
63 26 31	3 x 12 x 160	**63 26 34**	4 x 19 x 160
32	3 x 16 x 160	**35**	5 x 19 x 160
33	4 x 16 x 160		

Plate Cutting-off Tool Bits

Cuchilla Plana de Corte　ステッキバイト　高速鋼梯形割刀



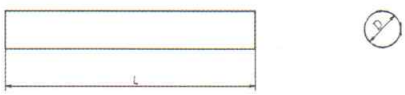
For cutting off and side tool holders.

Unit Per Pc.

CODE	Size mm W x H x L	CODE	Size mm W x H x L
63 26 51	3.2 x 12.7 x 90	**63 26 53**	4.8 x 19.0 x 140
52	3.2 x 15.9 x 115	**54**	6.4 x 25.4 x 165

Round Bar Tool Bits

Cuchilla Redonda　丸棒バイト　圓棒形车刀



For old style boring tool holders.

Unit Per Pc.

CODE	Size mm Dia x L	CODE	Size mm Dia x L
63 26 61	4 x 40	**63 26 65**	10 x 80
62	5 x 50	**66**	12 x 100
63	6 x 63	**67**	16 x 125
64	8 x 63	**68**	20 x 160

Tool Bit Material

High Speed Steel

Cuchillas H.S.S　高速度鋼バイト材　高速刚车刀原料

High speed, steel tool bit material is not hardened as it is made for general use. The material is available in two types, square and rectangular, to suit the users requirements. These plates are supplied in 300 mm length pieces.



Square



Rectangular

Unit Per Pc.

CODE	Size mm W x H x L	CODE	Size mm W x H x L
	Square		
63 26 71	6 x 6 x 300	**63 26 75**	16 x 16 x 300
72	8 x 8 x 300	**76**	19 x 19 x 300
73	10 x 10 x 300	**77**	25 x 25 x 300
74	13 x 13 x 300		
	Rectangular		
63 26 81	3 x 13 x 300	**63 26 89**	6 x 13 x 300
82	3 x 16 x 300	**90**	6 x 16 x 300
83	3 x 19 x 300	**91**	6 x 19 x 300
84	3 x 25 x 300	**92**	6 x 25 x 300
85	5 x 13 x 300	**93**	8 x 13 x 300
63 26 86	5 x 16 x 300	**63 26 94**	8 x 16 x 300
87	5 x 19 x 300	**95**	8 x 19 x 300
88	5 x 25 x 300	**96**	8 x 25 x 300

Single Point Tools

with Cemented Carbide Tip

Herramientas para Tornear con Plaquitas de Metal Duro (Carburo Cementado)
超硬バイト　硬质合金头车刀

Ref. JIS B 4105 – 91

For square shank holders. The carbide tips are finely ground to be ready for use and are covered with an easy to remove cellulose sheath. Choose the cutter most suitable for the work you are doing from the examples below. Please specify whether you require left or right hand tips.



How to order: CODE

Tool, single point with cemented carbide tip, RIGHT or LEFT HAND, MODEL NO. SHANK SIZE mm

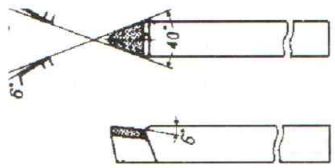
Unit Per Pc.

Right Hand CODE	Right Hand Model No.	Shank Size W x H x L mm	Left Hand CODE	Left Hand Model No.
Model 31 Right 32 Left				
Model 31 Right				Model 32 Left
63 27 01	31-1	13 x 13 x 100	**63 27 07**	32-1
02	2	16 x 16 x 120	**08**	2
03	3	19 x 19 x 140	**09**	3
04	4	25 x 25 x 160	**10**	4
05	5	25 x 30 x 180	**11**	5
06	6	30 x 35 x 200	**12**	6
Model 33 Right 34 Left				
Model 33 Right				Model 34 Left
63 27 13	33-0	10 x 10 x 80	**63 27 20**	34-0
14	1	13 x 13 x 100	**21**	1
15	2	16 x 16 x 120	**22**	2
16	3	19 x 19 x 140	**23**	3
17	4	25 x 25 x 160	**24**	4
18	5	25 x 30 x 180	**25**	5
19	6	30 x 35 x 200	**26**	6
Model 35 Straight				
63 27 27	35-0	10 x 10 x 80	Remark : No Right or Left Hand. Straight Type only.	
28	1	13 x 13 x 100		
29	2	16 x 16 x 120		
30	3	19 x 19 x 140		
31	4	25 x 25 x 160		
32	5	25 x 30 x 180		
33	6	30 x 35 x 200		

Unit Per Pc.

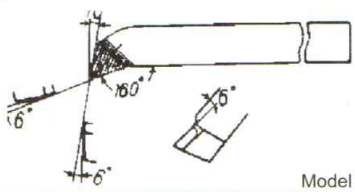
Right Hand		Shank Size W x H x L mm	Left Hand	
CODE	Model No.		CODE	Model No.

Model 36 Straight



63 27 34	36-0	10 x 10 x 80	Remark : No Right or Left Hand. Straight Type only.
35	1	13 x 13 x 100	
36	2	16 x 16 x 120	
37	3	19 x 19 x 140	
38	4	25 x 25 x 160	
39	5	25 x 30 x 180	
40	6	30 x 35 x 200	

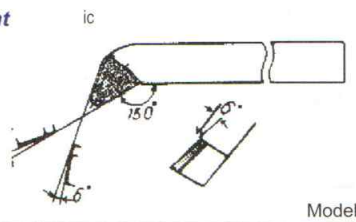
Model 37 Right
38 Left



Model 37 Right — Model 38 Left

63 27 41	37-1	13 x 13 x 100	**63 27 47**	38-1
42	2	16 x 16 x 120	**48**	2
43	3	19 x 19 x 140	**49**	3
44	4	25 x 25 x 160	**50**	4
45	5	25 x 30 x 180	**51**	5
46	6	30 x 35 x 200	**52**	6

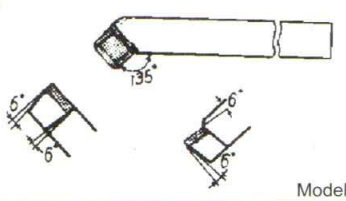
Model 39 Right
40 Left



Model 39 Right — Model 40 Left

63 27 53	39-0	10 x 10 x 80	**63 27 60**	40-0
54	1	13 x 13 x 100	**61**	1
55	2	16 x 16 x 120	**62**	2
56	3	19 x 19 x 140	**63**	3
57	4	25 x 25 x 160	**64**	4
58	5	25 x 30 x 180	**65**	5
59	6	30 x 35 x 200	**66**	6

Model 41 Right
42 Left



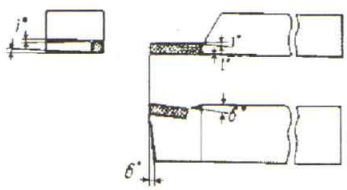
Model 41 Right — Model 42 Left

63 27 67	41-1	13 x 13 x 100	**63 27 73**	42-1
68	2	16 x 16 x 120	**74**	2
69	3	19 x 19 x 140	**75**	3
70	4	25 x 25 x 160	**76**	4
71	5	25 x 30 x 180	**77**	5
72	6	30 x 35 x 200	**78**	6

Unit Per Pc.

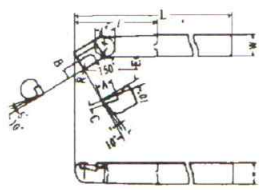
Right Hand		Shank Size W x H x L mm	Left Hand	
CODE	Model No.		CODE	Model No.

Model 43 Straight



63 27 79	43-1	10 x 16 x 100	Remark : No Right or Left Hand. Straight Type only.
80	2	13 x 19 x 120	
81	3	16 x 22 x 140	
82	4	19 x 25 x 160	
83	5	22 x 32 x 180	
84	6	25 x 38 x 200	

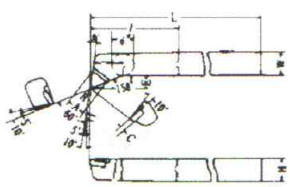
Model 45 Right
46 Left



Model 45 Right — Model 46 Left

63 27 85	45-1	13 x 13 x 140	**63 27 90**	46-1
86	2	16 x 16 x 160	**91**	2
87	3	19 x 19 x 190	**92**	3
88	4	25 x 25 x 230	**93**	4

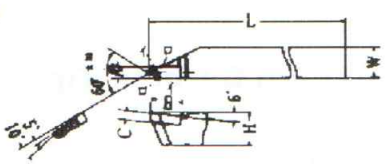
Model 47 Right
48 Left



Model 47 Right — Model 48 Left

63 27 94	47-1	13 x 13 x 100	**63 27 98**	48-1
95	2	16 x 16 x 160	**99**	2
96	3	19 x 19 x 190	**63 28 01**	3
97	4	25 x 25 x 230	**02**	4

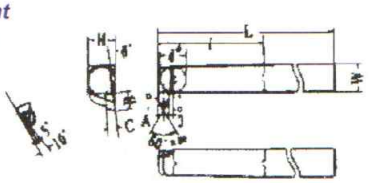
Model 49 Right
50 Left



Model 49 Right — Model 50 Left

63 28 03	49-1	13 x 13 x 100	**63 28 07**	50-1
04	2	16 x 16 x 120	**08**	2
05	3	19 x 19 x 140	**09**	3
06	4	25 x 25 x 160	**10**	4

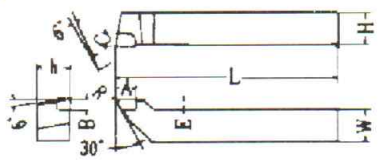
Model 51 Right
52 Left



Unit Per Pc.

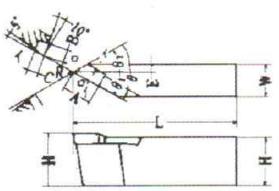
Right Hand CODE	Right Hand Model No.	Shank Size W x H x L mm	Left Hand CODE	Left Hand Model No.
Model 51 Right				Model 52 Left
63 28 11	51-1	13 x 13 x 140	**63 28 15**	52-1
12	2	16 x 16 x 160	**16**	2
13	3	19 x 19 x 190	**17**	3
14	4	25 x 25 x 230	**18**	4

Model 91 Right
92 Left



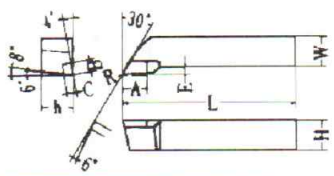
Model 91 Right			Model 92 Left	
63 28 19	91-1	19 x 25 x 160	**63 28 22**	92-1
20	2	25 x 25 x 160	**23**	2
21	3	25 x 32 x 160	**24**	3

Model 93 Right
94 Left



Model 93 Right			Model 94 Left	
63 28 25	93-1	25 x 38 x 150 θ50°	**63 28 29**	94-1
26	2	25 x 38 x 150 θ58°	**30**	2
27	3	34 x 47 x 150 θ50°	**31**	3
28	4	34 x 47 x 150 θ58°	**32**	4

Model 95
Straight



63 28 33	95-1	25 x 25 x 160	Straight only.

63 Cutting Tools

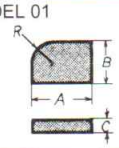
Cemented Carbide Tips

Plaquitas de Metal Duro　超硬チップ　硬质合金刀头

(Ref. JIS B 4104 – 89)

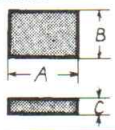
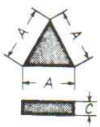
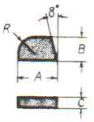
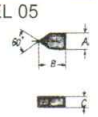
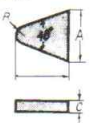
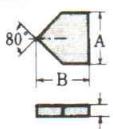
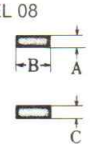
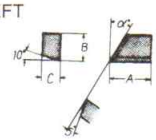
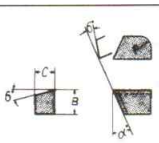
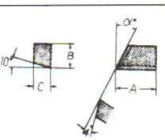
These carbide tips are used with carbide tipped turning cutters. Tips are fitted with cement.

Unit Per Pc.

Sketch	CODE	Model No.	Dimensions mm A	B	C	R
MODEL 01 	**63 29 01**	01-0	10	6	3	4
	02	1	13	9	3	5
	03	2	16	11	4	5
	04	3	19	13	5	5
	05	4	22	15	6	8
	06	5	25	17	7	8
	07	6	30	20	8	8

(to be continued)

Unit Per Pc.

Sketch	CODE	Model No.	Dimensions mm A	B	C	R
MODEL 02 	**63 29 08**	02-0	10	6	3	
	09	1	13	9	3	
	10	2	16	11	4	
	11	3	19	13	5	
	12	4	22	15	6	
	13	5	25	17	7	
	14	6	30	20	8	
MODEL 03 	**63 29 15**	03-0	10		3	
	16	1	12		3	
	17	2	15		4	
	18	3	18		5	
	19	4	24		6	
	20	5	24		7	
	21	6	28		8	
MODEL 04 	**63 29 22**	04-0	10	6	3	4
	23	1	13	9	3	5
	24	2	16	11	4	5
	25	3	19	13	5	5
	26	4	22	15	6	8
	27	5	25	17	7	8
	28	6	30	20	8	8
MODEL 05 	**63 29 30**	05-1	5	8	3	
	31	2	6	10	4	
	32	3	7	12	5	
	33	4	9	16	6	
	34	5	10	18	7	
	35	6	11	20	8	
MODEL 06 	**63 29 36**	06-0	10	10	3	2
	37	1	13	13	3	2.5
	38	2	16	16	4	3
	39	3	19	19	5	4
	40	4	22	22	6	4
	41	5	25	25	7	5
	42	6	30	30	8	6
MODEL 07 	**63 29 43**	07-0	10	10	3	
	44	1	13	13	3	
	45	2	16	16	4	
	46	3	19	19	5	
	47	4	25	20	6	
	48	5	25	22	7	
	49	6	30	25	8	
MODEL 08 	**63 29 50**	08-1	3	8	3	
	51	3	4	13	4	
	52	4	5	15	5	
	53	5	6	17	6	
	54	6	8	20	8	
MODEL 09-J RIGHT OR LEFT 						(α)
	63 29 55	09-J-1R	25	12	8	40°
	56	2R	25	12	8	32°
	57	3R	25	14	10	40°
	58	4R	25	14	10	32°
	59	09-J-1L	25	12	8	40°
	60	2L	25	12	8	32°
	61	3L	25	14	10	40°
	62	4L	25	14	10	32°
	**63 29 63**	09-C-1R	16	8	10	6
	64	09-C-1L	16	8	10	6
	**63 29 65**	09-E-1R	20	10	7	
	66	09-E-1L	20	10	7	

Cemented Carbide Throw-away Inserts

Plaquitas de Metal Duro Desechable
超硬スローアウエイチップ　超硬多刃车刀

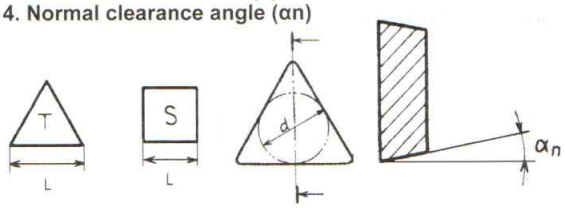
(Ref. JIS B 4120 – B 4123-85)

When ordering, cemented carbide throw-away inserts, please specify the following points

1. Shape

Shape	Included Angle	Figure
Regular Hexgon	120°	
Regular Octagon	135°	
Regular Pentagon	108°	
Square	90°	
Equilateral Triangle	60°	
Rhombus	80° 55° 75° 50° 86° 35°	
Rhombic Hexagon	80°	
Rectangle	90°	
Parallerogram	85° 82° 55°	
Circle	-	

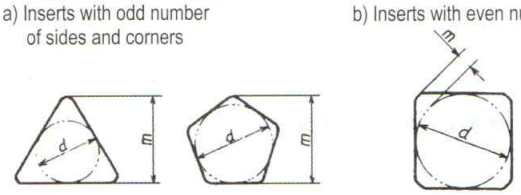
2. Basic size (L)
3. Basic inscribed circle (d)
4. Normal clearance angle (αn)



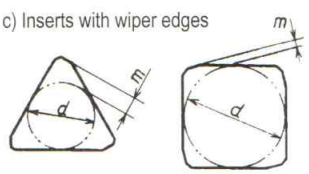
5. Height of corner (m)

a) Inserts with odd number of sides and corners

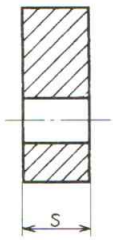
b) Inserts with even number



c) Inserts with wiper edges



6. Thickness of the insert (s)



7. With or without hole
8. With or without chip breaker

Hole	Chip breaker	Shape
Without	Without	
	One side	
	Both side	
With	Without	
	One side	
	Both side	

How to order: 63 - 29 - 71

Throw-away insert, cemented carbide, SHAPE, BASIC SIZE, BASIC INSCRIBED CIRCLE, NORMAL CLEARANCE ANGLE, HEIGHT OF CORNER, THICKNESS OF THE INSERT, WITH or WITHOUT HOLE, WITH or WITHOUT CHIP BREAKER

High Speed Steel Tip Welded Tool Bits

Herramientas Torneado H.S.S.　高速度鋼付刃バイト　高速鋼尖端車刀

(Ref. JIS B 4152 – 88)

These tool bits are supplied in a variety of shapes and sizes depending upon the type of work they are used for. The tips are made of hardened high speed steel welded to the shanks and covered in cellulose for protection. Please specify the model number you require and whether the bits should be for left or right hand use from the information provided below.



How to order: CODE

Tool bit, tip welded, high speed steel, TYPE of SHAPE, RIGHT or LEFT HAND, NOMINAL SHANK SIZE

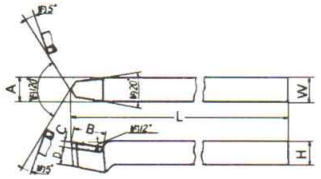
Unit Per Pc.

CODE	Nominal Shank Size	Tip Size mm			Shank Size mm		
		A	B	C	W	H	L

Pointed Nose Straight Tool

Herramienta recta con punta
真剣バイト
尖嘴直工具

(Model No. 10)

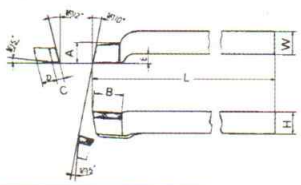


63 30 01	12	12	16	4	12	12	125
02	16	16	20	5	16	16	140
03	20	20	25	6	20	20	160
04	25	25	32	8	25	25	200
05	32	32	40	10	32	32	250

Right Hand or Left Hand Knife Tool

Cuchillo para mano derecha o izquierda
右、左勝手片刃バイト
右手或左手持刀工具

(Model No. 13)

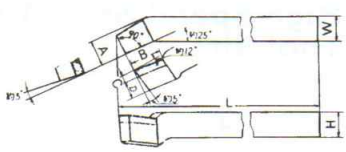


63 30 06	Right 12	12	16	4	12	12	125
07	16	15	20	5	16	16	140
08	20	17	25	6	20	20	160
09	25	23	32	8	25	25	200
10	32	29	40	10	32	32	250
63 30 11	Left 12	12	16	4	12	12	125
12	16	15	20	5	16	16	140
13	20	17	25	6	20	20	160
14	25	23	32	8	25	25	200
15	32	29	40	10	32	32	250

Right Hand or Left Hand Bent Tool

Herramienta doblada a la derecha o a la izquierda
右、左勝手
横剣バイト
右手或左手弯曲工具

(Model No. 14)

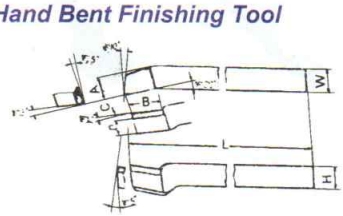


63 30 16	Right 12	12	16	4	12	12	125
17	16	16	20	5	16	16	140
18	20	20	25	6	20	20	160
19	25	25	32	8	25	25	200
20	32	32	40	10	32	32	250
63 30 21	Left 12	12	16	4	12	12	125
22	16	16	20	5	16	16	140
23	20	20	25	6	20	20	160
24	25	25	32	8	25	25	200
25	32	32	40	10	32	32	250

Right Hand or Left Hand Bent Finishing Tool

Herramienta de acabado curvada a derechas o izquierdas
右、左勝手
右、左剣バイト
右手或左手弯曲整理工具

(Model No. 15)



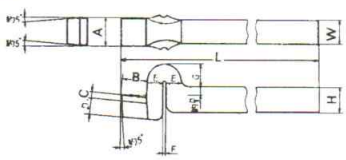
Unit Per Pc.

CODE	Nominal Shank Size	Tip Size mm			Shank Size mm		
		A	B	C	W	H	L
63 30 26	Right 12	12	16	4	12	12	125
27	16	16	20	5	16	16	140
28	20	20	25	6	20	20	160
29	25	25	32	8	25	25	200
30	32	32	40	10	32	32	250
63 30 31	Left 12	12	16	4	12	12	125
32	16	16	20	5	16	16	140
33	20	20	25	6	20	20	160
34	25	25	32	8	25	25	200
35	32	32	40	10	32	32	250

Spring Finishing Tool

Herramienta de acabado de muelles
ヘール仕上げバイト
弾簧整理工具

(Model No. 22)

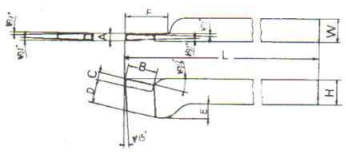


63 30 36	12	15	13	4	12	12	125
37	16	19	16	5	16	16	140
38	20	22	19	6	20	20	160
39	25	30	25	8	25	25	200
40	32	38	32	10	32	32	250

Parting Tool

Herramienta de separación
突切りバイト
分型工具

(Model No. 31)

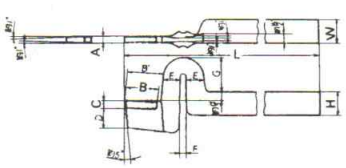


63 30 41	12	4	16	4	12	12	125
42	16	5	20	5	16	16	140
43	20	6	25	6	20	20	160
44	25	8	32	8	25	25	200
45	32	10	40	10	32	32	250

Spring Parting Tool

Herramienta de separación de muelles
ヘール突切バイト
弾簧分割工具

(Model No. 32)

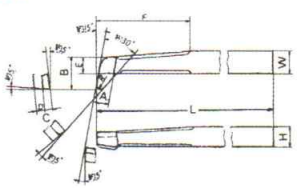


63 30 46	12	4	16	4	12	12	140
47	16	5	20	5	16	16	160
48	20	6	25	6	20	20	180
49	25	8	32	8	25	25	220
50	32	10	40	10	32	32	280

Round Nose Boring Tool

Herramienta de mandrinar de punta redonda
先丸穴ぐりバイト
圆头镗刀

(Model No. 40)

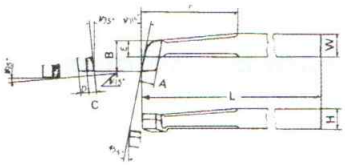


Unit Per Pc.

CODE	Nominal Shank Size	Tip Size mm			Shank Size mm		
		A	B	C	W	H	L
63 30 51	12	8	16	4	12	12	160
52	16	10	20	4.5	16	16	180
53	20	12	25	5	20	20	200
54	25	16	32	6	25	25	250
55	32	20	40	8	32	32	315

Boring Tool

Herramienta de mandrinar
穴ぐり荒バイト
镗孔工具

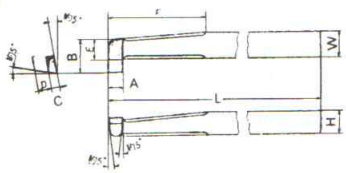


(Model No. 41)

63 30 56	12	8	16	4	12	12	160
57	16	10	20	4.5	16	16	180
58	20	12	25	5	20	20	200
59	25	16	32	6	25	25	250
60	32	20	40	8	32	32	315

Bore Finishing Tool

Herramienta de acabado de orificios
穴仕上げバイト
内孔精整工具

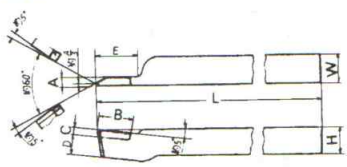


(Model No. 42)

63 30 61	12	8	16	4	12	12	160
62	16	10	20	4.5	16	16	180
63	20	12	25	5	20	20	200
64	25	16	32	6	25	25	250
65	32	20	40	8	32	32	315

External Threading Tool

Herramienta de roscado exterior
おねじ切りバイト
外螺纹工具

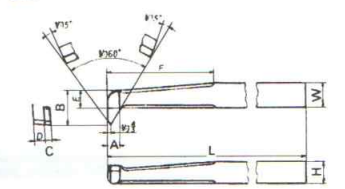


(Model No. 51)

63 30 66	12	6	16	4	12	12	125
67	16	8	20	5	16	16	140
68	20	10	25	6	20	20	160
69	25	12	32	8	25	25	200
70	32	16	40	10	32	32	250

Internal Threading Tool

Herramienta de roscado interior
めねじ切りバイト
内螺纹工具



(Model No. 52)

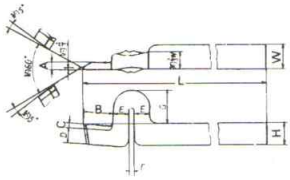
63 30 71	12	8	16	4	12	12	160
72	16	9	20	4.5	16	16	180
73	20	10	25	5	20	20	200
74	25	12	32	6	25	25	250
75	32	14	40	8	32	32	315

Unit Per Pc.

CODE	Nominal Shank Size	Tip Size mm			Shank Size mm		
		A	B	C	W	H	L

Spring Threading Tool

Herramienta de roscado de muelles
ヘールねじ切りバイト
弹簧穿线工具

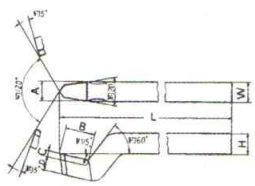


(Model No. 53)

63 30 76	12	6	16	4	12	12	140
77	16	8	20	5	16	16	160
78	20	10	25	6	20	20	180
79	25	12	32	8	25	25	220
80	32	16	40	10	32	32	280

Pointed Nose Straight Tool

Herramienta recta con punta
平削り用真剣バイト
尖嘴直工具

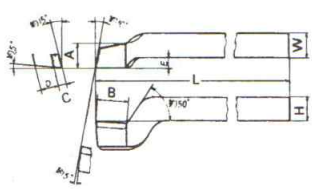


(Model No. 60)

63 30 81	16	16	20	5	16	16	180
82	20	20	25	6	20	20	220
83	20 x 25	20	28	8	20	20	250
84	25	25	32	8	25	25	280
85	32	32	40	10	32	32	355
86	40	40	45	12	40	40	425

Right Hand or Left Hand Knife Tool

Cuchillo para mano derecha o izquierda
平削り用右、左
片刃バイト
右手或左手持刀工具



(Model No. 62)

63 30 87	Right 16	15	20	5	16	16	180
88	20	17	25	6	20	20	220
89	20 x 25	17	28	8	20	25	250
90	25	23	32	8	25	25	280
91	32	29	40	10	32	32	355
92	40	35	45	12	40	40	425
63 30 93	Left 16	15	20	5	16	16	180
94	20	17	25	6	20	20	220
95	20 x 25	17	28	8	20	25	250
96	25	23	32	8	25	25	280
97	32	29	40	10	32	32	355
98	40	35	45	12	40	40	425

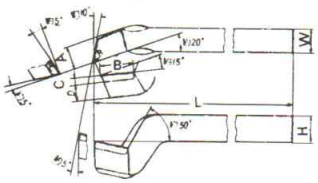
Unit Per Pc.

CODE	Nominal Shank Size	Tip Size mm			Shank Size mm		
		A	B	C	W	H	L

Right Hand or Left Hand Bent Tool

Herramienta doblada a la derecha o a la izquierda
平削り用右、左剣バイト
右手或左手弯曲工具

(Model No. 63)

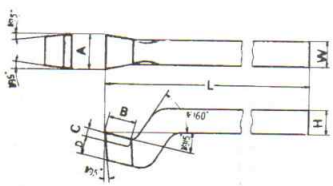


63 31 01	Right 16	16	20	5	16	16	180
02	20	20	25	6	20	20	220
03	20 x 25	20	28	8	20	25	250
04	25	25	32	8	25	25	280
05	32	32	40	10	32	32	355
06	40	40	45	12	40	40	425
63 31 07	Left 16	16	20	5	16	16	180
08	20	20	25	6	20	20	220
09	20 x 25	20	28	8	20	25	250
10	25	25	32	8	25	25	280
11	32	32	40	10	32	32	355
12	40	40	45	12	40	40	425

Square Nose Straight Tool

Herramienta recta de punta cuadrada
平削り用平剣バイト
方头直工具

(Model No. 64)

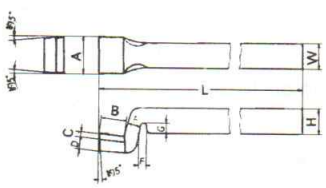


63 31 13	16	19	16	5	16	16	180
14	20	22	19	6	20	20	220
15	20 x 25	22	22	8	25	25	250
16	25	30	25	8	25	25	280
17	32	38	32	10	32	32	355
18	40	45	40	12	40	40	425

Spring Finishing Tool

Herramienta de acabado de muelles
平削り用ヘール仕上げバイト
弹簧整理工具

(Model No. 65)

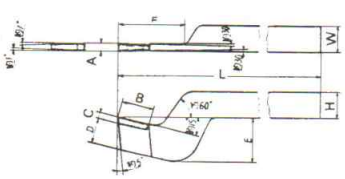


63 31 19	16	19	16	5	16	16	180
20	20	22	19	6	20	20	220
21	25	30	25	8	25	25	280
22	32	38	32	10	32	32	355
23	40	45	38	12	40	40	425

Parting Tool

Herramienta de separación
平削り用
突切りバイト
分型工具

(Model No. 66)



Unit Per Pc.

CODE	Nominal Shank Size	Tip Size mm			Shank Size mm		
		A	B	C	W	H	L
63 31 24	16	5	20	5	16	16	180
25	20	6	25	6	20	20	220
26	20 x 25	6	28	8	20	25	250
27	25	8	32	8	25	25	280
28	32	10	40	10	32	32	355
29	40	13	45	12	40	40	425

Tool Bit Holders

3-Way Insertion

Portaherramientas/Cuchilla Cuadrada
三方バイトホルダー　　方杆车刀三向刀柄

A tool for holding square tool bits in three ways. Furnished with an Allen hexagon key.



Unit Per Pc.

CODE	No.	Tool Bit Size mm	Holder Size mm T x H x L
63 32 01	1	6	12 x 16 x 110
02	2	10	14 x 17 x 120
03	3	13	18 x 20 x 145
04	4	16	20 x 25 x 175
05	5	19	25 x 32 x 250
63 32 06	6	22	29 x 35 x 270
07	7	25	32 x 38 x 300

Spring Cut-off Tool Holders

Portaherramientas/Cuchilla Trapezoidal
突切ヘールホルダー　　鹅头型车刀架

This design relieves the cutter blade from excessive pressure, avoiding chattering and climbing of the blade during cutting operation. For holding plate tool bits.



Unit Per Pc.

CODE	No.	Tool Bit Size mm	Holder Size mm T x H x L
63 32 16	1	3.2 x 12.7 x 90	13 x 17 x 110
17	2	4.0 x 15.9 x 115	15 x 20 x 135
18	3	4.8 x 19.0 x 140	17 x 25 x 160
19	4	6.4 x 25.4 x 165	22 x 32 x 200

Boring Tool Holders

for Square Shank Tool Bit

Portacuchillas para Barrenar
ボーリングツールホルダー　　方杆搪刀架

Quickly exchangeable caps, straight (90°) or angular (30°).



Unit Per Pc.

CODE	No.	Tool Bit Size mm	Sleeve Bar Size mm	Holder Size mm
63 32 21	1	5	13ø x 210	16 x 18 x 100
22	2	6	16ø x 250	22 x 24 x 120
23	3	8	19ø x 300	25 x 28 x 140
24	4	10	22ø x 400	30 x 33 x 180

Plain Boring Bars

for Square Shank Tool Bit

Barras para Portacuchillas

プレーンボーリングバー　平挖槽杆



This plain bar boring tool has square holes at each end allowing for the use of straight or angular cutters.

Unit Per Pc.

CODE	No.	Tool Bit Size mm	Plain Bar Size mm
63 32 31	1	5	13ø x 200
32	2	6	16ø x 250
33	3	8	19ø x 300
34	4	10	22ø x 400

Knurling Tool Holders

Moleteador　ローレットホルダー　滚花刀柄

Self centering knuckle or joint has ample bearings to resist the severe strains of both end and side thrust. Two types, A & B are available. Please specify which type is required when ordering.

1. Type - A

Fitted with 1 pair of knurls for fine, medium, or coarse work.



Unit Per Pc.

CODE	No.	Holder Size mm	Knurl Size mm
63 32 41	A-1	9.5 x 22 x 140	16 diam.
42	A-2	13 x 29 x 165	19 "
43	A-3	16 x 35 x 191	19 "

2. Type - B

Carries three pairs of knurls for fine, medium and coarse work.



Unit Per Pc.

CODE	No.	Holder Size mm	Knurl Size mm
63 32 44	B-1	9.5 x 22 x 140	16 diam.
45	B-2	13 x 29 x 165	19 "
46	B-3	16 x 35 x 191	19 "

Knurls for Knurling Holders

Moletas　ローレット駒　滚花刀轮

Individually hob-cut from extra high carbon tool steel, heat treated, tempered and tested to obtain sharp, perfectly formed teeth in every knurl. Can be furnished in coarse, medium or fine grade and in either straight line or diamond pattern.



Straight Line



Diamond

How to order: CODE

Knurl, TYPE of THREAD, PITCH, SIZE mm, APPLICABLE TYPE of HOLDER

Unit Per Pc.

CODE	Type	Pitch	Size (mm)			Applicable Holder
			OD	BD	HD	
63 32 51	Straight Line	14	16	5	5.5	A-1 B-1
52		21				
53		33				
63 32 54	Diamond	14				
55		21				
56		33				
63 32 57	Straight Line	14	19	6	6	A-2 A-3 B-2 B-3
58		21				
59		33				
63 32 60	Diamond	14				
61		21				
62		33				

Thread Restorers

(File Type)

Limas para Roscas　ねじ山サラエヤスリ　螺纹修复器



A square bar type restorer with 8 different lands. Where a die cannot be used, a few easy passes with the appropriate land of the restorer over the damaged face of a bolt or a pipe will restore the thread without reducing the diameter. As only the displaced metal is removed, the original fit is preserved.

Unit Per Pc.

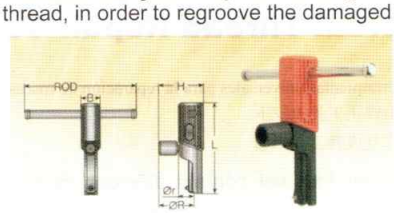
CODE	Thread	Thread Size on Each Restorer
63 33 01	Metric	0.75, 1.00, 1.25, 1.50, 1.75, 2.00, 2.50, 3.00
02	PF, BSP	11, 12, 14, 16, 19, 20, 22, 28
03	SAE, UN	12, 13, 14, 16, 18, 20, 24, 28
04	BSW, BSF	11, 12 14, 16, 18, 20 22, 26

Universal Thread Repair Tools

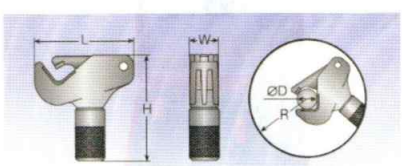
Herramientas universales para la reparación de roscas

万能ねじ山修正工具　万能螺纹修复成套工具

Thread repair tools automatically adjust to any thread diameter and pitch, can be used on left hand or right hand threads, both inch and metric and need no prior measurement of the thread. Often the thread of a component is damaged at the end of the thread eliminating the use of taps or dies for carrying out the repair. These thread restorers have the capability to enter below the damaged area and work outwards to complete the repair. The blades are made of high quality hardened tool steel. The blades are guided by the existing undamaged section of thread, in order to regroove the damaged section.

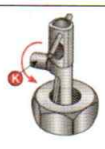


For Internal Thread



For External Thread

Internal Thread Repair

1	2	3
		
Turn knurled knob K to fully retract the blade B into the housing H. Insert Internal tool into the threaded hole or bore to be repaired.	Turn knurled knob K to extend blade B into a thread groove on an undamaged section and tighten by hand only.	Rotate the Internal tool by the cross-rod, as shown, in the desired direction.

External Thread Repair

1 Open	2 Close	3 Turn
		
Turn handle (A) to raise floating blades (B). Place the External tool over thread to be repaired.	Turn handle (A) to lower floating blades into grooves of thread and tighten by hand only.	Turn the External tool in direction of the arrow.

Internal Tools

Unit Per Pc.

CODE	Size		Size mm						Weight grm
	øD	Pipes	L	B	H	Rod	ør	øR	
63 33 11	8-11	1/16"- 3/16"	109	18	45	116	16	38	160
12	12-16	1/4"- 3/8"	109	18	45	116	17	39	170
13	16-20	3/8"- 1/2"	111	21	53	130	20	45	250
14	22-32	1/2"- 7/8"	136	27	64	161	27	54	450
15	32-54	7/8"- 1-3/4"	163	38	81	192	35	62	950
63 33 16	32-68	7/8"-2-1/4"	163	50	92	192	41	70	1,100

Name of Mfr. : Nes Thread Repair Experts

External Tools

Unit Per Pc.

CODE	Size		Size mm				Weight grm
	øD	Pipes	L	W	H	R	
63 33 21	4 - 18	Up to 7/16"	61	23	62	68	225
22	17 - 38	3/8" - 1-1/8"	105	32	110	117	550
23	35 - 152	1-3/8" - 6"	305	44	130	254	1,800

Name of Mfr. : Nes Thread Repair Experts

Universal Thread Repair Tool Sets

Juego de herramientas universales para la reparación de roscas

万能ねじ山修正工具セット

万能螺纹修复成套工具组套

Thread repair tool set contain different models of thread repair tools.



Unit Per Set

CODE	Contain Tools	Model
63 33 31	Internal 8-11, 12-16 & 16-20	1007
32	Internal 8-11, 12-16, 16-20 & 22-32	1008
33	Internal 22-32, 32-54 & 32-68	1036
34	External 4-18 & 17-38	1000
35	External 4-18, 17-38 & 35-152	1300
36	Internal 8-11, 12-16 External 4-18	1015
37	Internal 8-11, 12-16, 16-20 External 4-18	1017
38	Internal 8-11, 12-16, 16-20, 22-32 External 4-18 & 17-38	1025

Name of Mfr.: Nes Thread Repair Experts

Valve Seat Cutters

Rectificador Asiento Válvulas

バルブシートカッター　　气门座绞刀

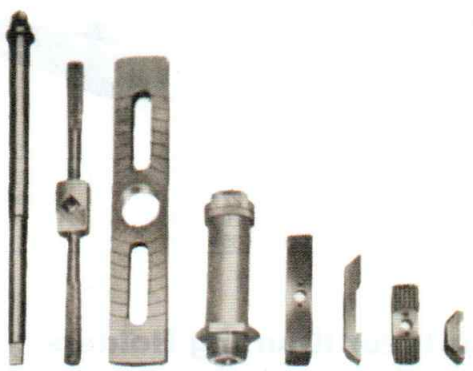
A set is comprised as follows:

(1) Spindle　　(2) Handle

(3) Fixing Bed　　(4) Lock Nut & Adjusting Screw

(5) 4" cutter　　(6) 3" cutter

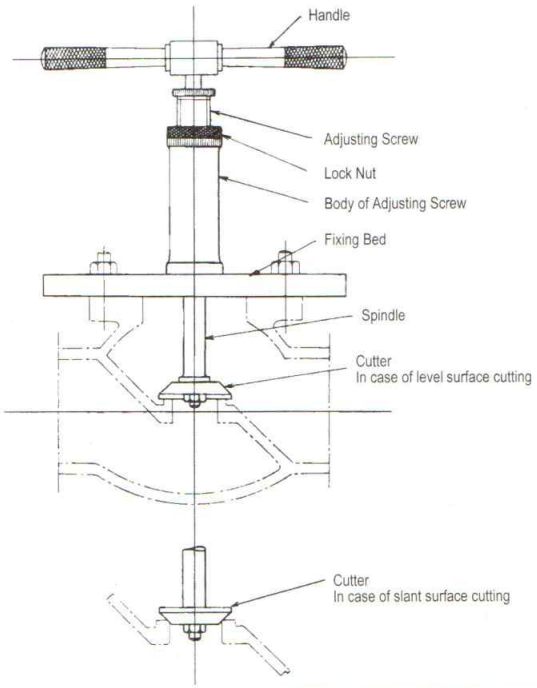
(7) 2" cutter　　(8) 1" cutter



(1) (2) (3) (4) (5) (6) (7) (8)

These valve seat cutting tools are easier than ordinary type cutters in assembly and handling for precision cutting work. Remove the valve cap or flange and fit the suitable cutter to the spindle. Then, set the fixing bed using a tightening bolt for the cap or flange. Check that the cutter fits horizontally with the valve seat and is in the center position. At this point you set the adjustable screw to find the best position of the cutter. After adjustment, begin the cutting operation by turning the handle clockwise. In case of slant surface cutting, please refer to the following drawing.

A standard set contains 1", 2", 3", and 4" cutters, but other sized cutters, 1/2", 3/4", 1-1/4", 1-1/2", 2-1/2", 5", and 6" are also available upon request.

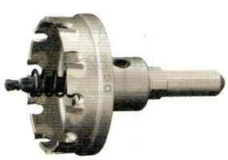


63 34 51	Valve seat cutter, 1"-4" complete	Set

Hole Saws

Sierras Circulares　ホールソー　高速钢孔锯

Made of a selected high speed steel or tungsten carbide tipped for cutting smooth and accurate hole. Available cutting depth is 5 mm for standard type hole saw and 36 mm for deep cut type hole saw.



Standard Type



Deep Cut Type

High Speed Steel for Sheet Metal
Standard Type

Unit Per Pc.

CODE	Hole Diam	Arbor Diam	CODE	Hole Diam	Arbor Diam
63 35 01	12 mm	6 mm	**63 35 46**	57 mm	6 mm
02	13	"	**47**	58	"
03	14	"	**48**	59	"
04	15	"	**49**	60	8 mm
05	16	"	**50**	61	"
63 35 06	17 mm	6 mm	**63 35 51**	62 mm	8 mm
07	18	"	**52**	63	"
08	19	"	**53**	64	"
09	20	"	**54**	65	"
10	21	"	**55**	66	"
63 35 11	22 mm	6 mm	**63 35 56**	67 mm	8 mm
12	23	"	**57**	68	"
13	24	"	**58**	69	"
14	25	"	**59**	70	"
15	26	"	**60**	71	"
63 35 16	27 mm	6 mm	**63 35 61**	72 mm	8 mm
17	28	"	**62**	73	"
18	29	"	**63**	74	"
19	30	"	**64**	75	"
20	31	"	**65**	76	"
63 35 21	32 mm	6 mm	**63 35 66**	77 mm	8 mm
22	33	"	**67**	78	"
23	34	"	**68**	79	"
24	35	"	**69**	80	"
25	36	"	**70**	81	"
63 35 26	37 mm	6 mm	**63 35 71**	82 mm	8 mm
27	38	"	**72**	83	"
28	39	"	**73**	84	"
29	40	"	**74**	85	"
30	41	"	**75**	86	"
63 35 31	42 mm	6 mm	**63 35 76**	87 mm	8 mm
32	43	"	**77**	88	"
33	44	"	**78**	89	"
34	45	"	**79**	90	"
35	46	"	**80**	91	"
63 35 36	47 mm	6 mm	**63 35 81**	92 mm	8 mm
37	48	"	**82**	93	"
38	49	"	**83**	94	"
39	50	"	**84**	95	"
40	51	"	**85**	96	"
63 35 41	52 mm	6 mm	**63 35 86**	97 mm	8 mm
42	53	"	**87**	98	"
43	54	"	**88**	99	"
44	55	"	**89**	100	"
45	56	"			

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Carbide Tipped for Stainless steel Standard Type

Unit Per Pc.

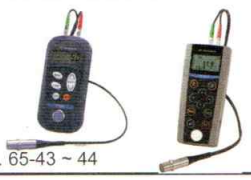
CODE	Hole Diam	Arbor Diam	CODE	Hole Diam	Arbor Diam
63 36 01	15 mm	6 mm	**63 36 44**	58 mm	6 mm
02	16	"	**45**	59	"
03	17	"	**46**	60	8 mm
04	18	"	**47**	61	"
05	19	"	**48**	62	"
63 36 06	20 mm	6 mm	**63 36 49**	63 mm	8 mm
07	21	"	**50**	64	"
08	22	"	**51**	65	"
09	23	"	**52**	66	"
10	24	"	**53**	67	"
63 36 11	25 mm	6 mm	**63 36 54**	68 mm	8 mm
12	26	"	**55**	69	"
13	27	"	**56**	70	"
14	28	"	**57**	71	"
15	29	"	**58**	72	"
63 36 16	30 mm	6 mm	**63 36 59**	73 mm	8 mm
17	31	"	**60**	74	"
18	32	"	**61**	75	"
19	33	"	**62**	76	"
20	34	"	**63**	77	"
63 36 21	35 mm	6 mm	**63 36 64**	78 mm	8 mm
22	36	"	**65**	79	"
23	37	"	**66**	80	"
24	38	"	**67**	81	"
25	39	"	**68**	82	"
63 36 26	40 mm	6 mm	**63 36 69**	83 mm	8 mm
27	41	"	**70**	84	"
28	42	"	**71**	85	"
29	43	"	**72**	86	"
30	44	"	**73**	87	"
63 36 31	45 mm	6 mm	**63 36 74**	88 mm	8 mm
32	46	"	**75**	89	"
33	47	"	**76**	90	"
34	48	"	**77**	91	"
35	49	"	**78**	92	"
63 36 36	50 mm	6 mm	**63 36 79**	93 mm	8 mm
37	51	"	**80**	94	"
38	52	"	**81**	95	"
39	53	"	**82**	96	"
40	54	"	**83**	97	"
63 36 41	55 mm	6 mm	**63 36 84**	98 mm	8 mm
42	56	"	**85**	99	"
43	57	"	**86**	100	"

Tungsten Carbide Tipped for Stainless Steel Deep Cut Type

Unit Per Pc.

CODE	Hole Diam	Arbor Diam	CODE	Hole Diam	Arbor Diam
63 37 01	15 mm	10 mm	**63 37 44**	58 mm	10 mm
02	16	"	**45**	59	"
03	17	"	**46**	60	12 mm
04	18	"	**47**	61	"
05	19	"	**48**	62	"
63 37 06	20 mm	10 mm	**63 37 49**	63 mm	12 mm
07	21	"	**50**	64	"
08	22	"	**51**	65	"
09	23	"	**52**	66	"
10	24	"	**53**	67	"
63 37 11	25 mm	10 mm	**63 37 54**	68 mm	12 mm
12	26	"	**55**	69	"
13	27	"	**56**	70	"
14	28	"	**57**	71	"
15	29	"	**58**	72	"
63 37 16	30 mm	10 mm	**63 37 59**	73 mm	12 mm
17	31	"	**60**	74	"
18	32	"	**61**	75	"
19	33	"	**62**	76	"
20	34	"	**63**	77	"
63 37 21	35 mm	10 mm	**63 37 64**	78 mm	12 mm
22	36	"	**65**	79	"
23	37	"	**66**	80	"
24	38	"	**67**	81	"
25	39	"	**68**	82	"
63 37 26	40 mm	10 mm	**63 37 69**	83 mm	12 mm
27	41	"	**70**	84	"
28	42	"	**71**	85	"
29	43	"	**72**	86	"
30	44	"	**73**	87	"
63 37 31	45 mm	10 mm	**63 37 74**	88 mm	12 mm
32	46	"	**75**	89	"
33	47	"	**76**	90	"
34	48	"	**77**	91	"
35	49	"	**78**	92	"
63 37 36	50 mm	10 mm	**63 37 79**	93 mm	12 mm
37	51	"	**80**	94	"
38	52	"	**81**	95	"
39	53	"	**82**	96	"
40	54	"	**83**	97	"
63 37 41	55 mm	10 mm	**63 37 84**	98 mm	12 mm
42	56	"	**85**	99	"
43	57	"	**86**	100	"

65
Measuriing Tools

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Outside Calipers

Compás para Exteriores　外パス　外卡钳



For the easy measurement of the outer diameter of pipes and other round objects. Made of hardened steel with tips of tempered steel.

Unit Per Pr.

CODE	Size mm	CODE	Size mm
65 01 01	100	**65 01 07**	350
02	125	**08**	400
03	150	**09**	450
65 01 04	200	**65 01 10**	600
05	250	**11**	750
06	300	**12**	1,000

Spring Outside Calipers

Compás para Exteriores con Resorte
スプリング付外パス　弾簧外卡钳



For the outside measurement of threads. The tips are specially shaped to fit suitably to the threads.

Unit Per Pr.

CODE	Size mm	CODE	Size mm
65 01 21	100	**65 01 24**	200
22	125	**25**	250
23	150	**26**	300

Lock-Joint Transfer Outside Calipers

Calibradores de Exteriores con Transferencia para Cerrar-Juntar
ロックジョイント外パス　固定关节式内卡钳



For measuring the outer diameter of pipes or cables which may have rims or other obstructive shapes which would be difficult to measure with regular calipers.

Unit Per Pr.

CODE	Size mm	CODE	Size mm
65 01 31	100	**65 01 34**	200
32	125	**35**	250
33	150	**36**	300

Inside Calipers

Compás para Interiores　穴パス　内卡钳



For measuring the inside diameter of pipes, fittings, etc. Made of hardened steel with points of tempered steel to prevent wear.

Unit Per Pr.

CODE	Size mm	CODE	Size mm
65 01 51	100	**65 01 57**	350
52	125	**58**	400
53	150	**59**	450
65 01 54	200	**65 01 60**	600
55	250	**61**	750
56	300	**62**	1,000

Spring Inside Calipers

Compás para Interiores con Resorte
スプリング付内パス　弾簧内卡钳



Has points of a shape suitable to work in threads.

Unit Per Pr.

CODE	Size mm	CODE	Size mm
65 01 71	100	**65 01 74**	200
72	125	**75**	250
73	150	**76**	300

Lock-Joint Transfer Inside Calipers

Calibradores de Interiores con Transferencia para Cerrar-Juntar
ロックジョイント内パス　固定关节式内卡钳



For measuring the inner diameter of equipment which may have rims or obstructions which would make it difficult to measure with a regular caliper.

Unit Per Pr.

CODE	Size mm	CODE	Size mm
65 01 81	100	**65 01 84**	200
82	125	**85**	250
83	150	**86**	300

One-Side Calipers

Compás Plano Centrado　片パス　单边卡钳



For measuring the thickness of the walls of pipes or valves, etc. Made of hardened steel with tempered steel points.

Unit Per Pr.

CODE	Size mm	CODE	Size mm
65 02 01	100	**65 02 04**	200
02	125	**05**	250
03	150	**06**	300

Steel Compasses

Compás Punta　鋼製コンパス　钢质两脚规



Made of hardened steel with points that are extra hard tempered for scribing circles on iron plates.

Unit Per Pr.

CODE	Size mm	CODE	Size mm
65 02 11	75	**65 02 19**	400
12	100	**20**	450
13	125	**21**	500
14	150	**22**	600
65 02 15	200	**65 02 23**	750
16	250	**24**	900
17	300	**25**	1,000
18	350	**26**	1,200

Spring Dividers

Compás Muelle Puntas
スプリングデバイダー　弾簧量规



Made of hardened steel with points that are extra tempered for scribing on iron surfaces. Has a rigid spring and an adjustable, quick setting screw.

Unit Per Pr.

CODE	Size mm	CODE	Size mm
65 02 31	75	**65 02 35**	200
32	100	**36**	250
33	125	**37**	300
34	150		

Outside Micrometers

Micrómetros de Exteriores　標準外側マイクロメーター　外径千分尺



Graduated in 0.01 mm increments with standard measurement sizes from 25 mm to 500 mm.

Micrometers measuring up to 1,000 mm are also available upon request.

Unit Per Pc.

CODE	Range mm	CODE	Range mm
65 03 01	0 - 25	**65 03 11**	250 - 275
02	25 - 50	**12**	275 - 300
03	50 - 75	**13**	300 - 325
04	75 - 100	**14**	325 - 350
05	100 - 125	**15**	350 - 375
65 03 06	125 - 150	**65 03 16**	375 - 400
07	150 - 175	**17**	400 - 425
08	175 - 200	**18**	425 - 450
09	200 - 225	**19**	450 - 475
10	225 - 250	**20**	475 - 500

Outside Micrometers

with Counter

Micrómetros de Exteriores con Contador

カウント付外側マイクロメーター　　计数器外径千分尺



A numeral counter indicates sizes simulaneously as the measurements are being taken. The display is very easy to read. Graduated in 0.01 mm increments from 25 mm to 500 mm on the standard size micrometer but micrometers up to 1,000 mm are also available upon request.

Unit Per Pc.

CODE	Range mm	CODE	Range mm
65 03 41	0 - 25	**65 03 51**	250 - 275
42	25 - 50	**52**	275 - 300
43	50 - 75	**53**	300 - 325
44	75 - 100	**54**	325 - 350
45	100 - 125	**55**	350 - 375
65 03 46	125 - 150	**65 03 56**	375 - 400
47	150 - 175	**57**	400 - 425
48	175 - 200	**58**	425 - 450
49	200 - 225	**59**	450 - 475
50	225 - 250	**60**	475 - 500

Outside Micrometers

with Interchangeable Anvils

Micrómetros de Exteriores con Topes Intercambiables

標準外側マイクロメーター

接杆式外径千分尺



Each micrometer is equipped with a series of interchangeable anvils. Each anvil is marked to show its capacity and is fitted with an adjustable collar to prevent wear. Graduated in 0.01 mm increments.

Unit Per Set

CODE	Range mm	No. of Anvils	CODE	Range mm	No. of Anvils
65 03 81	0 - 100	4	**65 03 86**	500 - 600	4
82	0 - 150	6	**87**	600 - 700	4
83	150 - 300	6	**88**	700 - 800	4
84	300 - 400	4	**89**	800 - 900	4
85	400 - 500	4	**90**	900 - 1,000	4

Tubular Type Inside Micrometers

Micrómetros de Interiores Topes Tubular

棒形内側マイクロメーター　　管式内径千分尺

A single rod type micrometer made from strong but light tubing. The measuring anvils are ground to a radius to be used on either flat or curved surfaces. Graduated in 0.01 mm increments. Micrometers with counter displays are also available upon request.



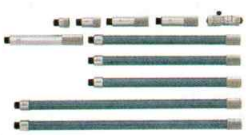
Unit Per Pc.

CODE	Range mm	CODE	Range mm
65 04 01	50 - 63	**65 04 11**	275 - 300
02	50 - 75	**12**	300 - 325
03	75 - 100	**13**	325 - 350
04	100 - 125	**14**	350 - 375
05	125 - 150	**15**	375 - 400
65 04 06	150 - 175	**65 04 16**	400 - 425
07	175 - 200	**17**	425 - 450
08	200 - 225	**18**	450 - 475
09	225 - 250	**19**	475 - 500
10	250 - 275		

Jointed Inside Micrometers

Micrómetros de Interiores Ajustables

継足式内側マイクロメーター　　组合式内径千分尺



Each set of the anvils for the jointed inside micrometers is adjusted to suit the particular micrometer. Each is given a mark and must not be used on any other micrometer. When assembling, clean the joining faces perfectly. Graduated in 0.01 mm increments.

Unit Per Set

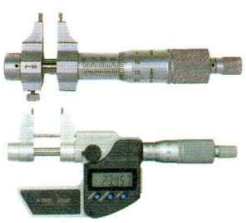
CODE	Range mm	No. of Rods	CODE	Range mm	No. of Rods
65 04 41	50 - 150	3	**65 04 44**	50 - 1,000	8
42	50 - 300	5	**45**	50 - 1,500	10
43	50 - 500	6	**46**	100 - 1,000	12

Internal Groove Micrometers

(Inside Micrometer Calipers)

Micrómetros de Interiores con Patas de Medida

キャリパー型内側マイクロメーター　　量内槽用内径千分尺



This caliper type jaw facilitates quick reading for internal grooves of all types including "O" rings, seals, oil grooves, washer grooves as well as bores and recesses. Graduated in 0.01 mm increments in sizes from 25 mm to 150 mm. Micrometers up to 50 mm in size with counters are also available.

Unit Per Pc.

CODE	Range mm	CODE	Range mm
Without Counter		**With Counter**	
65 04 51	5 - 30	**65 04 61**	5 - 30
52	25 - 50	**62**	25 - 50
53	50 - 75		
54	75 - 100		
55	100 - 125		
56	125 - 150		

Depth Micrometers

Micrómetros de Profundidad

単体形デプスマイクロメーター　　深度千分尺



Measures the depth of holes, projections, etc. Provided with a hardened tip and threaded ground screw, adjustable for wear. The face of the base is hardened and planed to maintain a level surface. Graduated in increments of 0.01 mm.

How to order: CODE

Depth micrometer, RANGE mm, BASE SIZE mm

Unit Per Pc.

CODE	Range mm	Base Size mm
65 04 71	0 - 25	65.3 × 16
72	0 - 25	101.6 × 16

Depth Micrometers

with Slidable Rod

Micrómetros de Profundidad con Varilla Deslizable
目盛ロッド形デプスマイクロメーター　滑杆式深度千分尺

Basically the same instrument as the depth micrometer but with a graduated sliding rod. The base length for all micrometers is 120 mm. Graduated in increments of 0.01 mm. The diameter of the rod is 6 mm.



Unit Per Pc.

CODE	Range mm	CODE	Range mm
65 04 76	0 - 200	**65 04 78**	0 - 300
77	0 - 250		

Vernier Calipers

Calibres Pie de Rey de Vernier　ノギス　游标卡尺

Made of high grade stainless steel with a satin chrome finish. Available in metric graduation, or in both, metric and inch graduation.



Unit Per Pc.

CODE	Length mm	Graduation	CODE	Length mm	Graduation
In Metric			**In Metric & Inch**		
65 05 01	100	0.05	**65 05 11**	150 - 6	0.05 - 0.001
02	150	"			
03	200	"	**12**	200 - 8	"
04	300	"	**13**	300 - 12	"
05	400	"			
65 05 06	500	"			
07	600	"			
08	1,000	"			

Digital Calipers

Calibres Pie de Rey de Digitales　デジタルキャリパー　数字卡尺

A compact, easy to use caliper graduated in 0.01 mm increments. All measurements are shown on a digital display making it easier to take quick, precise measurements. The graphic display will indicate whether the tool is set for the measurement of inside or outside diameters.



Specifications

Length	150 mm
Graduation	0.01 mm
Display	5 Digit LCD
Max. Response Speed	1,000 mm/sec.
Power Source	Dry Battery SR44 One Year Lifetime
Weight	170 grm

65 05 21	Digital caliper, 150 mm	Pc.

Vernier Depth Gauges

Calibres Vernier de Profundidad　デプスゲージ　游标深度尺

Made of hardened stainless steel. Graduated in increments of 0.05 mm in metric sizes only.



Unit Per Pc.

CODE	Length mm	CODE	Length mm
65 05 36	150	**65 05 41**	400
37	200	**42**	450
38	250	**43**	500
39	300	**44**	600
40	350	**45**	1,000

Thickness Gauges

(Feeler Gauges)

Galgas de Espesores　スキマゲージ　厚薄规（公制）

Particularly popular with machinists and tool makers for gauging narrow slots as well as for adjusting the air gaps of valves on motors. The leaves are made of tempered steel and have the thickness marked on them. The gauges listed below are classified as A Type because they have straight leaves. Type B gauges with tapered leaves are also available upon request.



In Metric

Unit Per Pc.

CODE	Type	Range mm	Length mm	No. of Leaves	Combination mm
65 05 51	75A10	0.03 - 0.3	75	10	0.30, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.10, 0.15, 0.20
52	100A10		100		
53	150A10		150		
54	200A10		200		
55	300A10		300		
65 05 56	75A13	0.03 - 0.3	75	13	3.00, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.10, 0.15, 0.20, 0.30, 1.00, 2.00
57	100A13		100		
58	150A13		150		
65 05 59	75A19	0.03 - 1.0	75	19	1.00, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.10, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.70, 0.80
60	100A19		100		
61	150A19		150		
65 05 62	75A25	0.03 - 1.0	75	25	1.00, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.10, 0.11, 0.12, 0.13, 0.14, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.60, 0.70, 0.80, 0.90
63	100A25		100		
64	150A25		150		

In Inch

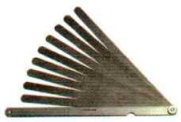
Unit Per Pc.

CODE	Type	Range (inch)	Length (inch)	No. of Leaves	Combination inch
65 05 66	172A	0.0015-0.015	3	9	0.0015, 0.002, 0.003, 0.004, 0.006, 0.008, 0.010, 0.012, 0.015
67	172B		4		
68	172C		6		
65 05 69	66	0.0015-0.025	3	26	0.0015, 0.002, 0.0025, 0.003, 0.004, 0.005, 0.006, 0.007, 0.008, 0.009, 0.010, 0.011, 0.012, 0.013, 0.014, 0.015, 0.016, 0.017, 0.018, 0.019, 0.020, 0.021, 0.022, 0.023, 0.024, 0.025

Gap Gauges
for Motor

Galgas de Espesores　モーター用ギャップゲージ　马达间隙规

Similar to feeler or thickness gauges but with longer leaves in order to measure between the stator and coil of a generator.



Unit Per Pc.

CODE	Length mm	No. of Leaves	Combination of Leaves mm
65 05 81	300	9	0.04, 0.05, 0.06, 0.07, 0.08, 0.10, 0.15, 0.20, 0.30
82	400		
83	500		
84	600		
85	800		
86	1,000		

Bearing Feeler Gauges

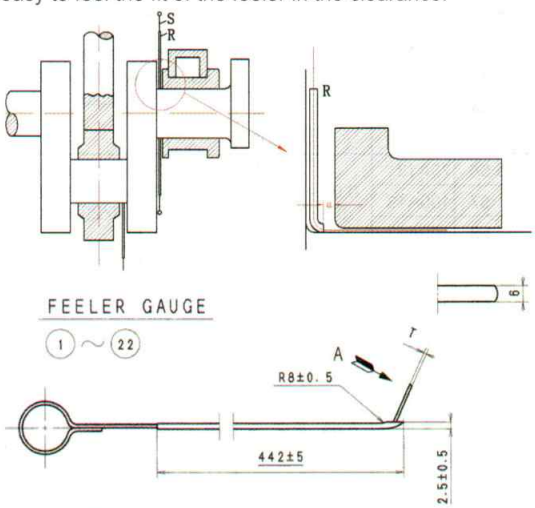
Calibradores de rodamientos　ベアリング用すきまゲージ　马达塞尺





Used for measuring main bearing clearance of marine engine.

When the rod "S" has been pressed through the pipe "R", the pipe "R" can be pushed away from the brass by further pressing on the rod "S" and when a distance "a" is obtained it is easy to feel the fit of the feeler in the clearance.



Obs. Keep "R" against the journal as long as the feeler is in the bearing.

Unit Per Set

CODE	No.	Range mm	Contents mm
65 05 87	M90012	0.75-0.95	0.75, 0.80, 0.85, 0.90, 0.95
88	M90022	0.65-0.85	0.65, 0.70, 0.75, 0.80, 0.85
89	M90032	0.05-0.35	0.05, 0.1, 0.15, 0.2, 0.25, 0.30. 0.35
90	M90042	0.40-0.70	0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70
91	M90052	0.75-1.05	0.75, 0.80, 0.85, 0.90, 0.95, 1.00, 1.05
92	M90062	0.40-0.60	0.40, 0.45, 0.50, 0.55, 0.60
93	M90072	0.10-1.10	0.10, 0.20, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00, 1.10
94	M90082	0.15-0.6*	(0.15, 0.20, 0.25, 0.30, 0.35), (0.40, 0.45, 0.50, 0.55, 0.60)

*All Blades consist of: 0.05, 0.10 and 0.15 mm thickness gauges.

Screw Pitch Gauges
(Thread Gauges)

Galgas para Roscas
スクリューピッチゲージ　螺纹规



Designed to quickly determine the pitch of nut, bolt, and screw threads.

Unit Per Pc.

CODE	No.	Standard	Degree	Leaves
65 06 01	137	Whitworth	55°	4 ~ 60 thrds 26's
65 06 02	156	Metric	60°	0.25 ~ 2.5 pitch 28's
03	158	"	60°	0.5 ~ 7.0 pitch 17's
04	159	"	60°	1.0 ~ 11.5 pitch 22's
65 06 05	ISO	Metric	60°	0.2 ~ 6.0 pitch 24's
65 06 06	JIS	"	60°	0.25 ~ 6.0 pitch 22's
65 06 07	474	Unify	60°	4 ~ 80 thrds 28's

Involute Gear Tooth Gauges

Calibres de Cordones de Soldadura　歯車ゲージ　渐开线齿轮规

Designed to indicate the gear pitch by simply using the leaves on the gear teeth. Every leaf is 50 mm long and 19 mm wide.



Unit Per Pc.

CODE	Type	Leaves	No. of Leaves
65 06 11	DP (S)	6 ~ 80 thread per inch	14
12	DP (L)	2 ~ 5 thread "	7
13	MP (S)	0.5 ~ 5 mm pitch	13
14	MP (L)	6.0 ~ 12.0 mm "	7

Screw Cutting Gauges
(Acme Screw Thread Gauges)

Calibres para Rosca ACME　アクメゲージ　切削牙规（梯形螺纹规）

A very useful gauge to determine the correct thread angle of various tools after the cutting operation. Available in 29° or 30° in round or square type respectively.



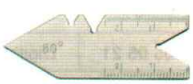
Unit Per Pc.

CODE	Description
65 06 21	Round type, 29° 1-10 Threads
22	Round type, 30° 3-10 mm Pitch
65 06 23	Square type, 29° 1-10 Threads
24	Square type, 30° 3-10 mm Pitch

Center Gauges

Plantillas de Afilados　センターゲージ　中心规

A handy gauge used for inspecting the center angles of the lathe and the angles of screw making tools. Available in 55° and 60°. Made of hardened steel.



Unit Per Pc.

CODE	Degree	Description
65 06 31	55°	Whitworth Standard
32	60°	U.S. or American National Standard
33	60°	Metric Standard

Wire Gauges

Calibres para Cables de Acero
ワイヤーゲージ　线规



For gauging steel wires, drill rods, sheets, plates, and wires of non-ferrous metal.

Unit Per Pc.

CODE	ABR.	Description
65 06 41	B.W.G.	U.K. Bermingham wire gauge, Nos.1-36
42	S.W.G.	U.K. Imperial Std. wire gauge, Nos.1-36
43	B.S.W.G.	U.S. BS Std. wire gauge, Nos.0-36
44	JIS	Japanese Ind. Std. 0.1-12 mm

Drill Gauges

Calibres para Ejes　ドリルゲージ　钻规



For measuring the diameter of drills.

Unit Per Pc.

CODE	Range	Intervals
65 06 51	0.3 - 1.0 mm	0.05 mm
52	1.0 - 6.0 mm	0.1 mm
53	1.0 - 13.0 mm	0.5 mm
54	6.0 - 13.0 mm	0.1 mm
55	1/16 - 1/2 inch	1/64 inch

Measuring Cups

Medida Plástico Graduada　メジャーカップ　量杯

Stainless steel or plastic made cup for measuring liquid volume. Graduated in liters only.





Unit Per Pc.

Plastic		Stainless Steel	
CODE	Ltr	CODE	Ltr
17 40 26	0.3	**17 40 31**	0.2
27	0.6	**32**	0.5
28	1.0	**33**	1.0
29	2.0	**34**	2.0

Measuring Glass Cylinders

Cilindro de Vidrio de Medición　計量シリンダー　玻璃計量筒

A graduated cylinder for measuring liquid, or liquefied chemicals more accurately.



Unit Per Pc.

CODE	For measurement	CODE	For measurement
65 07 11	10 ml	**65 07 15**	200 ml
12	20 ml	**16**	500 ml
13	50 ml	**17**	1,000 ml
14	100 ml		

Precision Balance Scales

Balanzas de Precisión　上皿天秤　精密天平

Designed to weigh small quantities (medicines, etc.) to an accurate degree. Scales are available for weighing in grams or in kilograms.



Unit Per Set

CODE	Capacity	Sensitivity	Tray Diam.
65 07 01	100 grm	100 mg	70 mm
02	200 "	200 mg	80 mm
03	500 "	500 mg	110 mm
04	1 kg	1 grm	130 mm
05	2 kg	1 grm	157 mm
65 07 06	5 "	2 grm	187 mm

Spring Balance Scales

Balanzas de Resorte　台ばかり　弹簧秤

For weighing items in bulk. Capacity ranges from 200 grm to 50 kgs. Available in metric graduation only. Plastic or steel platform trays.



Unit Per Pc.

CODE	Max. Weighing grm or kg	CODE	Max. Weighing grm or kg
17 40 01	200 grm	**17 40 07**	8 kg
02	400 grm	**08**	10 kg
03	800 grm	**09**	12 kg
04	1 Kg	**10**	20 kg
05	2 Kg	**11**	30 kg
17 40 06	4 Kg	**17 40 12**	50 kg

Tubular Spring Balances

Hand Held Type

Balanzas Tubulares de Resorte/Tipo Manual
手ばかり　手提式管形弹簧称



This balance is the most accurate and durable of its type. Useful for most applications. Graduated in kilograms only.

Unit Per Pc.

CODE	Capacity	Graduation	CODE	Capacity	Graduation
65 07 31	0.5 kg	5 grm	**65 07 37**	10 kg	100 grm
32	1 "	10 "	**38**	12 "	200 "
33	2 "	20 "	**39**	15 "	200 "
34	4 "	50 "	**40**	20 "	200 "
35	5 "	50 "	**41**	25 "	200 "
65 07 36	8 "	100 "	**65 07 42**	30 "	500 "

Dial Spring Balances

Hook Type

Balanzas de Resorte Cuadrante/Tipo Gancho
鈎はかり　圆盘式弹簧挂称



Painted metal case with brass dial and white markings, shock absorbing mechanism and zinc plated hook. Multipurpose use (weighing cold stores, bulk foods, etc.).

Unit Per Pc.

CODE	Capacity	Graduation	CODE	Capacity	Graduation
65 07 51	10 kg	50 grm	**65 07 55**	100 kg	500 grm
52	20 "	100 "	**56**	160 "	1 kg
53	30 "	200 "	**57**	200 "	1 "
54	50 "	500 "	**58**	300 "	2 kg

Spring Platform Scales

Balanzas de Plataforma con Resorte
ばね式台指示はかり　弾簧台秤



Designed for heavy duty use in industry or agriculture. Relieving gear prevents damage to the mechanism during loading and unloading to ensure a longer life. Fitted with wheels for easy handling.

Unit Per Pc.

CODE	Capacity	Graduation	CODE	Capacity	Graduation
65 07 66	50 kg	100 grm	**65 07 68**	150 kg	500 grm
67	100 "	200 "	**69**	250 "	500 "

Stainless Steel Straight Rules

Reglas Rectas de Acero Inoxidable　ステンレス直尺　不锈钢直尺

These engineer's precision rules are made of stainless steel and dull chromed to make the graduations easy to read. Graduated in increments of 0.5 mm.



Unit Per Pc.

CODE	Length mm	CODE	Length mm
65 08 01	150	**65 08 04**	1,000
02	300	**05**	1,500
03	600	**06**	2,000

Six-Folding Rules

Regla de seis veces　折尺　六折尺



Available in stainless steel, and wood. Machine marked graduations. Length: 1 mtr.

How to order: CODE

Rule, six-folding, MATERIAL, GRADUATION

Unit Per Pc.

CODE	Material	Graduation
65 08 11	Stainless Steel	Metric - Silver
12	Wood	Metric - Yellow
13	"	Metric & Inch - Yellow

Convex Rules

(Tape Rules)

Reglas Convexas (Reglas de Cinta) Flexómetros
コンベックスルール　钢卷尺



Locking, power-return, white steel convex rule. 12 mm (1/2") wide flexible steel blade in a plastic case. Available in metric standard or in metric and inch sizes.

Unit Per Pc.

CODE	Length	CODE	Length
	Metric		**Metric & Inch**
65 08 21	2 mtr	**65 08 26**	2 m/ 6'
22	3.5 "	**27**	3.5 m/12'
23	5 "	**28**	5 m/16'

Measuring Tapes

Cinta Métrica　巻尺　卷尺



13 mm wide measuring tape available in linen, steel, or stainless steel. The tape is easy to ravel and unravel and the metric graduations are clearly visible. The tape is contained in a black, vinyl laminated, metal case with a flush handle.

Unit Per Pc.

CODE	Length	CODE	Length	CODE	Length
	Linen Tape		**Steel Tape**		**Stainless Steel Tape**
65 08 31	10 mtr	**65 08 36**	10 mtr	**65 08 41**	10 mtr
32	20 "	**37**	20 "	**42**	20 "
33	30 "	**38**	30 "	**43**	30 "
34	50 "	**39**	50 "	**44**	50 "
35	100 "				

Oil Gauging Tapes

(Steel Dipping Tapes)

Sonda Tanque　タンク尺　量油尺



So called ullage tape. Made of steel or stainless steel with a chromed brass drawing weight attached. Metric or metric and inch graduated tapes are available. The tapes are mounted to a strong frame with a wooden carrying handle.

How to order: CODE

Tape, oil gauge, MATERIAL and COLOUR of TAPE, GRADUATION, LENGTH

Unit Per Pc.

Steel				Stainless Steel	
White Tape		Black Tape			
CODE	Length mm	CODE	Length mm	CODE	Length mm
Metric		**Metric**		**Metric**	
65 08 51	15	**65 08 61**	15	**65 08 71**	15
52	20	**62**	20	**72**	20
53	30	**63**	30	**73**	30
54	50			**74**	50
Metric & Inch		**Metric & Inch**		**Metric & Inch**	
65 08 56	15M/ 50'	**65 08 66**	15M/ 50'	**65 08 76**	15M/ 50'
57	20M/ 66'	**67**	20M/ 66'	**77**	20M/ 66'
58	30M/100'	**68**	30M/100'	**78**	30M/100'
59	50M/164'			**79**	50M/164'

Note: White Tape = Black graduation on white back ground
Black Tape = White graduation on black back ground

Smart Sounding Scales with Ultrasonic Sensor "Honesty"

Báscula Sonda Inteligente con Sensores de Ultrasonidos "Honesty"
超音波センサー付きスマートサウンディングスケール
带超声波传感器的智能计重秤

Designed for measuring and reading of ullage by an ultrasonic sensor installed at the end of sounding measuring tape. It detects the liquid level without being obstructed by floating bubbles, and measures accurate ullage to solve "cappuccino bunker effect" during bunkering.



It is portable, significantly saving bunker measuring time, and this device can measure not only fuel oil but also colorless liquids such as Marine Gas Oil (MGO), ballast water and bilge.

Available in stainless steel & brass covered sensor as non spark type on request.

Unit Per Set.

CODE	65 08 81
Sensor	SUS316L, Φ29 × 176 mm
Tape Length	30 mtr, made of glass fibre
Tape Resolution	±2 mm (JIS First Class)
Ambient Temperature	−20 − 60°C
Working Temperature	−20 − 700°C
Body Material	ABS
Power Supply	9V alkaline battery
Dimensions H × D × W	227 mm × 90 mm × 170 mm
Weight	1.36 kgs

Name of Mfr. : Semco Ltd.

Palm Tally Counters

Contador de Mano　数取器　掌上型計数器

Metal body mechanism four digits counter for counting inventories, etc. with actuating push button and reset button. Handy and suitable to fit in your palm.



47 18 55	Tally counter, Palm, 4 - digits	Pc.

Water Finding Paste

(Water Ribbons or Marking Blue)

Pasta Detectora de Agua　ウォーターリボン　试水膏

A paste for use with oil gauging tape. The colour of the paste will change from yellow to red upon contact with water.



65 08 90	Water finding paste, 75 grm	Tube

Gasoline and Oil Finding Paste

Pasta Detectora de Gasolina-Aceite　ガソリンライン　量油膏

A chemical paste used with oil gauging tape for measuring the presence of various types of oils. The colour of the paste will generally change from light blue to red upon contact with oil. This paste will detect almost any kind of oil including mineral oil, vegetable oil, and animal oil, and solvents such as benzol, alcohol, acrylic solution, alkaline solution, and spirits.



65 08 91	Gasoline and oil finding paste, 75 grm	Tube

Steel Straight Edges

Escuadras de Acero　直定規　钢制直尺

Precision made of fine tool steel to industrial standards. The surface is ground and planed to a smooth surface. Perfect for use as a straight edge or as a level to check if surfaces are flat. The types shown above, the standard (rectangular) and beveled edge types without graduation are most common.

Other types such as a fold out or I-beam straight edge with graduations are also available upon request.



Standard Type　　Beveled Type

Unit Per Pc.

Standard Type			Beveled Type (one side)		
CODE	Size mm L x W x T	Weight kg	CODE	Size mm L x W x T	Weight kg
65 09 01	150 x 24 x 3	0.08	**65 09 16**	150 x 24 x 3	0.08
02	200 x 24 x 3	0.11	**17**	200 x 24 x 3	0.11
03	250 x 30 x 4	0.3	**18**	250 x 30 x 4	0.3
04	300 x 35 x 5	0.4	**19**	300 x 35 x 5	0.4
05	450 x 40 x 5	0.7	**20**	450 x 40 x 5	0.7
65 09 06	600 x 40 x 5	0.9	**65 09 21**	600 x 40 x 5	0.9
07	750 x 60 x 6	1.7	**22**	750 x 60 x 6	1.7
08	900 x 50 x 6.5	2.3	**23**	900 x 50 x 6.5	2.3
09	1,000 x 50 x 6.5	2.6	**24**	1,000 x 50 x 6.5	2.6
10	1,500 x 75 x 6.5	5.8	**25**	1,500 x 75 x 6.5	5.8
65 09 11	2,000 x 85 x 8	11.0	**65 09 26**	2,000 x 85 x 8	11.0

Carpenters' Squares

Escuadras de Carpinteros

曲尺　木匠曲尺



For carpenters or machinists use. polished tool steel and graduated increments.

Unit Per Pc.

CODE	65 09 31	65 09 32	65 09 33
Size mm	150 x 75	300 x 150	500 x 250

Precision Flat Try Squares

Escuadras Olanas de Precisión

平形直角定規　平行直角定規



For machinists and tool makers. Made of carbon tool steel. Two types are available as listed below based upon the degree of accuracy. Graduated flat squares are also available upon request.

Unit Per Pc.

CODE	Size mm	Tolerance (mm)	CODE	Size mm	Tolerance (mm)
	1 st. Grade			2 nd. Grade	
65 09 36	50 x 40	0.013	**65 09 51**	50 x 40	0.02
37	75 x 50	0.014	**52**	75 x 50	0.027
38	100 x 70	0.015	**53**	100 x 70	0.03
39	125 x 80	0.016	**54**	125 x 80	0.032
40	150 x 100	0.018	**55**	150 x 100	0.035
65 09 41	200 x 130	0.02	**65 09 56**	200 x 130	0.04
42	250 x 165	0.022	**57**	250 x 160	0.045
43	300 x 200	0.025	**58**	300 x 200	0.05
44	400 x 200	0.03	**59**	400 x 200	0.06
45	500 x 300	0.035	**60**	500 x 300	0.07
65 09 46	600 x 300	0.04	**65 09 61**	600 x 300	0.08
47	750 x 400	0.048	**62**	750 x 400	0.096
48	1,000 x 550	0.06	**63**	1,000 x 550	0.12

Precision Try Squares

with Base

Escuadras de Precisión con Base　台付直角定規　精密直尺



Recommended for use where extreme accuracy is required. Base and blades are hardened, ground and lapped to insure that the square has a straight, parallel setup. 1st and 2nd grades are available according

to their tolerance. Non graduated types are most commonly used but graduated types are also available upon request.

Unit Per Pc.

CODE	Size mm Blade x Handle	Tolerance (mm)	CODE	Size mm Blade x Handle	Tolerance (mm)
	1 st. Grade			2 nd. Grade	
65 09 66	50 x 40	0.013	**65 09 81**	50 x 40	0.02
67	75 x 50	0.014	**82**	75 x 50	0.027
68	100 x 70	0.015	**83**	100 x 70	0.03
69	125 x 80	0.016	**84**	125 x 80	0.032
70	150 x 100	0.018	**85**	150 x 100	0.035
65 09 71	200 x 130	0.02	**65 09 86**	200 x 130	0.04
72	250 x 165	0.022	**87**	250 x 165	0.045
73	300 x 200	0.025	**88**	300 x 200	0.05
74	400 x 200	0.03	**89**	400 x 200	0.06
75	500 x 300	0.035	**90**	500 x 300	0.07
65 09 76	600 x 300	0.04	**65 09 91**	600 x 350	0.08
77	750 x 400	0.048	**92**	750 x 400	0.096
78	1,000 x 550	0.06	**93**	1,000 x 550	0.12

Combination Square Sets

Juegos de Combinación de Escuadra
コンビネーションセット　万能角尺全套



Combination sets are useful for all types of mechanical jobs. The set is comprised of a straight rule protractor, a square head, and a center head. The protractor is graduated to read from zero to 180° in both directions. The rule is made of stainless steel and is graduated in both 0.5 mm and 1 mm increments. The square head has a level and a scriber point. The protractor head, center head, and square head are all made of cast iron.

Unit Per Set

CODE	65 10 01	65 10 02	65 10 03	65 10 04
Rule's Length	225 mm	300 mm	450 mm	600 mm
Weight	0.9 kg	1 kg	1.1 kg	1.2 kg

Combination Squares

Combinaciónes Escuadras　コンビネーションスコヤ　万能角尺

Same composition as above without protractor.



Unit Per Pc.

CODE	65 10 06	65 10 07	65 10 08	65 10 09
Rule's Length	225 mm	300 mm	450 mm	600 mm

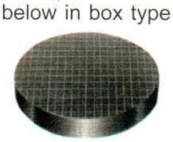
Surface Plates

Mesa de Trazo　定盤　盒式平板

Machine finished economical surface plate made of cast iron. Most Common sizes are listed below in box type and round type.



Box Type



Round Type

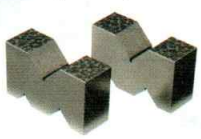
Unit Per Pc.

Box Type			Round Type		
CODE	Size mm W x L x H	Weight kg	CODE	Size mm Dia x H	Weight kg
65 10 21	200 x 200 x 50	5.4	**65 10 38**	50 x 30	0.5
22	250 x 200 x 55	8	**39**	75 x 30	1.0
23	250 x 250 x 55	9	**40**	100 x 30	2.9
24	300 x 250 x 58	15	**41**	125 x 30	3.8
25	300 x 300 x 50	16	**42**	150 x 40	5.5
65 10 26	400 x 300 x 65	22	**65 10 43**	200 x 40	6.0
27	400 x 400 x 75	31	**44**	250 x 50	10.5
28	450 x 300 x 65	26	**45**	300 x 60	16.0
29	450 x 350 x 75	35	**46**	400 x 60	26.0
30	450 x 450 x 90	50	**47**	500 x 70	49.0
65 10 31	500 x 350 x 90	45	**65 10 48**	600 x 90	69.0
32	500 x 500 x 100	60			
33	600 x 450 x 100	60			
34	600 x 600 x 100	80			
35	750 x 600 x 125	105			
65 10 36	900 x 600 x 125	200			

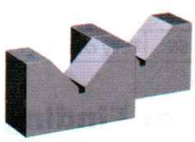
Vee Blocks
(V-Blocks)

Bloques en "V"　V ブロック　V 型块

Machine finished and made of cast iron. Two types available, the A type which is composed of three 90° v-shaped indentations of various depths and the B type which has one 90° v-shaped indentation. A set of two pieces can be used in mechanical processing and inspection as a holding table for marking off round rods and right angle bodies, or to hold round marks. An A type block equipped with a clip is also available upon request.



A-Type



B-Type

Unit Per Pc.

CODE	Nominal Size	Dimensions mm (W x H x L)	CODE	Nominal Size	Dimensions mm (W x H x L)
	A-Type			B-Type	
65 10 51	50	50 x 32 x 20	**65 10 56**	75	75 x 60 x 30
52	75	75 x 40 x 30	**57**	100	100 x 67 x 40
53	100	100 x 60 x 30	**58**	125	125 x 80 x 50
54	125	125 x 80 x 50	**59**	150	150 x 90 x 65
55	150	150 x 90 x 65	**60**	175	175 x 115 x 75
	-	-	**65 10 61**	200	200 x 140 x 100

Pocket Levels

Niveles de Bolsillo　ポケット・レベル　袖珍式水平仪

Compact and lightweight. The housing is made of Nickel plated hexagonal brass.



Unit Per Pc.

CODE	65 10 71	65 10 72
Overall Length	65 mm	90 mm
Across Flat	10 mm	12 mm

Bench Levels

Niveles de Banco　水平器　普通型水平儀

A popular level made of cast iron. Provided with a level vial and a plumb vial.



Unit Per Pc.

CODE	Length mm	Weight kg	CODE	Length mm	Weight kg
65 10 76	150	0.4	**65 10 80**	450	1.2
77	230	0.55	**81**	600	1.4
78	300	0.72	**82**	900	1.9
79	380	1.0			

Surface Gauges

Calibres para Superficie　サーフェイスゲージ　平面規

These surface gauges are handy, well proportioned and rigid. Composed of a heavy, cast iron base and a mild steel rod supporting a scriber which has tempered points. Common sizes are listed below but gauges with longer spindles, up to 1,000 mm in the round base and 2,000 mm in the square base are available upon request.



Round Base　Square Base

Unit Per Pc.

Round Base			Square Base		
CODE	Spindle Length (mm)	Base Size (mm)	CODE	Spindle Length (mm)	Base Size (mm)
65 11 01	150	55 x 35	**65 11 11**	150	64 x 40 x 22
02	200	55 x 35	**12**	200	70 x 45 x 25
03	250	65 x 35	**13**	250	75 x 55 x 25
04	300	75 x 35	**14**	300	85 x 65 x 28
05	350	75 x 35	**15**	350	85 x 65 x 28
65 11 06	400	105 x 55	**65 11 16**	400	110 x 80 x 45
07	450	105 x 55	**17**	450	110 x 80 x 45
08	500	105 x 55	**18**	500	130 x 105 x 55

Hand Tachometers

Digital Type

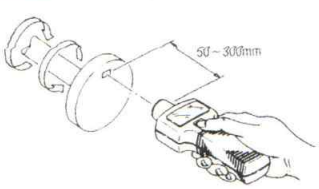
Tacometros Manuales/Tipo Digitál
デジタル式ハンドタコメーター　数字式转数表

A light and compact battery-operated tachometer for measuring revolution with high accuracy.



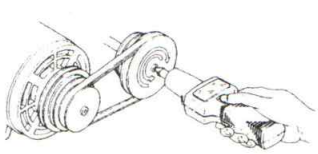
Non Contact Measurement

Revolution speed is *easily read by directing* the probe to the revolving shaft end to which a reflection tape is attached.



Contact Measurement

With optional contact adaptor the R.P.M. and surface speed can be easily read by pressing the head lightly against the revolution shaft.



Specifications

Measuring Range	30 - 30,000 rpm
Resolution	0.1 rpm
Accuracy	0.01 %, ±1 digit
Sampling Time	1.0 - 2.0 sec.
Display	6 digit LCD
Data Hold	3 minutes
Measuring Distance	300 mm (contactless use)
Power Source	4 x R6P, 1.5 volt (AA size)

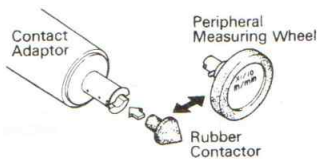
65 13 10	Hand tachometer, digital type measuring range 30 - 30,000 rpm	Set

Note: Contact adaptor is ordered separately.

Contact Adaptors

for Digital Type Hand Tachometer

Adaptadores de contacto　コンタクトアダプター　触点适配器



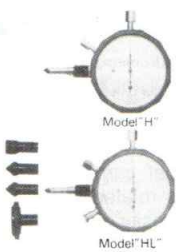
Unit Per Set

CODE	Measuring Unit	Contents
65 13 13	1/10 mtr/min.	1 surface speed wheel and 3 rubber tips
14	1/10 yard/min.	

Hand Tachometers

Hasler Type

Tacometros Manuales/Tipo Hasler
ハスラー型時計式タコメーター
手持转速计



A clockwork type interior instrument, automatically engages the indicating mechanism when the instrument is started and releases after three seconds.

The tachometer is non magnetic and can therefore be used in electric power stations, etc.

Unit Per Pc.

CODE	Type	R.P.M. (Revolution)		R.P.M. (Surface Speed)	
		Range	Graduation	Range	Graduation
65 13 21	H	0 - 10,000	2	0 - 1,000	0.2 Mtr
22	L	0 - 1,000	0.2	0 - 100	0.02 "
65 13 23	HL	Combined *"H" and "L"*		Combined *"H" and "L"*	

Electronic Stethoscopes

Estetoscopios Electrónicos
電子式聴診器　电子听诊器



Electronic stethoscope enables you to check symptoms in machinery, before they become a problem. Machine noise or vibrations are picked up by the stethoscope's probe and a transducer converts the vibrations to an electronic signal.

Start by pressing the probe against the machine body and adjust the sound level. When the probe is moved to a new position it should be easy to establish whether the probe is now nearer to or further away from the source of the noise.

The condition of the machine can be checked based upon one's own personal experience with the sound of the machinery or by comparing the sound to a reference signal of a healthy machine.

	Specifications
Frequency Range	30 Hz - 15 KHz
Output Volume	Adjustable
Battery	9 V alkaline (IEC 6LR61)
Battery Lifetime	Approx. 20 hours

65 13 31	Electronic stethoscope	Set

Sound Scopes

Binaural Receiver Type

Sonómetro/Tipo Receptor Binaural　聴音機　异音听诊器



Stethoscope type sound inspection instrument for detecting worn out parts, cracks of engines, motors, missing gear box, compressors, dynamos, etc. Furthermore useful for tracing irregularities in pipe-lines of gas, water, oil and electrical equipment.

65 13 33	Sound scope, binaural receiver type	Pc.

Seawater Hydrometers

Hidrómetros para Agua De Mar
海水比重計　海水比重计



A glass instrument for measuring the density and saturation of salt in seawater. A ballasted float carrying a scale that indicates density as related to fresh water. Zero is 1,000; the density of seawater is about 1,026, but varies, in different areas between 1,000 and about 1,040.

How to order: CODE

Hydrometer, seawater, GRADUATION, LENGTH

Unit Per Pc.

CODE	Graduation	Length	CODE	Graduation	Length
65 13 41	1,000 - 1,030	200 mm	**65 13 43**	1,000 - 1,040	200 mm
42	- " -	250 "	**44**	- " -	250 "
62	- " -	300 "	**63**	- " -	300 "

Draft Survey Hydrometers

Hidrómetro de sondeo
喫水検査用海水比重計　用于吃水检查的海水比重计

A hydrometer specially designed for carrying out a draft survey on cargo carrying vessels, measuring water density and comparing pre/post-loading draft readings to determine ship's cargo quantity.

65 13 61	Draft Survey Hydrometer Range: 0.990/1.040 Sp.Gr. 330 mm long × 0.0005 divisions	Pc.

Salinity Refractometers

Refractómetro de Salinidad　海水濃度計　鹽度計



For measuring the salinity and specific gravity of seawater, and utilizes a new material that is durable against salty samples. The salinity of seawater is displayed in parts per mill (‰). This refractometer requires no battery due to optical device.

Features

- Easy to read display.
- Screen shading.

With the same measurement range as MASTER-S/Mill M, MASTER-S/Mill α is an Automatic Temperature Compensation (ATC) model with water resistant properties (IP65).

Unit Per Pc.

CODE	**65 13 45**	**65 13 46**
Model	MASTER-S/Mill M	MASTER-S/Mill α
Scale Range	Salinity : 0 to 100 ‰ Specific gravity : 1.000 to 1.070	
Minimum Scale	Salinity : 1 ‰ Specific Gravity : 0.001	
Accuracy	-	Salinity : ±2 ‰ Specific gravity : ±0.001 (10°C to 30°C)
Functions	Calibration with water	Calibration with water & Automatic Temperature Compensation
Size	3.2 x 3.4 x 20.7 cm	
Weight	110 grm	

Name of Mfr. Atago

Seawater Specific Gravity Refractometers, Digital Type

Refractómetros de gravedad específica de agua de mar, tipo digital
デジタル式海水比重計　数字海水比重计



Designed to measure the salinity specific gravity of a solution of seawater and water only. Fully digital, surprisingly compact size (pocket size) allows you to easily carry it around and use it outdoors or inside factories.

Features

* Just 2-3 drops of sample.
* Easy and quick measuring.
* Measurement displayed in just 3 seconds.
* Hot or cold samples can be measured.
* ATC - measurements are shown as if measured at 20°C.
* Zero setting (calibration) can be done with distilled or tap water!
* Class IP65 - Dust-tight and Protected against water jets. Rinse clean under running water.

Unit Per Pc.

CODE	**65 13 47**
Model	PAL-07S
Measuring Range	Sea water (S.G.) : 1.000 to 1.070 Temperature : 10.0 to 40.0°C
Resolution	Sea water (S.G.) : 0.001 Temperature : 0.1°C
Measurement Accuracy	Sea water (S.G.) : ±0.002 Temperature : ±1°C
Temperature Compensation Range	10 to 40°C (Automatic Temperature Compensation)
Ambient Temperature	10 to 40°C
Sample Volume	0.3 ml
Measurement Time	3 seconds

(to be continued)

Unit Per Pc.

CODE	65 13 47
Power Supply	2 x AAA batteries
International Protection Class	IP 65 Dust-tight and protected against water jets
Dimensions mm	55 (W) x 31 (D) x 109 (H)
Weight	100 grm

Name of Mfr. : Atago

Ethylene Glycol Refractometers

Digital Type

Refractómetros de etilenglicol, tipo digital
不凍液用エチレングリコール濃度計　　防冻液用乙二醇浓度计



Anti-freezing solution (coolant) which main ingredient is ethylene glycol is widely used as mixed in cooling water of car's radiator, as cooling medium for central air-conditioning system, freezer/ refrigerator, cooling coil, cooling fixture, and so on.

The "Pocket" coolant refractometer can easily measure the coolant in brine and other agents of Ethylene Glycol. Measured value displayed digitally. The freezing point of the sample can also be measured and displayed.

Unit Per Pc.

CODE	65 13 48
Model	PAL-91S
Measuring Range	Ethylene glycol : 0.0 to 90.0% (V/V) (Main scale) Freezing point of Ethylene glycol : 0 to -50°C (Secondary scale) Temperature : 10.0 to 40.0°C
Resolution	Ethylene glycol : 0.2% (V/V) (Main scale) Freezing point of Ethylene glycol : 1°C (Secondary scale) Temperature : 0.1°C
Measurement Accuracy	Ethylene glycol : ±0.4% (V/V) (Main scale) Freezing point of Ethylene glycol : ±1°C (Secondary scale) Temperature : ±1°C
Temperature Compensation Range	10 to 40°C (Automatic Temperature Compensation)
Sample Volume	0.3 ml
Measurement Time	3 seconds
Power Supply	2 x AAA batteries
International Protection Class	IP 65 Dust-tight and protected against water jet
Dimensions mm	55 (W) x 31 (D) x 109 (H)
Weight	100 grm

Name of Mfr. : Atago

Refractometers

for Urea Concentration of Diesel Exhaust Fluid
Digital Type

Refractómetros para concentración de urea de líquido de escape diésel, tipo digital
デジタル式尿素水濃度計　　数字式尿素浓度计



The PAL-Urea is specifically designed to measure the Urea concentration of DEF(Diesel Exhaust Fluid), also known as AdBlue* in Europe. The PAL-Urea is light & compact, with no moving parts to break. Simply place a few drops of DEF on the prism, press "Start" and the precise Urea concentration is displayed digitally in 3 seconds.

Unit Per Pc.

CODE	65 13 49
Model	PAL-Urea
Measurement Temperature	Urea : 0.0 to 55.0% Temperature : 10 to 40°C
Resolution	Urea : 0.1% Temperature : 0.1°C
Measurement Accuracy	Urea : ±0.3% Temperature : ±1°C
Temperature Compensation Range	10 to 40°C (Automatic Temperature Compensation)
Sample Volume	0.3 ml
Measurement Time	3 seconds
Power Supply	2 x AAA batteries
International Protection Class	IP 65 Dust-tight and protected against water jets
Dimensions mm	55 (W) x 31 (D) x 109 (H)
Weight	100 grm

Name of Mfr. : Atago

A.P.I. Hydrometers

for Petroleum

Hidrómetros A.P.I. para Petróleo
A.P.I. 度規格石油比重計　　A. P. I 石油比重计



A glass instrument for measuring the density of petroleum, made to the industrial standards of the A.P.I. (American Petroleum Institute). Graduated in 0.1 and 300 mm in length.

Unit Per Pc.

CODE	No.	Range	CODE	No.	Range
65 13 51	1	-1 - 11	**65 13 56**	6	49 - 61
52	2	9 - 21	**57**	7	59 - 71
53	3	19 - 31	**58**	8	69 - 81
54	4	29 - 41	**59**	9	79 - 91
55	5	39 - 51	**60**	10	89 - 101

Note: A.P.I. Number differs in certain countries, therefore when ordering, please be sure to specify the No. as well as the range in order to avoid confusion and mis delivery.

Hydrometers

for Light Oil

Hidrómetros para Aceito Ligero
軽質油用比重計　　比重计



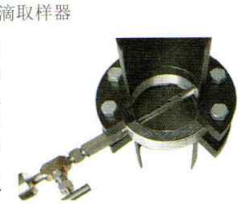
General purpose hydrometer to determine the gravity of light oil. The set consists of 3 pieces, and the length of hydrometer is 300 mm.

Unit Per Set

CODE	65 13 64	65 13 65	65 13 66
Range	0.700 ~ 1.000	0.700 ~ 1.200	0.750 ~ 0.900
Consists of	0.700 ~ 0.800 0.800 ~ 0.900 0.900 ~ 1.000	0.700 ~ 0.850 0.850 ~ 1.000 1.000 ~ 1.200	0.750 ~ 0.800 0.800 ~ 0.850 0.850 ~ 0.900
Nos in Set	3's		

Fuel Drip Bunker Samplers

Tomamuestras de goteo para el suministro de combustible
燃料油滴貯留式サンプラー　　燃料油滴取样器



Designed for obtaining good representative fuel samples during bunkering operation. A representative oil sample will provide an accurate representation of the contaminants, additives, oxidation particulates and wear condition.

* Lightweight and very easy to install - obtaining a representative bunker fuel sample quick and easy.
* Complete with bunker fuel sampler joint rings.
* GL & Lloyds Register approved with certificate numbers etched on the flange, GL Certified for MARPOL compliance.
* IMO MARPOL 73/78 Annex VI compliant - helps you stay within the legal requirements for bunker fuel sampling.

The sample is collected in a cubitainer, a consumable item of typically 5 litre capacity which is attached to the needle valve. The tube should always be installed with the holes facing the fluid direction. Adjust the needle valve to give a slow and steady drip. Time the fill rate to estimate that it will provide for sufficient sample over the expected delivery period.

It is recommended that four representative samples are obtained from the delivery.

The distribution of the samples being:
1. Supplier's sample;
2. Vessel's sample for on-board retention;
3. On-board analysis sample;
4. Sample for independent analysis.

Material: Stainless steel 304/316
Nominal Flange Thickness: 25 / 26 mm
Total Thickness (including gaskets): 31 / 32 mm

Sampler Sizes

Part Number	Nom. Pipe Size (B)	ID (mm)	OD (mm)	Weight	Flange Standard Correlations
FG-K1-122-KW	50 mm /2"	63	95	3.4 kg	JISB2210 5K, 10K, 16K, BS 4504 PN10, PN16, BS10 D, E, F, ANSI B16.5 150, 300
FG-K1-123-KW	75 mm /3"	86	127	3.9 kg	JISB2210 5K, 10K, 16K, BS 4504 PN16, BS10 D, E, F, ANSI B16.5 150, 300
FG-K1-124-KW	100 mm /4"	116	157	4.3 kg	BS 4504 PN16, BS10 D, E, F, ANSI B16.5 150, 300
FG-K1-125-KW	125 mm /5"	144	188	4.8 kg	JISB2210 5K, 10K, 16K, BS 4504 PN16, BS10 D, E, ANSI B16.5 150
FG-K1-126-KW	150 mm /6"	171	216	5.5 kg	JISB2210 5K, 10K, 16K, BS 4504 PN16, BS10 D, E, F, ANSI B16.5 150, 300
FG-K1-127-KW	175 mm /7"	194	241	6.2 kg	JISB2210 5K, 10K
FG-K1-128-KW	200 mm /8"	221	266	6.5 kg	JISB2210 5K, 10K, 16K, BS 4504 PN10, PN16, BS10 D, E, F, ANSI B16.5 150
FG-K1-129-KW	225 mm /9"	260	307	6.6 kg	ANSI B16.5 300
FG-K1-130-KW	250 mm /10"	281	328	7.1 kg	JISB2210 10K, 16K, BS 4504 PN10, PN16, BS10 D, E, F, ANSI B16.5 150, 300
FG-K1-131-KW	275 mm /11"	319	361	7.2 kg	JISB2210 10K, BS 4504 PN10, PN16, BS10 D, E
FG-K1-132-KW	300 mm /12"	340	401	7.5 kg	JISB2210 16K, BS10 F, ANSI B16.5 150, 300
FG-K1-133-KW	350 mm /14"	375	420	8.0 kg	BS 4504 PN10, PN16, BS10 D, E, F, ANSI B16.5 150, 300

Unit Per Pc.

CODE	Nom. Pipe Size	CODE	Nom. Pipe Size
65 13 24	50 mm/2"	**65 13 30**	200 mm/ 8"
25	75 mm/3"	**34**	225 mm/ 9"
26	100 mm/4"	**35**	250 mm/10"
27	125 mm/5"	**36**	275 mm/11"
28	150 mm/6"	**37**	300 mm/12"
65 13 29	175 mm/7"	**65 13 38**	350 mm/14"

Name of Mfr. : Parker Kittiwake

Cubitainers for Sampling Flange Device



Drip samplers use disposable 'Cubitainers'. These hold the oil sample before mixing and transfer to the sample bottles. They also keep out all external contamination. Supplied in 5 litre size, and packs of 24, with numbered, tamper-evident caps, pourer carton and spout

65 13 39	Cubitainer for sampling flange device, 5 ltr capacity, 24's/case	C/S

Fuel Oil Sample Bottles and Labels



750ml HDPE (High Density Polyethylene) fuel oil sample bottle packs and mailer kits complete with numbered tamper evident caps, labels and mailing cartons used for storage and safe transportation of the samples. Sample bottles have been tested and approved for transportation of fuel oil samples by air freight or courier service. All consumables are available either as convenient individual packs, or supplied in bulk to refineries and bunker barge operations.

65 13 40	Bottle, HDPE for fuel oil sample, 750 ml, with seals and IATA* approved mailing cartons, 36's	Kit

*IATA - International Air Transport Association

Sampling Bottles
(Samplers)

Frascos para Muestra (Mostradores)
サンプル採取器　　取样瓶



Designed for sampling petroleum products in tanks or seawater. Made of brass and stainless steel. Available in 500 cc and 1,000 cc sampling capacity.

1. Mouth Collecting Type Sample
Top lid can be opened at any intermediate level inside tanks and other containers. Sample can be easily collected from any pre-determined depth inside the tank.

2. Bottom Collecting Type Sampler:
(Bottom Penetrate Type)
Sample can be collected from bottom (Bottom Collecting Type) at any intermediate level of tanks and other containers, or at any pre-determined depth inside the tanks.

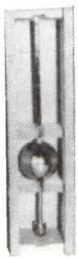
How to order: CODE
Sampling bottle, COLLECTING TYPE, MATERIAL, CAPACITY

Unit Per Pc.

Mouth Collecting Type			Bottom Collecting Type		
CODE	Material	Capacity	CODE	Length mm	Weight kg
65 13 71	Brass	500 cc	**65 13 75**	Brass	500 cc
72		1,000 cc	**76**		1,000 cc
65 13 73	S.Steel	500 cc	**65 13 77**	S.Steel	500 cc
74		1,000 cc	**78**		1,000 cc

Salinometers

Salinómetros 塩分計 盐度计



An instrument for indicating the proportion of salt in a given quantity of water. It indicates the saline content 1/32 to 4/32 for boiler water or 1,000 to 1,040 for sea water. Available in glass or brass material.

How to order: CODE

Salinometer, for BOILER WATER or SEA WATER, MATERIAL

Unit Per Set

CODE	Material	For	Graduation
65 13 81	Glass	Boiler Water	1/32 - 4/32 at 200°F
82	Brass		
65 13 83	Glass	Sea Water	1,000 - 1,040 at 200°F
84	Brass		

Salinometer Pots

Ollas para Salinómetro

サリノメーターポット 盐度计量筒



Made of heavy plated copper or brass with a wooden handle. The standard size is approx. H 300 mm x D 62 mm. When ordering, please specify the material you require.

Unit Per Pc.

CODE	**65 13 86**	**65 13 87**
Material	Copper	Brass

pH Test Paper

(Litmus Paper)

Papel para Prueba de pH (Papel de Tornasol)

リトマス試験紙 pH 试纸



For measuring acidity and alkalinity (hydrogen ion concentration) based on a scale of 0 to 14 where 7 represents the value for pure water at 25°C or neutrality. Values less than 7 represent increasing hydrogen-ion concentration or increasing acidity, and a value greater than 7 represents decreasing hydrogen-ion concentration or increasing alkalinity.

65 13 90	pH test paper pH, 0 ~ 14	Pkt

Compact pH Meters

pH,metros Compactos コンパクトペーハーメーター 精确 pH 计



Pocket-size pH meter for small sample measurement with waterproof construction.

It provides several measuring methods, immersion measurement, scoop measurement or flat measurement.

Specifications

Measurement Range	pH2 - pH12
Accuracy	±0.1 pH
Readout	3-1/2 digit LCD
Principle	Glass electrode
Sample Temperature	5-40°C
Power Source	3V lithium batteries (CR-2032) × 2 pcs
Size	165 × 29 × 19 mm
Weight	53 grm

65 13 93	Compact pH meter, pH 2-12	Pc.

Digital pH Meters

pH,metros Digitales

デジタルペーハーメータ 数字 pH 计



Compact, pocket size meter with one touch calibration and temperature compensation.

Meters with a probe in a sealed case and sealed connections to keep out moisture. Operation is simple with one touch, automatic calibration.

Simply dip the probe in standard solution and the microprocessor automatically distinguishes between standard solutions of pH 4, 7, or 9.

The microprocessor will also perform the temperature compensation of the pH and display a diagnostic message. Has a long battery life of approximately 600 hours and will automatically switch off to reserve power if left on for over 30 minutes.

Specifications

Measurement Range	pH	0 to 14
	Temperature	0 to 80°C
Display	Liquid crystal display	
Item Displayed	Displays both pH value and liquid temperature	
Power Supply	1 × 6F22 (S - 006P) dry cell	

65 13 95	Digital pH meter, 0 - 14 pH	Set

pH Standard Solutions

Solución patrón de pH pH 標準液 pH 标准溶液



A pH solution is a solution can stable pH value that is used for calibrating pH meters. It is a measure of the acidity or alkalinity of a solution and indicates with number such as pH1.68, pH4.01 or 10.01. These different pH values depend on the specific application or requirements. Available different kinds of pH standard solutions for different pH values, so please specify which pH value you need when ordering.

65 13 91	pH standard solution, pH 1.68 (25 degree) 500 ml	Btl.
65 13 92	pH standard solution, pH 4.01 (25 degree) 500 ml	Btl.
65 13 94	pH standard solution, pH 6.86 (25 degree) 500 ml	Btl.
65 13 96	pH standard solution, pH 7.41 (25 degree) 500 ml	Btl.
65 13 97	pH standard solution, pH 9.18 (25 degree) 500 ml	Btl.
65 13 98	pH standard solution, pH 10.01 (25 degree) 500 ml	Btl.

Standard Dial Gauges

(Dial Indicators)

pH,metros Digitales

デジタルペーハーメータ 数字 pH 计



This standard dial gauge is simple, reliable, easy to read, very sensitive and shock proof. The bezel is rotated for zero setting. The most common types are listed below.

How to order: CODE

Dial gauge, standard, TOTAL RANGE, NON-WATER PROOF or WATER PROOF

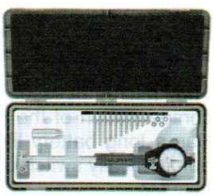
Unit Per Pc.

CODE	Total Range	Graduation	Remark
65 14 01	5 mm	0.01 mm	Non-Water Proof
02	"	"	Water Proof
65 14 03	10 mm	"	Non-Water Proof
04	"	"	Water Proof

Cylinder Gauges
(Bore Gauges)

Calibres Cilindricos (Calibres Bore)
シリンダーゲージ　　钢径规

This range of gauges is designed mainly for the measurement of cylinder bores but the ovality, taper, wear and other bore conditions may be measured with equal ease. Furnished without a dial gauge. When ordering, please indicate if the dial gauge is required.



Dial Gauges not included

Unit Per Set

CODE	Measuring Range	Graduation	Length of Below Grip	No. of Anvil
65 14 11	18 - 35 mm	0.01 mm	100 mm	9
12	35 - 60 "		150 "	6
13	50 - 100 "		150 "	11
65 14 14	100 - 160 mm	0.01 mm	150 mm	13
15	16 - 250 "		250 "	6
16	250 - 400 "		250 "	5

Dial Gauge Stands

Soportes para Calibre Cuadrante
ダイアルゲージスタンド　　千分表底座

The substantial "T" slotted base is accurately machined for all working surfaces and the vertical and horizontal arms ensure fully universal movements of the dial gauge. All dial gauge stands are furnished without a dial gauge.



Slidable Base



Fixed Base

Unit Per Pc.

CODE	Base	Base Size	Pole Size
		W × L × H	H × ø
65 14 21	Slidable	50 × 220× 32 mm	200 × 12 mm
22	Fixed	85 × 120× 31 mm	270 × 10 mm

Dial Gauge Stands
Magnetic Base

Soportes para Calibre Cuadrante/Base Magnética
マグネットベースダイアルゲージスタンド
磁铁式千分表底座

A gauge stand with a magnetic base which can be switched on or off when it is necessary to move the gauge. Types other than those listed below are available upon request. Just submit the specifications when you place your purchase order.



Standard



Universal

Unit Per Pc.

CODE	Type	Base Size	Pole Size
		W × L × H	H × ø
65 14 26	Standard	50 × 60 × 57 mm	175 × 12 mm
27	Universal	64 × 65 × 57 mm	200 × 12 mm

Pressure Gauges, Bourdon Tube Type
(Manometers)

Manómetros, Tipo Tubo de Bourdón　ブルドン管式圧力計　圧力表

This category contains the following popular gauges.

Pressure Gauges

Manómetros　圧力計　压力表



Service as a gauge for air; water, steam, oil or sea water and any liquid or gases which are not corrosive to brass. Brass case, friction fit beaded ring and phosphor bronze Bourdon tube.

Compound Gauges

Medidores compuestos　連成計　复合量规



For installations where it is necessary to read both pressure and vacuum on one side. Brass case and friction fit beaded ring. Phosphor bronze Bourdon tube.

Vacuum Gauges

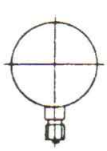
Vacuómetros　真空計　真空计



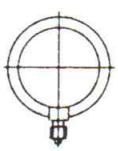
For vacuum reading. Brass case, friction fit beaded ring and phosphor bronze Bourdon tube.

Due to the great variety of casing, fitting connections, etc. in above gauges, please refer to the following illustrations and the "Guide of how to order" when ordering. The thread connection is the same as pipe straight threads (PF) which are of the "B.S.P." (British Standard Pipe Threads).

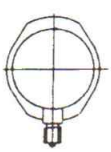
Type of Casing



A-Type
(Rimless Type)



B-Type
(Round Rim Type)

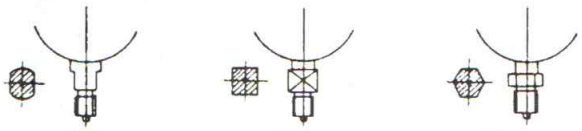


C-Type
(Cut Rim Type)



D-Type
(Buried Type)

Type of Fitting Connection



U-Type (Round Cornered) Shank | T-Type (Square) Shank | S-Type (Hexagonal) Nut Attached

Range and Applications

Symbol	Type	Surrounding Temperature Range of the Gauges
-	Ordinary Type	-5°C ~ 40°C
M	Ordinary Type for Steam	10°C ~ 50°C
H	Heat-Resistant Type	-5°C ~ 80°C
V	Vibration-Resistant Type	-5°C ~ 40°C
MH	Heat-Resistant Type for Steam	10°C ~ 50°C
HV	Heat and Vibration Resistant Type	-5°C ~ 80°C

Size and Pressure Range

Name	Pressure Gauge	Compound Gauge	Vacuum Gauge
Type of Casing	A, B, C, D	A, B, C, D	A, B, C, D
Connection Size PF	1/4", 3/8", 1/2"	1/4", 3/8", 1/2"	1/4", 3/8", 1/2"
Diameter of Gauge (mm)	50, 60, 75, 100, 150, 200	60, 75, 100, 150, 200	
Minimum Range	0.5-0 kgf/cm²	1 kgf/cm² - -76 cmHg	0 ~ -76 cmHg
Maximum Range	2,000 - 0 kgf/cm²	20 kgf/cm² - -76 cmHg	

Guide of How to order

When ordering, please fill the following column.

1 2 3 4 5 6 7

1. Name : Pressure Gauge / Compound Gauge / Vacuum Gauge
2. Type of Casing : A, B, C, D
3. Purpose Where Used : -, M, H, V, MH, HV
4. Type of Fitting Connection : U, T, S
5. Connection Size : PF1/4", PF3/8", PF1/2"
6. Diameter of Gauge : 50, 60, 75, 100, 150, 200 mm
7. Pressure Range : 100 - 0 kgf/cm² / 10 kgf/cm² to - 76 cmHg / 0 to - 76 cmHg etc.

Example: 65 - 15 - 01

1) Pressure gauge, 2) rimless case, 3) ordinary for steam, 4) with hexagonal nut, 5) PF1/4" thread, 6) 100 mm diameter, 7) 100 – 0 kgf/cm² capacity

Pressure Gauges

Casing : (B) Round Rim
Fitting : (T) Square Shank

Unit Per Pc.

CODE	Pressure Range MPa	Thread	Case Diam. mm
65 30 01	0 – 0.1	G 3/8	75
02	0 – 0.2		
03	0 – 0.25		
04	0 – 0.3		
05	0 – 0.35		
65 30 06	0 – 0.4		
07	0 – 0.5		
08	0 – 0.6		
09	0 – 0.7		
10	0 – 1.0		
65 30 11	0 – 1.6		
12	0 – 2.0		
13	0 – 2.5		
14	0 – 3.0		
15	0 – 3.5		
65 30 16	0 – 0.2	G 1/4	60
17	0 – 0.25		
18	0 – 0.3		
19	0 – 0.35		
20	0 – 0.4		
65 30 21	0 – 0.5		
22	0 – 0.6		
23	0 – 0.7		
24	0 – 1.0		
25	0 – 1.6		
65 30 26	0 – 2.0		
27	0 – 2.5		
28	0 – 3.0		
29	0 – 3.5		

Casing : (A) Rimless
Fitting : (T) Square Shank

Unit Per Pc.

CODE	Pressure Range MPa	Thread	Case Diam. mm
65 30 31	0 – 0.1	G 1/4	60
32	0 – 0.2		
33	0 – 0.25		
34	0 – 0.3		
35	0 – 0.35		
65 30 36	0 – 0.4		
37	0 – 0.5		
38	0 – 0.6		
39	0 – 0.7		
40	0 – 1.0		
65 30 41	0 – 1.6		
42	0 – 2.0		
43	0 – 2.5		
44	0 – 3.0		
45	0 – 3.5		
65 30 46	0 – 0.2		75
47	0 – 0.25		
48	0 – 0.3		
49	0 – 0.35		
50	0 – 0.4		
65 30 51	0 – 0.5		
52	0 – 0.6		
53	0 – 0.7		
54	0 – 1.0		
55	0 – 1.6		

(to be continued)

Unit Per Pc.

CODE	Pressure Range MPa	Thread	Case Diam. mm
65 30 56	0 – 2.0	G 1/4	75
57	0 – 2.5		
58	0 – 3.0		
59	0 – 3.5		
65 30 61	0 – 0.2	G 3/8	75
62	0 – 0.25		
63	0 – 0.3		
64	0 – 0.35		
65	0 – 0.4		
65 30 66	0 – 0.5		
67	0 – 0.6		
68	0 – 0.7		
69	0 – 1.0		
70	0 – 1.6		
65 30 71	0 – 2.0		
72	0 – 2.5		
73	0 – 3.0		
74	0 – 3.5		
75	0 – 5.0		

Ammonia Compound Gauges

Calibres Compuestos para Amoníaco

アンモニア用連成計　　氨气耦合仪表



Designed for use with ammonia and equipped with a heavy-duty stainless steel bushed rotary movement, a micrometer pointer, alloy steel Bourdon spring, and steel socket with a male connection.

Guide of How to Order

CODE ..... 65 - 15 - 06

Name ..... Ammonia compound gauge
Type of Casing ..... Round rim case
Purpose Where Used .....
Type of Fitting Connection .... Hexagonal nut attached
Connection Size ..... PF1/4"
Diameter of Gauge ..... 100 mm
Pressure Range..... 0 - 100 kgf/cm²

Refrigerant Compound Gauges

Manovacuómetros Refrigerante　フロンガス用連成計　冷媒複合壓力表



Designed for use with refrigerants that are not corrosive to bronze. Equipped with a plain rotary, non-rust movement and a brass seamless Bourdon spring. Brass case, self-finish colour with brass ring.

Guide of How to Order

CODE ..... 65 - 15 - 11

Name..... Refrigerant compound gauge
Type of Casing ..... Rimless
Kind of Refrigerant..... R-22
Type of Fitting Connection..... Hexagonal nut attached
Connection Size ..... PF1/4"
Diameter of Gauge ..... 100 mm
Pressure Range..... 0 - 17 kgf/cm²

Glycerine Filled Pressure Gauges

Vibration – Resistant

Manómetros, con Glicerina/Antivibración

グリセリン入り耐振圧力計　　甘油填充的压力计

The internal mechanism for the pointer operation is filled with glycerine to protect the accuracy of the gauge from mechanical vibration and to extend the working life of the gauge.



Guide of How to Order

CODE ..... 65 - 15 - 16

Name..... Pressure gauge, glycerine filled
Type of Casing ..... Round rim case
Purpose Where Used ..... Vibration service
Type of Fitting Connection..... Square shank
Connection Size ..... PF1/2"
Diameter of Gauge ..... 75 mm
Pressure range..... 0 - 15 kgf/cm²

Pressure Gauges

Filled with Glycerine

Manómetro de Presión con Glicerina

グリセリン入り耐振圧力計　　压力表 装有甘油

These gauges can be used for any gaseous media or low viscous fluid that does not corrode the brass parts. Their special mechanical design and case filling provide best properties for the use in marine applications.



MREM



MREG

Dimensions according to drawing (mm)

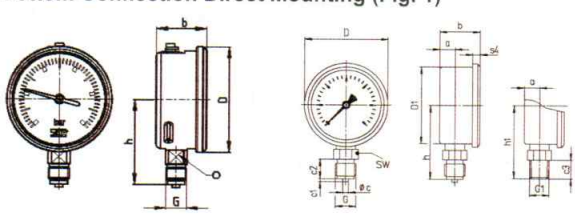
MREM

NS	D	b	c	G	a	h
63	68	32	85	G 1/4	58	54
100	107	48	132	G 1/2	81.5	87

MREG

NS	D	D1	D2	a	a1	b	b1	b2	c	c1	c2	3c	d1	2d	G
80	86	79	81	16	19	41.5	36	44	6	3	20	19	91	110	G1/2B

Bottom Connection Direct Mounting (Fig. 1)



Unit Per Pc.

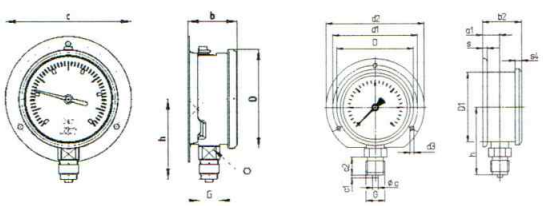
CODE	Measuring Range (bar)	Dial Size mm	SIKA Code
65 31 01	-1 - 1.5	63	MREM11151500G
65 31 02		80	MREG21151500G
65 31 03		100	MREM31151500G
65 31 04	-1 - 3	63	MREM11152500G
65 31 05		80	MREG21152500G
65 31 06		100	MREM31152500G
65 31 07	-1 - 5	63	MREM11153500G
65 31 08		80	MREG21153500G
65 31 09		100	MREM31153500G

(to be continued)

Unit Per Pc.

CODE	Measuring Range (bar)	Dial Size mm	SIKA Code
65 31 10	-1 - 9	63	MREM11154500G
65 31 11		80	MREG21154500G
65 31 12		100	MREM31154500G
65 31 13	0 - 4	63	MREM11105500G
65 31 14		80	MREG21105500G
65 31 15		100	MREM31105500G
65 31 16	0 - 6	63	MREM11106500G
65 31 17		80	MREG21106500G
65 31 18		100	MREM31106500G
65 31 19	0 - 10	63	MREM11107500G
65 31 20		80	MREG21107500G
65 31 21		100	MREM31107500G
65 31 22	0 - 16	63	MREM11108500G
65 31 23		80	MREG21108500G
65 31 24		100	MREM31108500G
65 31 25	0 - 25	63	MREM11109500G
65 31 26		80	MREG21109500G
65 31 27		100	MREM31109500G
65 31 28	0 - 40	63	MREM11110500G
65 31 29		80	MREG21110500G
65 31 30		100	MREM31110500G
65 31 31	0 - 60	63	MREM11111500G
65 31 32		80	MREG21111500G
65 31 33		100	MREM31111500G
65 31 34	0 - 100	63	MREM11112500G
65 31 35		80	MREG21112500G
65 31 36		100	MREM31112500G
65 31 37	0 - 160	63	MREM11113500G
65 31 38		80	MREG21113500G
65 31 39		100	MREM31113500G
65 31 40	0 - 250	63	MREM11114500G
65 31 41		80	MREG21114500G
65 31 42		100	MREM31114500G
65 31 43	0 - 400	63	MREM11115500G
65 31 44		80	MREG21115500G
65 31 45		100	MREM31115500G
65 31 46	0 - 600	63	MREM11116500G
65 31 47		80	MREG21116500G
65 31 48		100	MREM31116500G

Bottom Connection with Back Flange (Fig. 2)



Unit Per Pc.

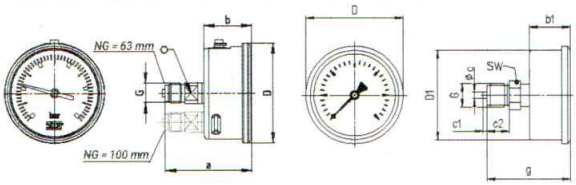
CODE	Measuring Range (bar)	Dial Size mm	SIKA Code
65 31 51	-1 - 1.5	63	MREM11151510G
65 31 52		80	MREG21151510G
65 31 53		100	MREM31151510G
65 31 54	-1 - 3	63	MREM11152510G
65 31 55		80	MREG21152510G
65 31 56		100	MREM31152510G
65 31 57	-1 - 5	63	MREM11153510G
65 31 58		80	MREG21153510G
65 31 59		100	MREM31153510G
65 31 60	-1 - 9	63	MREM11154510G
65 31 61		80	MREG21154510G
65 31 62		100	MREM31154510G

(to be continued)

Unit Per Pc.

CODE	Measuring Range (bar)	Dial Size mm	SIKA Code
65 31 63	0 - 4	63	MREM11105510G
65 31 64		80	MREG21105510G
65 31 65		100	MREM31105510G
65 31 66	0 -6	63	MREM11106510G
65 31 67		80	MREG21106510G
65 31 68		100	MREM31106510G
65 31 69	0 - 10	63	MREM11107510G
65 31 70		80	MREG21107510G
65 31 71		100	MREM31107510G
65 31 72	0 - 16	63	MREM11108510G
65 31 73		80	MREG21108510G
65 31 74		100	MREM31108510G
65 31 75	0 - 25	63	MREM11109510G
65 31 76		80	MREG21109510G
65 31 77		100	MREM31109510G
65 31 78	0 - 40	63	MREM11110510G
65 31 79		80	MREG21110510G
65 31 80		100	MREM31110510G
65 31 81	0 - 60	63	MREM11111510G
65 31 82		80	MREG21111510G
65 31 83		100	MREM31111510G
65 31 84	0 -100	63	MREM11112510G
65 31 85		80	MREG21112510G
65 31 86		100	MREM31112510G
65 31 87	0 - 160	63	MREM11113510G
65 31 88		80	MREG21113510G
65 31 89		100	MREM31113510G
65 31 90	0 - 250	63	MREM11114510G
65 31 91		80	MREG21114510G
65 31 92		100	MREM31114510G
65 31 93	0 - 400	63	MREM11115510G
65 31 94		80	MREG21115510G
65 31 95		100	MREM31115510G
65 31 96	0 - 600	63	MREM11116510G
65 31 97		80	MREG21116510G
65 31 98		100	MREM31116510G

Rear Connection with Direct Mounting (Fig. 3)



Unit Per Pc.

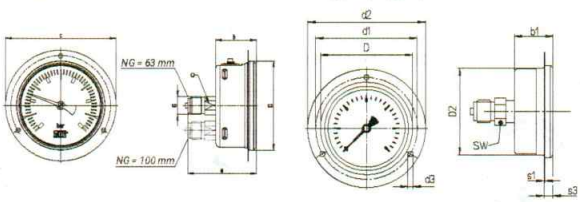
CODE	Measuring Range (bar)	Dial Size mm	SIKA Code
65 32 01	-1 - 1.5	63	MREM15151500G
65 32 02		80	MREG22151500G
65 32 03		100	MREM32151500G
65 32 04	-1 - 3	63	MREM15152500G
65 32 05		80	MREG22152500G
65 32 06		100	MREM32152500G
65 32 07	-1 - 5	63	MREM15153500G
65 32 08		80	MREG22153500G
65 32 09		100	MREM32153500G
65 32 10	-1 - 9	63	MREM15154500G
65 32 11		80	MREG22154500G
65 32 12		100	MREM32154500G
65 32 13	0 - 4	63	MREM15105500G
65 32 14		80	MREG22105500G
65 32 15		100	MREM32105500G

(to be continued)

Unit Per Pc.

CODE	Measuring Range (bar)	Dial Size mm	SIKA Code
65 32 16	0 - 6	63	MREM15106500G
65 32 17		80	MREG22106500G
65 32 18		100	MREM32106500G
65 32 19	0 - 10	63	MREM15107500G
65 32 20		80	MREG22107500G
65 32 21		100	MREM32107500G
65 32 22	0 - 16	63	MREM15108500G
65 32 23		80	MREG22108500G
65 32 24		100	MREM32108500G
65 32 25	0 - 25	63	MREM15109500G
65 32 26		80	MREG22109500G
65 32 27		100	MREM32109500G
65 32 28	0 - 40	63	MREM15110500G
65 32 29		80	MREG22110500G
65 32 30		100	MREM32110500G
65 32 31	0 - 60	63	MREM15111500G
65 32 32		80	MREG22111500G
65 32 33		100	MREM32111500G
65 32 34	0 - 100	63	MREM15112500G
65 32 35		80	MREG22112500G
65 32 36		100	MREM32112500G
65 32 37	0 - 160	63	MREM15113500G
65 32 38		80	MREG22113500G
65 32 39		100	MREM32113500G
65 32 40	0 - 250	63	MREM15114500G
65 32 41		80	MREG22114500G
65 32 42		100	MREM32114500G
65 32 43	0 - 400	63	MREM15115500G
65 32 44		80	MREG22115500G
65 32 45		100	MREM32115500G
65 32 46	0 - 600	63	MREM15116500G
65 32 47		80	MREG22116500G
65 32 48		100	MREM32116500G

Rear Connection with Front Flange (Fig.4)



Unit Per Pc.

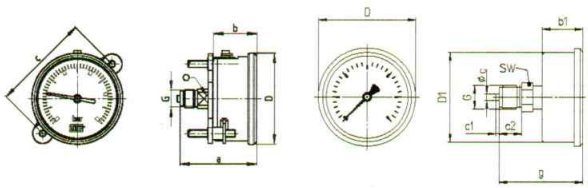
CODE	Measuring Range (bar)	Dial Size mm	SIKA Code
65 32 51	-1 - 1.5	63	MREM15151520G
65 32 52		80	MREG22151520G
65 32 53		100	MREM32151520G
65 32 54	-1 - 3	63	MREM15152520G
65 32 55		80	MREG22152520G
65 32 56		100	MREM32152520G
65 32 57	-1 - 5	63	MREM15153520G
65 32 58		80	MREG22153520G
65 32 59		100	MREM32153520G
65 32 60	-1 - 9	63	MREM15154520G
65 32 61		80	MREG22154520G
65 32 62		100	MREM32154520G
65 32 63	0 - 4	63	MREM15105520G
65 32 64		80	MREG22105520G
65 32 65		100	MREM32105520G
65 32 66	0 - 6	63	MREM15106520G
65 32 67		80	MREG22106520G
65 32 68		100	MREM32106520G

(to be continued)

Unit Per Pc.

CODE	Measuring Range (bar)	Dial Size mm	SIKA Code
65 32 69	0 - 10	63	MREM15107520G
65 32 70		80	MREG22107520G
65 32 71		100	MREM32107520G
65 32 72	0 - 16	63	MREM15108520G
65 32 73		80	MREG22108520G
65 32 74		100	MREM32108520G
65 32 75	0 - 25	63	MREM15109520G
65 32 76		80	MREG22109520G
65 32 77		100	MREM32109520G
65 32 78	0 - 40	63	MREM15110520G
65 32 79		80	MREG22110520G
65 32 80		100	MREM32110520G
65 32 81	0 - 60	63	MREM15111520G
65 32 82		80	MREG22111520G
65 32 83		100	MREM32111520G
65 32 84	0 - 100	63	MREM15112520G
65 32 85		80	MREG22112520G
65 32 86		100	MREM32112520G
65 32 87	0 - 160	63	MREM15113520G
65 32 88		80	MREG22113520G
65 32 89		100	MREM32113520G
65 32 90	0 - 250	63	MREM15114520G
65 32 91		80	MREG22114520G
65 32 92		100	MREM32114520G
65 32 93	0 - 400	63	MREM15115520G
65 32 94		80	MREG22115520G
65 32 95		100	MREM32115520G
65 32 96	0 - 600	63	MREM15116520G
65 32 97		80	MREG22116520G
65 32 98		100	MREM32116520G

Rear Connection with U-clamp fixing (Fig. 5)



Unit Per Pc.

CODE	Measuring Range (bar)	Dial Size mm	SIKA Code
65 33 01	-1 - 1.5	63	MREM15151530G
65 33 02		80	MREG22151530G
65 33 03		100	MREM32151530G
65 33 04	-1 - 3	63	MREM15152530G
65 33 05		80	MREG22152530G
65 33 06		100	MREM32152530G
65 33 07	-1 - 5	63	MREM15153530G
65 33 08		80	MREG22153530G
65 33 09		100	MREM32153530G
65 33 10	-1 - 9	63	MREM15154530G
65 33 11		80	MREG22154530G
65 33 12		100	MREM32154530G
65 33 13	0 - 4	63	MREM15105530G
65 33 14		80	MREG22105530G
65 33 15		100	MREM32105530G
65 33 16	0 - 6	63	MREM15106530G
65 33 17		80	MREG22106530G
65 33 18		100	MREM32106530G
65 33 19	0 - 10	63	MREM15107530G
65 33 20		80	MREG22107530G
65 33 21		100	MREM32107530G

(to be continued)

Unit Per Pc.

CODE	Measuring Range (bar)	Dial Size mm	SIKA Code
65 33 22	0 - 16	63	MREM15108530G
65 33 23		80	MREG22108530G
65 33 24		100	MREM32108530G
65 33 25	0 - 25	63	MREM15109530G
65 33 26		80	MREG22109530G
65 33 27		100	MREM32109530G
65 33 28	0 - 40	63	MREM15110530G
65 33 29		80	MREG22110530G
65 33 30		100	MREM32110530G
65 33 31	0 - 60	63	MREM15111530G
65 33 32		80	MREG22111530G
65 33 33		100	MREM32111530G
65 33 34	0 - 100	63	MREM15112530G
65 33 35		80	MREG22112530G
65 33 36		100	MREM32112530G
65 33 37	0 - 160	63	MREM15113530G
65 33 38		80	MREG22113530G
65 33 39		100	MREM32113530G
65 33 40	0 - 250	63	MREM15114530G
65 33 41		80	MREG22114530G
65 33 42		100	MREM32114530G
65 33 43	0 - 400	63	MREM15115530G
65 33 44		80	MREG22115530G
65 33 45		100	MREM32115530G
65 33 46	0 - 600	63	MREM15116530G
65 33 47		80	MREG22116530G
65 33 48		100	MREM32116530G

Pressure Gauges for High Pressure

Filled with Glycerine

Manómetros para alta presión, Llenos de glicerina

グリセリン入り高圧用圧力計　　高压压力表 充有甘油

Stainless steel cover with glycerine filled gauges with accuracy of +- 1.6% in 63mm gauges and 0-1% in 100mm to 150mm gauges. Both bottom and panel mounted type is available, range of pressure is up to 5,000 bar.



Unit Per Pc.

CODE	Measuring Range (bar)	Dial Size mm	Connection
65 33 51	0 – 1000	63	bottom connection G1/4" male
65 33 52		63	panel mounting G1/4" male
65 33 53		100	bottom connection G1/2" male
65 33 54		100	panel mounting G1/2" male
65 33 55		150	bottom connection G/12" male
65 33 56	0 – 1600	100	bottom connection G1/2" male
65 33 57		100	panel mounting G/12" male
65 33 58		150	bottom connection G/12" male
65 33 59	0 – 2000	100	bottom connection G1/2" male
65 33 60		150	bottom connection G/12" male
65 33 61	0 – 3000	100	bottom connection 9/16"-18UNF Female
65 33 62		150	bottom connection 9/16"-18UNF Female
65 33 63	0 – 4000	100	bottom connection 9/16"-18UNF Female
65 33 64		150	bottom connection 9/16"-18UNF Female
65 33 65	0 – 5000	100	bottom connection 9/16"-18UNF Female
65 33 66		150	bottom connection 9/16"-18UNF Female

Gauge-Pointer Pullers

Puntero-Medidor

ゲージ指針抜き　　表盘指针拉马



A handy tool for taking off gauge pointers without damaging the gauge reading surface. Useful for almost all pressure, vacuum, and compound gauges or any other pointer types.

65 15 51	Gauge pointer puller	Pc.

Dead-Weight Testers

Portable Type

Apoaratos para Verificar Peso-Muerto/Tipo Portátil

重鐘型圧力計　　压力表试验器



Used as the standard pressure gauge for testing and calibration of other pressure gauges, and also as the standard pressure generator for devices used in research and production applications. Can be measured pressure simply and rapidly at any place.

A closely adjusting valve allows easy minute pressure change. A standard pressure gauge can be installed instead of a dead weight for pressure measurements.

Specifications-1

Model	Measuring Range MPa			Effective Sectional Area cm^2	Dead-weight corresponds MPa		
					Piston		
	Max.	Min.	Smallest Division		0.05	0.1	0.2
PD-73	1	0.05	0.005	1/2	1		
	2		0.01		1		
	3				1		
	5		0.05		1		
	10	0.1		1/4		1	
	20	0.2				1	
	30	0.5	0.1	1/8			1
	50						1

Specifications-2

Measuring Range Max. MPa	Dead-weight corresponds MPa Dead-weight							
	0.005	0.01	0.02	0.05	0.1	0.2	0.3	0.5
1	1	1	2	2	8			
2		1	2	2	2	8		
3		1	2	2	2	1		5
5				1	2	1		9
10				1	2	1		1
20				1	2	1		1
30					1	2	1	1
50					1	2	1	1

Specifications-3

Measuring Range Max. MPa	Dead-weight corresponds MPa			Total	Net Weight of Entire Dead-weight kg
	1	2	5		
1				1.005	5
2				2	10
3				3.1	16
5				5	26
10	9			10.05	26
20	3	8		20.05	51
30	1	2	5	31.5	40
50	1	2	9	51.5	66

Unit Per Set

CODE	Max. Measuring Range MPa	CODE	Max. Measuring Range MPa
65 15 65	1	**65 15 69**	10
66	2	**70**	20
67	3	**71**	30
68	5	**72**	50

Recalibration Sets

for Temperature and Pressure Calibrator

Conjunto de recalibrado para calibrador de temperatura y presión
温度計・圧力計較正器用再較正セット
温度计及压力计校正器用再校正套装



With dry block temperature calibrator and the pressure calibrator, the vessel have necessary calibrated test equipment according to SOLAS and DNV on board. According to these regulations the test equipment for temperature and pressure must be recalibrated. This set includes a temperature hand held instrument, a temperature reference sensor and a pressure reference. The temperature hand held instrument have 2 different models: MH 3710 for standard calibration requirements or MH 3750 for highest accuracy requirements.

With the temperature reference sensor TF 650-6-300, you can measure the actual accuracy of the dry block calibrator, and the pressure reference type D2, you can measure precision pressure.

Recalibration of temperature calibrators is done with recalibration instrument type MH 3710 or MH 3750 and temperature sensor type TF 650-6-300. Recalibration of pressure calibrators is done with recalibration instrument type D2.

Crew can make the recalibration on their own. Checking the recalibration set is very easy because only the small case has to be returned to manufacturer once a year.

Specifications

Temperature hand held instrument MH in combination with Temperature reference sensor TF	
Measuring input	Pt100
Measuring range	-50...650°C
Resolution up to	0.1°C
Miscellaneous	Min. / max.-memory, hold function, auto-off
MH 3710 (Standard-Set)	Accuracy 0.3% full scale
MH 3750 (Premium-Set)	Integrated alarm and data logger function • User-specific characteristic curve of sensor • Real-time clock with day, month and year • Measured value memory 16384 • Accuracy < ±0.2°C
Temperature reference sensor TF 650-6-300	
Measuring range	-50...650°C
Sensor	Stainless steel Tube D = 6 mm, L = 300 mm
Cable / Handle	Silicone cable (1 m) with 4-pin Mini-DIN-plug
Pressure reference type D2	
Functionality	• µC based with internal EEPROM • DMS pressure cell • Pressure- and temperature tested • Min./max.-memory, hold function, auto-off
Pressure ranges	-1....40 bar / 0.01, -1....60 bar / 0.01, 0...400 bar / 0.1, 0...700 bar / 0.1, 0...1,000 bar / 0.1
Accuracy	< ±0.1% full scale
Temperature range	0...50°C
Degree of protection	IP67

Unit Per Set

CODE	Set consist of	
65 15 74	Temperature hand held instrument MH 3710	Temperature reference sensor TF650-6-300 and Pressure reference D2
65 15 73	Temperature hand held instrument MH 3750	

Name of Mfr. SIKA

Rechargeable Digital Pressure Calibrators

Calibradores de presión digitales, recargables
充電式デジタル圧力較正器
可充电数字式压力校正器



Designed for ease of use whilst meeting a wide range of application needs including calibration, maintenance and commissioning.

The dual parameter display shows the INPUT and OUTPUT vales in large clear digits.

PI600 - for micro pressure calibration
PI620 - for medium to low pressure calibration
PI670 - for high pressure calibration

Unit Per Set

CODE	65 15 52	65 15 53	65 15 54
Model	PI600	PI620	PI670
Pressure Range	-100 KPa to 100 KPa	-100 KPa to 20 MPa	0 to 70 MPa
Accuracy	±0.05% F.S.±2 temperature effects : 0.001%/°C±		
mA Input	25 mA		
V Input	24V DC ±5%		
Pressure Media	Compatible gas	Diisooctyl sebacate	
DC current Measurement	0 to 200 mA		
Battery	Rechargeable, one-time charging for 8 hours		
Display	4.5" LCD, 18mm Digits Height		
Dimension	270 x 110 x 70 mm		
Weight	2 kg	2.5 kg	

Name of Mfr. : Clip-on

Portable Load Weighing Shackle Kits

LS-3110-PLW

Equipo portátil de medición de peso de carga
ポータブル負荷荷重試験機　　便携式负荷荷重测试机



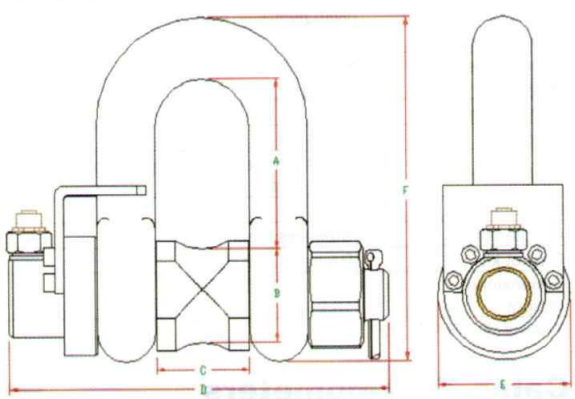
A portable load weighing kit for accurate weighing and force measurements. Compact and rugged construction, Eex ia intrinsically safe system. Shackle type, range from 12 to 120 tons. Supplied with a handheld reader for readout and storage of data and with traceable certificate so it can be used as a reference for verification or test of lifting equipment, dead-end anchor and deck machinery.

Applications
Hoisting and cranes security / Hoisting gear, elevators and winches / Stationary weighing / General industry (harsh environment) / Offshore / Marine and harbour environments

Specifications

Mechanical Characteristics Load Cell	
Nominal Load, fs (Metric)	12 ton / 17 ton / 25 ton / 35 ton / 55 ton / 85 ton / 120 ton
Overload Admissible	150% of rated load without zero change
Safety Factor (0.2% yield)	5 x full scale
Material in Loadcell	Stainless steel
Protection Class	IP67
Electrical Characteristics Load Cell	
Operating Principle	Full bridge strain gauge
Output Signal	Rated load
Power Supply	12-28 VDC with proected polarity reversal
EMC	EN 55011A (1998)/ EN 61000-6-2 (1999)
Ex	Eex ia IIC T5 (acc. to ATEX 94/9/EC) EX ia IIC T5 Ga IECEx
Electrical Connection between Load Cell and Universal Reader	
Cable Length (Standard)	6 mtr
Specifications Universal Reader	
Display	Graphic LCD, 5 digits
Functions	Min/Max/Tara, History Log, Battery Indicator
Unit	Kg, lb, ton, sh tn
Power Supply	Re-chargeable batteries
Operating Time on Batteries	Approximately 35 hours
Operating Temperature	−20°C to 50°C
Material in Universal Reader	Anodized aluminium
Overall Dimensions	90 × 236 × 33 mm (W×H×D)
Weight (nominal)	800 grm

Dimensions



Type	Ton	Size mm						Weight kg
		A	B	C	D	E	F	
5SPS012	12	92	51	50	213.5	72	185.5	5
5SPS017	17	113	59	58	227.5	84	223	9
5SPS025	25	138	70	71	260	105	271	14
5SPS035	35	160	80	80	286.5	127	313.5	21
5SPS055	55	240	100	101	353	152	431	38
5SPS085	85	287	166	122	411.5	165	539	63
5SPS120	120	334	164	140	467.5	203	618	112

How to order : CODE

Portable load weighing kits PART NO.

Unit Per Set

CODE	Part No.	Nominal Load Ton	Dimensions L × W × H	Weight kg
Intrinsically Safe Type (Eex ia IIC T5)				
65 16 11	5SPS012-PLW-211	12	406 × 330 × 178	10
12	5SPS017-PLW-211	17	521 x 427 x 217	15
13	5SPS025-PLW-211	25		20
14	5SPS035-PLW-211	35		27
15	5SPS055-PLW-211	55	625 x 495 x 305	48
16	5SPS085-PLW-211	85	800 x 581 x 479	75
17	5SPS120-PLW-211	120		125

Name of Mfr.: ScanSense

Pressure Calibrators

Series PM

Calibradores de presión 压力較正器 压力校准器

Reference pressures of -1 up to 1,000 bar can be generated in a fast and simple way by these pressure calibrators with high accuracy of measurement and compact type of construction. Exact adjustment of the desired pressure is carried out by a precision adjustment valve. The reference pressure is indicated via an analogue precision pressure gauge or a digital LCD.

The instruments under test are connected to the pressure output of the calibrators by a pressure hose and an adapter. Power is supplied by batteries or rechargeable accumulators. The automatic measuring range switch of the PM series grants an optimal resolution with any application. Different measurement units can be selected by pressing a function key.

Pressure Medium: Air

P40.2/P60



Unit Per Set

CODE	**65 16 31**	**65 16 32**
Model	P 40.2	P 60
SIKA Code	EPPM0400BL0000	EPPM0600BL0000
Pressure Range	Vacuum -0.95 bar Pressure 40 bar	Vacuum -0.95 bar Pressure 60 bar
Pressure Connection - References - Device Under Test	1/4 BSP 1/4 BSP with quick-coupling and pressure hose (1 mtr)	
Adapter Set	1/8 BSP, 1/4 BSP, 3/8 BSP, 1/2 BSP, NPT 1/8, NPT 1/4, NPT 1/2, M12 x 1.5, M20 x 1.5 and 1/8 BSP male, 1/4 BSP male	
Set of Seals	Flat seals (FEP) and O-rings	
Dimensions: - Pump with Pressure Hose - Pump with Accessories in Case	Approx. 240 × 170 × 50 mm Approx. 450 × 370 × 110 mm	
Weight: - Pump with Pressure Hose - Pump with Accessories in Case	Approx 1.1 kg Approx 4.2 kg	

Name of Mfr.: SIKA

Pressure Medium:
Pure Water or Hydraulic Oil

P700.3/P1000.2



Unit Per Set

CODE	65 16 33	65 16 34
Model	P 700.3	P 1000.2
SIKA Code	EPPM7000BL0003	EPPM1K0BL0000
Pressure Range	with distilled water 0 - 700 bar with hydraulic fluid 0 - 700 bar	with distilled water 0 - 1,000 bar with hydraulic fluid 0 - 1,000 bar
Pressure Connection - References - Device Under Test	G 1/4 G 1/4 with quick-coupling and pressure hose (1 mtr)	
Adapter Set	G 1/8, G 1/4, G 3/8, G 1/2, NPT 1/8, NPT 1/4, NPT 1/2, M12 x 1.5, M20 x 1.5 and G 1/8 male, G 1/4 male	
Set of Seals	PA seals and O-rings	
Dimensions: - Pump with Pressure Hose - Pump with Accessories in Case	Approx. 255 x 225 x 85 mm Approx. 450 x 370 x 125 mm	
Weight: - Pump with Pressure Hose - Pump with Accessories in Case	Approx 1.8 kg Approx 4.8 kg	

Name of Mfr.: SIKA

Reference Gauges

for Pressure Calibrator Series PM

All hand-held pressure pumps and reference gauges can be combined for different measuring ranges, resolutions and accuracy classes, as outlined below.

	Reference E2 (0.5% FS / Range: 0 – 1,000 bar)	Reference D2 (0.1% FS / Range: 0 – 1,000 bar)
		
P 40.2	PM 40.2 E2 (40 bar) 0.5% FS	PM 40.2 D2 (40 bar) 0.1% FS
P 60	PM 60 E2 (60 bar) 0.5% FS	PM 60 D2 (60 bar) 0.1% FS
P 700.3	PM 700.3 E2 (400 bar) 0.5% FS (700 bar) 0.5% FS	PM 700.3 D2 (400 bar) 0.1% FS (700 bar) 0.1% FS
P 1000.2	PM 1000.2 E2 (1,000 bar) 0.5% FS	PM 1000.2 D2 (1,000 bar) 0.1% FS

Unit Per Pc.

CODE	Type	Measuring Range	Resolutions	SIKA Code
65 16 35	E2 (40)	1 to 40 bar	0.01 bar	EME8REF-E2-0040
42	E2 (60)	1 to 60 bar	0.01 bar	EME8REF-E2-0060
36	E2 (400)	0 to 400 bar	0.1 bar	EME8REF-E2-0400
43	E2 (700)	0 to 700 bar	0.1 bar	EME8REF-E2-0700
44	E2 (1000)	0 to 1,000 bar	0.1 bar	EME8REF-E2-1000
65 16 37	D2 (40)	1 to 40 bar	0.01 bar	EME8REF-D2-0040
38	D2 (60)	1 to 60 bar	0.01 bar	EME8REF-D2-0060
39	D2 (400)	0 to 400 bar	0.1 bar	EME8REF-D2-0400
40	D2 (700)	0 to 700 bar	0.2 bar	EME8REF-D2-0700
41	D2 (1000)	0 to 1,000 bar	0.2 bar	EME8REF-D2-1000

Name of Mfr.: SIKA

Table Top Test Pumps

Bombas de prueba de mesa　卓上型ポンプ試験機　台式测试泵



The latest generation of comparison test pumps combines precision - also with high pressures - and high manufacturing quality. Hydraulic fluid is used as the test medium.

Although it is compactly built, it provides a big nylon tank with a usable tank volume of 327 cm³. In combination with a delivery volume of 0.9 cm³ per piston stroke, it provides the opportunity of testing multiple test samples in parallel. They are installed directly on the delivered pressure hose or via a separate distributor block therefore saving time and making your test tasks very efficient. The integrated check valve within the pressure vessel very quickly leads to stable pressure states. The integrated safety valve protects from overloading.

Unit Per Pc.

CODE	65 16 45
Type	P 700T
Pressure Range	With hydraulic fluid : 0 – 700 bar
OEM version	
Dimensions Weight	500 x 110 x 160 mm 5.6 kg
Connections	
Reference	G 1/4
Test sample	G 1/4 with quick coupling and pressure hose 1 mtr
Full version	
Adapter kit	Stainless steel
Gasket kit	PA seals and O rings
Dimensions Weight	575 x 470 x 230 mm 10.2 kg

Name of Mfr. : SIKA

Cabin Thermometers

Termómetros para Cabina　室内寒暖計　室内温度表

For measuring temperature in a range of -30°C to +50°C. The overall length of the thermometer is 250 mm and it is graduated in 10° increments.



65 17 01	Cabin thermometer -30° to 50°C 250 mm	Pc.

Maximum–Minimum Thermometers

Termómetros de Máximo-Mínimo

U 字型最高最低温度計　U 型高低温记录温度表

U-shaped thermometer tube. Magnifying lens tubes have special metal indices for registering the highest and lowest readings. These are reset by a small magnet. Temperature range -20°C to +50°C and approx. 350 mm in overall length.



65 17 06	Thermometer, maximum - minimum, U-shape with magnet -20° to + 50°C	Set

Seawater Thermometers

Copper Cased

Termómetros para Agua de Mar/con Caja de Cobre
銅枠入水温計　海水温度计



Alcohol thermometer with a copper protection case and a ring for the line attachment and seawater sampler. The temperature range is -20°C to 50°C. The overall length of the thermometer is 300 mm.

65 17 10	Thermometer, seawater, copper cased -20° to + 50°C	Pc.

Thermometers

for Refrigerator Use

Termómetros para Frigorífico　冷蔵庫用温度計　冷库温度表

A wide variety of types are available. The most common types are listed below.



Metal Cased with Ring



S.S. Backing with Magnet

Unit Per Pc.

CODE	**65 17 15**	**65 17 16**	**65 17 17**
Type	Metal Cased with Ring	S.Steel Backing with Magnet	Wooden Plate Backing
Range	-20° to 50°C	-30° to 50°C	-30° to 50°C
Graduation	1°C	1°C	1°C

Meat Thermometers

Termómetros para Carne　魚肉用温度計　插入式冻肉温度表

Dial bimetallic thermometer for measuring the internal temperature of meat or fish.



Range -70°C to +50°C graduated in 2°C intervals. Dial size 65 mmø. Stem 8 mmø x 230 mm pointed end waterproof.

65 17 20	Meat thermometer, dial, -70° to + 50°C	Pc.

Meat Thermometers

Digital Type

Termómetros para Carne/Tipo Digitál
デジタル式魚肉用温度計
铜套测试温度表（数字式）



Compact and can be easily used with one hand to measure the internal temperature of fruits, vegetables, beef, processed foods, and various kinds of frozen of cooked food products. Useful in checking the condition of perishable cargo. This unit is easy to carry along when doing several samplings in refrigerated storage holds.

Specifications

Measuring Range	-50°C - +199.9°C
Increments	0.1°C
Accuracy	+/- (0.5% of rdg. +0.5°C)
Display Screen	LED screen
Sampling Time	About 3 times/second
Power Source	4 x LR6 (AM-3) alkali batteries / continuous use for 60 hrs.
Size	374 (H) x 50 (W) x 36 (D) mm
Weight	260 grm including batteries

65 17 22	Meat thermometer, digital, -50° to 199.9°C	Pc.

Test Thermometers

in Brass Case

Termómetros para Purueba en Caja de Cobre
真鍮製保護ケース入り温度計
测试温度计



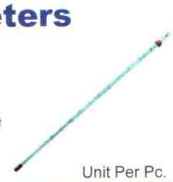
Standard, laboratory grade, round white glass thermometer backed in enamel and filled with alcohol. The thermometer length is 300 mm or 450 mm and they are furnished in a chromed brass case.

Unit Per Set

CODE	Range	Length
65 17 23 24	Centigrade 0 - 500°C	300 mm 450 mm
65 17 25	Centigrade 0 - 100°C	300 mm
65 17 26	Fahrenheit 32 - 212°F	300 mm

Spare Glass Thermometers

Alma Termómetro, Repuesto
予備ガラス温度計
备用温度表芯子



Spare glass thermometers for the above brass cased test thermometers.

Unit Per Pc.

CODE	Range	Length
65 17 27	Centigrade 0 - 100°C	300 mm
65 17 28	Fahrenheit 32 - 212°F	300 mm
65 17 29 30	Centigrade 0 - 500°C	300 mm 450 mm

Pocket Test Thermometers

Termómetros de Bolsillo para Prueba
ポケット型温度計　袖珍测试温度表



Graduation -20°C to +50°C, 150 mm in length. Furnished in a carrying case with a pocket clip. Thermometer is securely attached to the cap by screws.

65 17 32	Thermometer, test, pocket type, -20° to + 50°C, 150 mm	Pc.

Pocket Bimetal Dial Thermometers

Termómetros Cuadrantes de Bolsillo Bimetal
ポケット型バイメタル温度計　袖珍式双金属圆盘温度表

Ideal for spot checking by inspectors in various industries. Furnished with a hard rubber carrying case with a pocket dip attached. The dial is made of stainless steel with a diameter of 25 mm. Furnished in a 3.8 mm diameter, 125 mm long hard rubber case.



Unit Per Pc.

CODE	65 17 35	65 17 36	65 17 37	65 17 38
Range	-30° to 50°C	0° to 100°C	0° to 150°C	0° to 200°C
Graduation	1°C	2°C	2°C	5°C

Tank Thermometers
in Brass Case with Sampler

Termómetros de Tanque en Caja de Cobre con Muestra
真鍮枠サンプル採取器付油タンク温度計
油柜试样温度表



Glass made thermometer scale with brass case. Range is -10°C to +100°C and 14° to 212°F. Provided with a sampler at the lower end of the brass casing which will keep the liquid preserved for the most accurate reading. Overall length 265 mm.

65 17 42	Tank thermometer in brass case with sampler -10° to + 100°C, 265 mm	Pc.

Digital Thermometers

Termómetros Digitales
デジタル式温度計　　数字式温度计



A handy, economical, compact thermometer which consistently provides high precision and accuracy regardless of environmental conditions. Designed to work effectively without much power and will work continuously.

An assortment of temperature probes are available to accommodate different applications. Most commonly used to monitor bearings, pumps, electrical motors and other heat generating machinery.

Unit Per Pc.

CODE	65 17 53
Measuring Range	−200 to 1,350°C
Resolution	0.1°C (−100° ...1,000°) 1°C (≤100°, ≥1,000°)
Accuracy	0.5°C / 0.9°F
Battery	9V alkaline IEC 6LR61 (AM-3)
Size	165 x 75 x 22 mm
Weight	200 grm

Thermosensors for Digital Thermometer

Various types of thermosensors designed for use with the above mentioned thermometers are listed below with their respective specifications.

Unit Per Pc.

CODE	Measurement	Application	Temp. Range
65 17 71	Standard Surface	For hard surfaces such as bearings, engine blocks, etc.	900°C
65 17 72	Magnetic Surface	For hard, magnetic surface.	240°C
65 17 73	Insulated Surface	For hard surfaces where electrical wiring might cause short circuiting.	200°C
65 17 74	Right Angle Surface	For hard surface in heavy duty applications.	450°C
65 17 75	Gas and Liquid	For liquids such as oils, acids, etc. 3 mm shank.	1,100°C
65 17 76	Gas and Liquid	Same as above, but 1.5 mm shank.	900°C
65 17 77	Pipe Clamp	For pipes, cables, etc.	200°C
65 17 78	High Temp. Wire	Thin, light weight, very fast response, ceramic insulation	1,350°C
65 17 79	Rotating	For moving or rotating, smooth surfaces/ roller bearings	200°C
65 17 80	Nonferrous Foundry	Holder incl. dip-element for molten, non-ferrous metals.	1,260°C

Infrared Thermometers

Termómetros Infrarrojos　　放射温度計　　红外线温度计



Handheld type non-contact thermometer of the range -50 to 500°C by the most efficient thermometry technology, especially where contact thermometry is impractical. The twin laser beam helps to exactly pinpoint the diameter of the field of view and performs accurate temperature measurement in °C or °F with fast response in 0.8 second.

Mode and setting;

* Emissivity adjustment:
  Press MODE key to enter ε (Emissivity adjustment mode and adjust emissivity with ▲/▼keys. (0.10~1.00, 0.01 increment)

* Peak hold:
  Maximum or minimum of in-measurement temperature is displayed respectively in MAX, MIN mode.

Unit Per Pc.

CODE	65 17 91	65 17 92
Model	TA410N	TA410S
Temperature Range	-50 ~ 500°C (Display range)	
Display Resolution	1°C (0.0 to 199.9°C : 0.1°C)	
Response Time	Approx. 0.8 sec. or less	
Measuring Wave Length	8 - 14μm	
Alarm Setting Range	-50 ~ 505°C	
Sighting Method	Twin laser beam	LED spot
Power Source	LR-03 (SUM-4) battery x 4 pcs	
Size & Weight	L170 x W40 x H36 mm, 140 grm	

Name of Mfr. : ICHINEN TASCO Co., Ltd.

Coating Tapes and Sprays
for Infrared Thermometer Measurement

Cintas de Capa y Aerosol para Medición de Termómetro Infrarrojo
放射温度計用測定膜　　測定膜及喷液



Most objects have an emissivity of 0.85 ~ 0.95 which is adequate for infrared thermometry, while emissivity of highly polished metal surface is poor. For the measurement of such glossy objects, it is recommended to make a thin film (coating) with black tape or spray to obtain better measurement results.

CODE	Description	Size	Thermal Resistance	Emissivity	Unit
65 17 93	Black tape, TA410-8T	W25 mm × L10 mtr	250°C	0.95	Rls.
94	Black tape, TA410-8TB	W50 mm × L10 mtr			Rls.
65 17 95	Black spray, TA410KS	180 ml	500°C	0.94	Tin

Measuring Devices

for Temperature

Dispositivo de Medición para la Temperatura

デジタル式温度計　　温度測量装置



The handy and reliable instruments used for measurement and recording of temperature. Very flexible and suitable for both simple measurements and special applications. High performance sensors with electronic linearization of the characteristic provide high accuracy during signal recognition and processing. Matching sensors are available for extensive measurement jobs. Please specify type of sensors matching to your required measurement jobs when ordering.

Unit Per Pc.

CODE	**65 18 12**	**65 18 13**
Model	MH 3750 (up to 850°C)	MH 3211 (up to 1,750°C)
Measurement Range / Resolution	-199.99 ~ 199.99°C / 0.01°C, 200.0~850.0°C/0.1°C	Type K: -220 – 1,370°C/1°C Type J: -200 – 1,100°C/1°C Type N: -200 – 1,300°C/1°C Type S: -50 – 1,750°C/1°C Type T: -200 – 400°C/1°C Type E: -60 – 850°C/1°C Type B: 300 – 1750°C/1°C
Measurement Input (Mini-DIN socket)	1 x Pt 100/4 wire	Thermocouples K/J/S/T/N/E/B
Accuracy	±0.015% FS ±1 digit	Type K/J/T/N/E: ±0.5°C + 0.2°C of rdg. Type B/S: ±0.8°C + 0.4% of rdg.
Dimensions	142 x 71 x 26 mm	142 x 71 x 26 mm
Weight	155 grm	155 grm

Name of Mfr. : SIKA

Temperature Sensors for Measuring Device

Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6



Pt 1000 Measurement Sensor for MH 3750

Unit Per Pc.

CODE	Type of Sensor		Fig.	Range	Size mm L	Size mm D
65 18 21	Standard	GTF 401	1	-50 – 400°C	150	3
22	Spike	GES 401	2		150	3
23	Surface	GOF 401	3		300	3 (Head = 4 mm)
24	Air/gas	GLF 401	6		100	3 (Head = 6 mm)

Temperature Sensors suitable for MH 3211

Unit Per Pc.

CODE	Type of Sensor		Fig.	Range	Size mm L	Size mm D
65 18 26	Standard	GTF 900	1	-65 - 1,000°C	130	3
27	Spike	GES 900	2	-65 - 1,000°C	130	3
28	Inconel	GTF 1200/300	2	-65 - 1,150°C	300	3
29	Fast response	GTF 400	1	-65 - 550°C	130	1.5
30	Surface	GOF 130 CU	4	-65 - 500°C	130	3
31	Surface	GOF 130	5	-65 - 900°C	130	8
32	Air/Gas	GLF 130	6	-65 - 600°C	130	3

Remark : 65 18 30 Head = 4 mm, 65 18 32 Head = 6 mm

Industrial Thermometers

in Metal Protection with Thread Connection Case

Termómetros Industriales en Caja Metálica con Conexión Roscada

金属保護枠入温度計　　工业温度计

A wide variety of industrial precision liquid-glass thermometers with rugged protective cases are available in different types, shapes, threads, sizes, etc. Please refer to the illustrations below and the "Guide of how to order" when ordering.



Straight Type

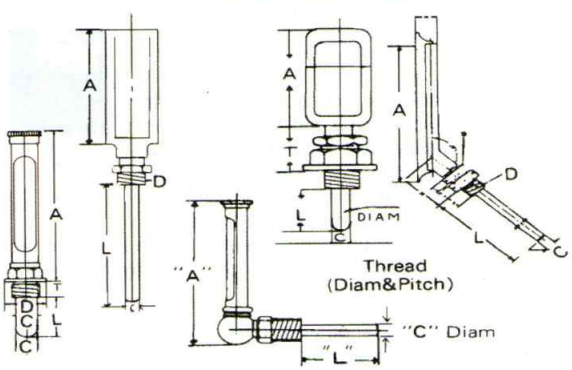


Back 90° Angle Type



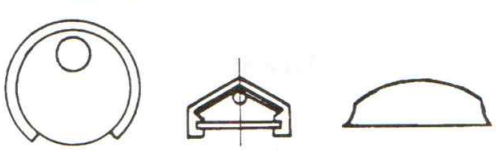
Back 135° Angle Type

How to measure Sizes



A : Case Length
D : Connecting Thread, Diam & Pitch
C : Stem Diam
L : Stem Length

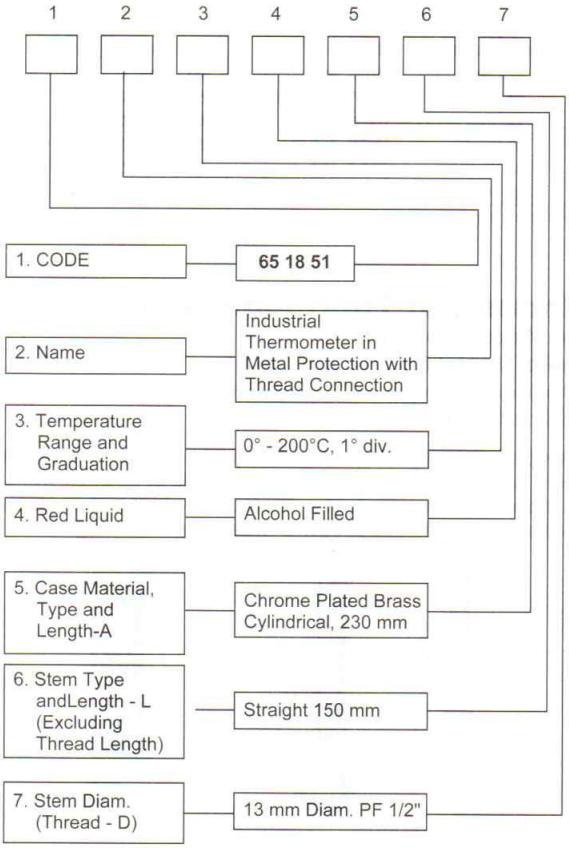
Section of Casing



Cylindrical　　Triangle　　Square

Guide of How to order

When ordering, please fill the following column.



Electronic Digital Thermometers

SolarTemp Marine Type 850/851 with Mounting Plate

Termómetros digitales electrónicos
デジタル温度計　电子数字温度计



The microprocessor controlled industrial thermometer works with a Pt-1000 sensor. Fully electronically, and without the need for auxiliary power, the SolarTemp guarantee high precision with long-term stability at detailed registration of measuring values for the full range of the projected lifetime. The measurement elements are free of wear by doing away mechanical components.

Possible measuring ranges reach from 0°C up to 650°C, with optimal adaptation for any measuring range. The SolarTemp has as it's energy source a photovoltaic cell and additionally at the type 851, a current loop supply.

With the SolarTemp it was possible for the first time to realize rational local displays or distance thermometers with an electronic thermometer, which combines consistent measurement accuracy and complete maintenance freedom for the entire life time of the product.

SolarTemp Marine Type 850

Technical features

- No cabling or battery change necessary > Supply via integrated solar cell
- Robust mechanical construction > Reliable and long-lasting operation
- Insensitive to electromagnetic interference > Additional EMC shielding
- Optional integrable transmitters > Simple integration into process control system
- Two separate measuring circuits and continuous self-test > Maximum operational reliability

Unit Per Pc.

CODE	65 18 61	65 18 62	65 18 63
Type	Standard version	Transmitter version	
Range	−60 to 650°C	4 to 20 mA ≙0 to 600°C	4 to 20 mA ≙0 to 300°C
SIKA Code	85065P54	85065P53360	85065P53330
Ambient Temperature	5 to 60°C (case)		
Case	170 × 150 mm, steel case blue powered-coated, aluminium mounting plate		
Power Supply	Solar cell		
Light Density	80 lux		
Digital Display	3½ digit, 7 segment LCD, 25 mm high		
Type of Protection	IP65		
Type Approval Certificate	EU RO Mutual Recognition Type Approval Certificate		

Name of Mfr.: SIKA

SolarTemp Marine Type 851

Technical features

- Powered by the current loop itself with backup via solar cell > temperature display even in the case of power supply failure
- One measuring point for local display and transmitter signal > no measured value deviation & lower costs per measuring point
- Robust mechanical construction > Reliable and long-lasting operation
- Insensitive to electromagnetic interference > Additional EMC shielding
- Integrated transmitters > Simple integration into process control system
- Two separate measuring circuits and continuous self-test > Maximum operational reliability

Unit Per Pc.

CODE	65 18 64	65 18 70
Type	Transmitter version	
Range	4 to 20 mA ≙0 to 600°C	4 to 20 mA ≙0 to 300°C
SIKA Code	85165P53360	85165P53330
Ambient Temperature	5 to 60°C (case)	
Case	170 × 150 mm, steel case blue powered-coated, aluminium mounting plate	
Power Supply	Loop supply 15...26 VDC Solar cell, 80 lux (as backup for display)	
Light Density	80 lux	
Digital Display	3½ digit, 7 segment LCD, 25 mm high	
Type of Protection	IP65	
Type Approval Certificate	EU RO Mutual Recognition Type Approval Certificate	

Name of Mfr.: SIKA

Temperature Sensors

for SolarTemp Marine Type 850/851

Sensor de Temperatura　温度センサー　温度感應器

- For exhaust gas temperature measurement in diesel and gas engines > Up to 600 °C Media temperature
- Very high vibration resistance > Reliable and long-lasting operation

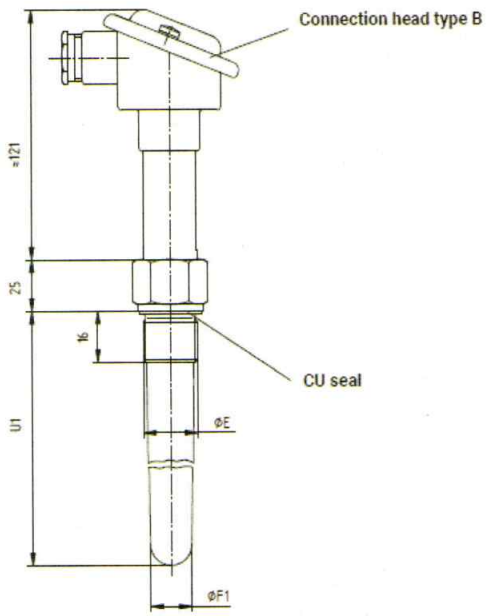
Type W25

Specification

Model	Type W25	Type W14
Accuracy Class	Resistance thermometer class B	
Measuring insert is	interchangeable	
Diameter (acc. immersion tube length)	14/17 mm conical up to 150 mm 17/23 mm conical up to 150 mm 20/23 mm conical from 200 mm	
Degree of Protection	IP 54	
Max. Temperature	Depending on immersion tube material	600°C
Process Connection	Fix connecting thread	
Electrical Connection	-	FEP cable, wire braided
Approvals	-	DNV type approval

How to order: 65 - 18 - 65

Temperature sensor for exhaust gas temperature measurement, with SIKA order code (as indicated in the table below)



Type		SIKA Order Code
Resistance Thermometer	W	
Thermocouple	T	
Diameter	14/17 mm conical (U1=up to 150 mm)	14
	17/23 mm conical (U1=up to 150 mm)	17
	20/23 mm conical (U1=200 mm up to 300 mm)	20
Material	Stainless steel 1.4571 (max. 450°C)	3
	Steel 1.7335 (max. 600°C)	5
Sensor Element	2 × Pt1000 3-wire/class B	P53
	1 x Pt1000 2-wire/class B	P54
Immersion Tube Length	100 mm	100
	150 mm	150
	200 mm	200
Measuring Insert	Interchangeable	2
Electrical Connection	Head form B with ceramic socket	BO
Process Connection	G1/2 (Φ14/17 mm)	2T6
	G3/4	3T6
	M 33 x 2	FT6

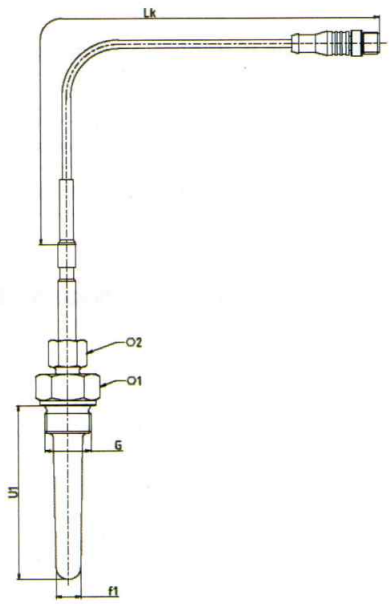
Name of Mfr.: SIKA

Type W14

Extremely resistant connecting cable > Enables use in harsh environments

How to order: 65 - 18 - 60

Cable sensor for exhaust gas temperature measurement, with SIKA order code (as indicated in the table below)



Type		SIKA Order Code
Resistance Thermometer	W	
Thermocouple	T	
Diameter	14/17 mm conical (U1=up to 150 mm)	14
	17/23 mm conical (U1=up to 150 mm)	17
	20/23 mm conical (U1=200 mm up to 300 mm)	20
Material	Stainless steel 1.4571 (max. 450°C)	3
	Steel 1.7335 (max. 600°C)	5
Sensor Element	2 × Pt1000 3-wire / class B	P53
	1 x Pt1000 2-wire / class B	P54
Immersion Tube Length U1	100 mm	100
	150 mm	150
	200 mm	200
Measuring Insert	Interchangeable	2
Electrical Connection	M 12 x 1, FEP cable	38
Process Connection	G1/2 (Φ14/17 mm)	2
	G3/4	3
	M 33 x 2	F
Cable Length LK	2.0 mtr	03
	3.0 mtr	05
	5.0 mtr	09

Name of Mfr.: SIKA

Transmitter and Sensor Cables

Sensor Cable (Connection sensor to indicator)

Unit Per Lgh.

CODE	Length	SIKA Code	CODE	Length	SIKA Code
65 18 66 **67**	3 mtr 5 mtr	XPV108 XPV109	**65 18 68** **69**	10 mtr 15 mtr	XPV110 XPV158

Transmitter Cable (Connection indicator to remote control)

Unit Per Lgh.

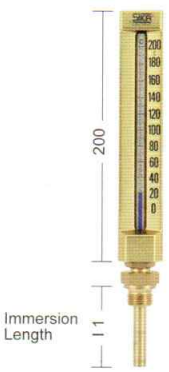
CODE	Length	SIKA Code	CODE	Length	SIKA Code
65 18 71	10 mtr	XPV150	**65 18 72**	15 mtr	XPV167

SIKA Industrial Thermometers

Termómetros Industriales "SIKA" ジーカ製温度計 SIKA 工业温度计

A wide variety of SIKA thermometers are available. The most widely carried, standard types are listed below with their respective specifications. The thermometer casings are finished in anodized gold colour.

The scale division is burned into the glass and is therefore durable. The labeling of the display area is permanently condensed in the anodized layer and therefore cannot be solved chemically or mechanically.



Straight Thermometers Type 271B, 291B, 174B

Threaded sockets with a solid hexagonal nut. Adjustable to any desired viewing position and locked by brass nut, spanner size 22 mm. Thermometers with a measuring range from -60 °C to +250 °C have a blue fluid indicator. Immersion tubes, pockets

Standard: brass

Type	Casing Size (L x W) mm	Thread	Immersion (Stem) Tube Diam. mm
271 B	200 x 36	G 1/2" (or 3/4", M20, M27)	10
291 B	150 x 36		
174 B	110 x 30		

When ordering, specify thread size as well as type, range and immersion stem length, or SIKA's catalogue number. As to thread sizes of the socket the most common PT (R) 1/2" is applied to the following coded items.

How to order: CODE

Thermometer, straight, SIKA, TYPE, RANGE, IMMERSION LENGTH, CATALOGUE NO

Example;

65 19 01 Thermometer, straight, SIKA 271B, casing size 200 x 36 mm, -30 to 50°C, immersion length 63 mm, catalogue No.2712-351106321

Thread Size G 1/2"

Unit Per Pc.

CODE	Range (°C)	Immersion length mm	SIKA 2712...	CODE	Range (°C)	Immersion length mm	SIKA 2912...
Type-271B				**Type-291B**			
65 19 01	-30 - +50	63	-351106321	**65 19 41**	-30 - +50	63	-351106321
02		100	-351110021	**42**		100	-351110021
03		160	-351116021	**43**		160	-351116021
65 19 28	0 - 60	63	-061106321	**65 19 68**	0 - 60	63	-061106321
29		100	-061110021	**69**		100	-061110021
30		160	-061116021	**70**		160	-061116021
65 19 04	0 - 100	63	-101106321	**65 19 44**	0 - 100	63	-101106321
05		100	-101110021	**45**		100	-101110021
06		160	-101116021	**46**		160	-101116021
65 19 31	0 - 120	63	-121106321	**65 19 71**	0 - 120	63	-121106321
32		100	-121110021	**72**		100	-121110021
33		160	-121116021	**73**		160	-121116021
65 19 07	0 - 160	63	-161106321	**65 19 47**	0 - 160	63	-161106321
08		100	-161110021	**48**		100	-161110021
09		160	-161116021	**49**		160	-161116021
65 19 10	0 - 200	63	-201106321	**65 19 50**	0 - 200	63	-201106321
11		100	-201110021	**51**		100	-201110021
12		160	-201116021	**52**		160	-201116021
65 19 34	0 - 250	63	-251106321	**65 19 74**	0 - 250	63	-251106321
35		100	-251110021	**75**		100	-251110021
36		160	-251116021	**76**		160	-251116021

Unit Per Pc.

CODE	Range (°C)	Immersion length mm	SIKA 1742...	CODE	Range (°C)	Immersion length mm	SIKA 1742...
Type-174B							
65 21 01	-30 - +50	30	-351103021	**65 21 11**	0 - 120	30	-121103021
02		40	-351104021	**12**		40	-121104021
03		63	-351106321	**13**		63	-121106321
04		100	-351110021	**14**		100	-121110021
05		160	-351116021	**15**		160	-121116021
65 21 06	0 - 60	30	-061103021	**65 21 16**	0 - 160	30	-161103021
07		40	-061104021	**17**		40	-161104021
08		63	-061106321	**18**		63	-161106321
09		100	-061110021	**19**		100	-161110021
10		160	-061116021	**20**		160	-161116021
65 19 81	0 - 100	30	-101103021	**65 19 86**	0 - 200	30	-201103021
82		40	-101104021	**87**		40	-201104021
83		63	-101106321	**88**		63	-201106321
84		100	-101110021	**89**		100	-201110021
85		160	-101116021	**90**		160	-201116021

Note: Besides the above coded items
B) Long immersion of 250 mm and 400 mm are available.
C) G3/4" thread of the sockets are also available.

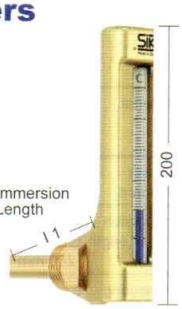
90° Angle Thermometers

Type 272B, 292B, 175B

Termómetros en ángulo de 90

90° 角度温度計 90° 角温度计

Back-90° angle type thermometers with same specifications as the above specified straight thermometers.



Type	Casing Size (L × W) mm	Thread	Immersion (Stem) Tube Diam. mm
272 B	200 x 36	G 1/2" (or 3/4")	10
292 B	150 x 36		
175 B	110 x 30		

How to order: CODE

Thermometer, 90° angle, SIKA, TYPE, RANGE, IMMERSION LENGTH, CATALOGUE NO

Example;

65 20 01 Thermometer, 90° angle, SIKA 272B, casing size 200 x 36 mm, immersion length 63 mm, catalogue No.2722-351106321

Thread Size G1/2"

Unit Per Pc.

CODE	Range (°C)	Immersion length mm	SIKA 2722...	CODE	Range (°C)	Immersion length mm	SIKA 2922...
Type-272B				**Type-292B**			
65 20 25	-60 - +40	63	-641106321	**65 20 65**	-60 - +40	63	-641106321
26		100	-641110021	**66**		100	-641110021
27		160	-641116021	**67**		160	-641116021
65 20 01	-30 - +50	63	-351106321	**65 20 41**	-30 - +50	63	-351106321
02		100	-351110021	**42**		100	-351110021
03		160	-351116021	**43**		160	-351116021
65 20 28	0 - 60	63	-061106321	**65 20 68**	0 - 60	63	-061106321
29		100	-061110021	**69**		100	-061110021
30		160	-061116021	**70**		160	-061116021
65 20 04	0 - 100	63	-101106321	**65 20 44**	0 - 100	63	-101106321
05		100	-101110021	**45**		100	-101110021
06		160	-101116021	**46**		160	-101116021
65 20 31	0 - 120	63	-121106321	**65 20 71**	0 - 120	63	-121106321
32		100	-121110021	**72**		100	-121110021
33		160	-121116021	**73**		160	-121116021
65 20 07	0 - 160	63	-161106321	**65 20 47**	0 - 160	63	-161106321
08		100	-161110021	**48**		100	-161110021
09		160	-161116021	**49**		160	-161116021
65 20 10	0 - 200	63	-201106321	**65 20 50**	0 - 200	63	-201106321
11		100	-201110021	**51**		100	-201110021
12		160	-201116021	**52**		160	-201116021
65 20 34	0 - 250	63	-251106321	**65 20 74**	0 - 250	63	-251106321
35		100	-251110021	**75**		100	-251110021
36		160	-251116021	**76**		160	-251116021

Unit Per Pc.

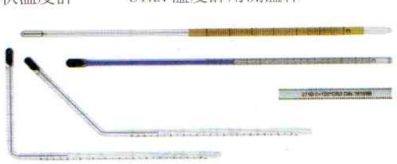
CODE	Range (°C)	Immersion length mm	SIKA 1752...	CODE	Range (°C)	Immersion length mm	SIKA 1752...
Type-175B							
65 21 31	-30 - +50	30	-351103021	**65 21 41**	0 - 120	30	-121103021
32		40	-351104021	**42**		40	-121104021
33		63	-351106321	**43**		63	-121106321
34		100	-351110021	**44**		100	-121110021
35		160	-351116021	**45**		160	-121116021
65 21 36	0 - 60	30	-061103021	**65 21 46**	0 - 160	30	-161103021
37		40	-061104021	**47**		40	-161104021
38		63	-061106321	**48**		63	-161106321
39		100	-061110021	**49**		100	-161110021
40		160	-061116021	**50**		160	-161116021
65 20 81	0 - 100	30	-101103021	**65 20 86**	0 - 200	30	-201103021
82		40	-101104021	**87**		40	-201104021
83		63	-101106321	**88**		63	-201106321
84		100	-101110021	**89**		100	-201110021
85		160	-101116021	**90**		160	-201116021

Note: Same notes as above specified straight types.

Spare Glass Inserts (Capillaries)

for Sika Thermometers

Inserto de Vidrio de Repuesto (Tubos Capilares) para Termómetros de SIKA
SIKA 棒状温度計　　SIKA 温度計用測温棒



How to order: CODE

Glass insert, SIKA, STRAIGHT or ANGLE, TYPE of THERMOMETER, RANGE, IMMERSION LENGTH, CATALOGUE NO.

Example

65 22 01 Glass insert, SIKA, straight, for type 271B, range -30 - + 50°C, immersion length 63 mm, catalogue No.2712-3511063

Unit Per Pc.

For Straight				For Angle 90°			
CODE	Range (°C)	Immersion length mm	SIKA 2712...	CODE	Range (°C)	Immersion length mm	SIKA 2722...
For Type-271B				**For Type-272B**			
65 22 25	-60 - +40	63	-6411063	**65 23 25**	-60 - +40	63	-6411063
26		100	-6411100	**26**		100	-6411100
27		160	-6411160	**27**		160	-6411160
65 22 01	-30 - +50	63	-3511063	**65 23 01**	-30 - +50	63	-3511063
02		100	-3511100	**02**		100	-3511100
03		160	-3511160	**03**		160	-3511160
65 22 28	0 - 60	63	-0611063	**65 23 28**	0 - 60	63	-0611063
29		100	-0611100	**29**		100	-0611100
30		160	-0611160	**30**		160	-0611160
65 22 04	0 - 100	63	-1011063	**65 23 04**	0 - 100	63	-1011063
05		100	-1011100	**05**		100	-1011100
06		160	-1011160	**06**		160	-1011160
65 22 31	0 - 120	63	-1211063	**65 23 31**	0 - 120	63	-1211063
32		100	-1211100	**32**		100	-1211100
33		160	-1211160	**33**		160	-1211160
65 22 07	0 - 160	63	-1611063	**65 23 07**	0 - 160	63	-1611063
08		100	-1611100	**08**		100	-1611100
09		160	-1611160	**09**		160	-1611160
65 22 10	0 - 200	63	-2011063	**65 23 10**	0 - 200	63	-2011063
11		100	-2011100	**11**		100	-2011100
12		160	-2011160	**12**		160	-2011160

Legal notice:
According to Minamata Agreement, the placing on the market of mercury has been prohibited worldwide since 2020. Concerned are industrial thermometers and glass inserts with display ranges 0...300°C and higher, only. In this case, we are recommending the use of our dial or digital thermometers.

Unit Per Pc.

For Straight				For Angle 90°			
CODE	Range (°C)	Immersion length mm	SIKA 2912...	CODE	Range (°C)	Immersion length mm	SIKA 2922...
For Type-291B				**For Type-292B**			
65 22 65	-60 - +40	63	-6411063	**65 23 65**	-60 - +40	63	-6411063
66		100	-6411100	**66**		100	-6411100
67		160	-6411160	**67**		160	-6411160
65 22 41	-30 - +50	63	-3511063	**65 23 41**	-30 - +50	63	-3511063
42		100	-3511100	**42**		100	-3511100
43		160	-3511160	**43**		160	-3511160
65 22 68	0 - 60	63	-0611063	**65 23 68**	0 - 60	63	-0611063
69		100	-0611100	**69**		100	-0611100
70		160	-0611160	**70**		160	-0611160
65 22 44	0 - 100	63	-1011063	**65 23 44**	0 - 100	63	-1011063
45		100	-1011100	**45**		100	-1011100
46		160	-1011160	**46**		160	-1011160
65 22 71	0 - 120	63	-1211063	**65 23 71**	0 - 120	63	-1211063
72		100	-1211100	**72**		100	-1211100
73		160	-1211160	**73**		160	-1211160
65 22 47	0 - 160	63	-1611063	**65 23 47**	0 - 160	63	-1611063
48		100	-1611100	**48**		100	-1611100
49		160	-1611160	**49**		160	-1611160
65 22 50	0 - 200	63	-2011063	**65 23 50**	0 - 200	63	-2011063
51		100	-2011100	**51**		100	-2011100
52		160	-2011160	**52**		160	-2011160

Legal notice :
According to Minamata Agreement, the placing on the market of mercury has been prohibited worldwide since 2020. Concerned are industrial thermometers and glass inserts with display ranges 0...300°C and higher, only. In this case, we are recommending the use of our dial or digital thermometers.

Unit Per Pc.

For Straight				For Angle 90°			
CODE	Range (°C)	Immersion length mm	SIKA 1742...	CODE	Range (°C)	Immersion length mm	SIKA 1752...
For Type-174B				**For Type-175B**			
65 22 34	-30 - +50	30	-3511030	**65 24 11**	-30 - +50	30	-3511030
35		40	-3511040	**12**		40	-3511040
36		63	-3511063	**13**		63	-3511063
37		100	-3511100	**14**		100	-3511100
38		160	-3511160	**15**		160	-3511160
65 22 91	0 - 60	30	-0611030	**65 24 16**	0 - 60	30	-0611030
92		40	-0611040	**17**		40	-0611040
93		63	-0611063	**18**		63	-0611063
94		100	-0611100	**19**		100	-0611100
95		160	-0611160	**20**		160	-0611160
65 22 81	0 - 100	30	-1011030	**65 23 81**	0 - 100	30	-1011030
82		40	-1011040	**82**		40	-1011040
83		63	-1011063	**83**		63	-1011063
84		100	-1011100	**84**		100	-1011100
85		160	-1011160	**85**		160	-1011160
65 24 01	0 - 120	30	-1211030	**65 24 21**	0 - 120	30	-1211030
02		40	-1211040	**22**		40	-1211040
03		63	-1211063	**23**		63	-1211063
04		100	-1211100	**24**		100	-1211100
05		160	-1211160	**25**		160	-1211160
65 24 06	0 - 160	30	-1611030	**65 24 26**	0 - 160	30	-1611030
07		40	-1611040	**27**		40	-1611040
08		63	-1611063	**28**		63	-1611063
09		100	-1611100	**29**		100	-1611100
10		160	-1611160	**30**		160	-1611160
65 22 86	0 - 200	30	-2011030	**65 23 86**	0 - 200	30	-2011030
87		40	-2011040	**87**		40	-2011040
88		63	-2011063	**88**		63	-2011063
89		100	-2011100	**89**		100	-2011100
90		160	-2011160	**90**		160	-2011160

Note: 1) Up to 200°C, blue filling inserts are coded.

Exhaust Gas Thermometers

Direct Mounting

Termómetro de Gas de Escape de Montaje Directo
排気ガス用耐振直結型温度計
直接连结型排气温度计

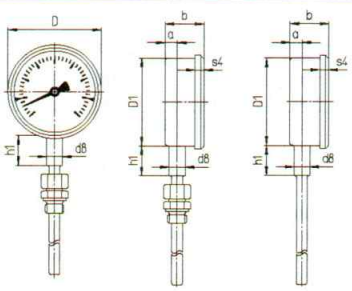


This thermometer can be mounted directly on the exhaust duct and contains a shock absorbing liquid of high viscosity, which eliminates wear of the internal moving parts made sensitive by vibration. At the same time, lubrication of moving parts is taken care by the liquid, thus obviating corrosion.

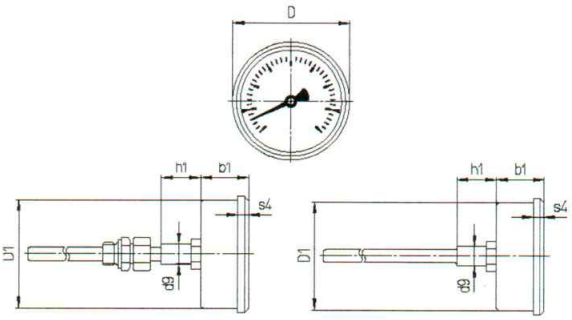
Approved by German Lloyd Certificate No.12 026-98 HH.

Technical Data

Casing	Dia. 80 or 100 mm stainless steel 1.4301
Range	+50 +650°C
System	Nitrogen filled system
Immersion tube	Heat resistant steel
Accuracy	Class 1 according to EN 13 190



Bottom Connection



Rear Connection

Dimensions according to drawing (mm)

NG	a	b	D	D1	d6	d8/d9	h	h1	s4
80	15	42	86	79	12	18	60	34	8
100	15	43	106	99	12	18	60	34	10

Unit Per Pc.

CODE	Mounting Length DL in mm	Thread Size	SIKA Code
Casing Dia 80 mm, Bottom Connection			
65 34 01	100	G 1/2" BSP	Z8312M56110022
65 34 02		G 3/4" BSP	Z8312M56110032
65 34 03	160	G 1/2" BSP	Z8312M56116022
65 34 04		G 3/4" BSP	Z8312M56116032
65 34 05	200	G 1/2" BSP	Z8312M56120022
65 34 06		G 3/4" BSP	Z8312M56120032
65 34 07	250	G 1/2" BSP	Z8312M56125022
65 34 08		G 3/4" BSP	Z8312M56125032
65 34 09	300	G 1/2" BSP	Z8312M56130022
65 34 10		G 3/4" BSP	Z8312M56130032
65 34 11	400	G 1/2" BSP	Z8312M56140022
65 34 12		G 3/4" BSP	Z8312M56140032
Casing Dia 80 mm, Rear Connection			
65 34 15	100	G 1/2" BSP	Z8372M56110022
65 34 16		G 3/4" BSP	Z8372M56110032
65 34 17	160	G 1/2" BSP	Z8372M56116022
65 34 18		G 3/4" BSP	Z8372M56116032
65 34 19	200	G 1/2" BSP	Z8372M56120022
65 34 20		G 3/4" BSP	Z8372M56120032
65 34 21	250	G 1/2" BSP	Z8372M56125022
65 34 22		G 3/4" BSP	Z8372M56125032
65 34 23	300	G 1/2" BSP	Z8372M56130022
65 34 24		G 3/4" BSP	Z8372M56130032
65 34 25	400	G 1/2" BSP	Z8372M56140022
65 34 26		G 3/4" BSP	Z8372M56140032
Casing Dia 100 mm, Bottom Connection			
65 34 31	100	G 1/2" BSP	Z1312M56110022
65 34 32		G 3/4" BSP	Z1312M56110032
65 34 33	160	G 1/2" BSP	Z1312M56116022
65 34 34		G 3/4" BSP	Z1312M56116032
65 34 35	200	G 1/2" BSP	Z1312M56120022
65 34 36		G 3/4" BSP	Z1312M56120032
65 34 37	250	G 1/2" BSP	Z1312M56125022
65 34 38		G 3/4" BSP	Z1312M56125032
65 34 39	300	G 1/2" BSP	Z1312M56130022
65 34 40		G 3/4" BSP	Z1312M56130032
65 34 41	400	G 1/2" BSP	Z1312M56140022
65 34 42		G 3/4" BSP	Z1312M56140032

(to be continued)

Unit Per Pc.

CODE	Mounting Length DL in mm	Thread Size	SIKA Code
Casing Dia 100 mm, Rear Connection			
65 34 45	100	G 1/2" BSP	Z1372M56110022
65 34 46		G 3/4" BSP	Z1372M56110032
65 34 47	160	G 1/2" BSP	Z1372M56116022
65 34 48		G 3/4" BSP	Z1372M56116032
65 34 49	200	G 1/2" BSP	Z1372M56120022
65 34 50		G 3/4" BSP	Z1372M56120032
65 34 51	250	G 1/2" BSP	Z1372M56125022
65 34 52		G 3/4" BSP	Z1372M56125032
65 34 53	300	G 1/2" BSP	Z1372M56130022
65 34 54		G 3/4" BSP	Z1372M56130032
65 34 55	400	G 1/2" BSP	Z1372M56140022
65 34 56		G 3/4" BSP	Z1372M56140032

Name of Mfr. : SIKA

Low Temperature Dial Thermometers

Termómetro de aguja de bajas temperaturas
低温用温度計　低温温度计

Local reading - Type 301 - 302 for measuring ranges -200...100 °C



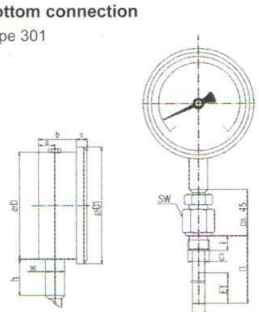
For monitoring temperature critical cooling applications and are suitable for the use on liquid gas transport ships. Protection of the measuring system by a vibration absorbing case filling, and stable, durable housing design made of stainless steel.

Typical Applications
- Gas transport for LNG, CNG, LPG, etc.
- Cooling ships and other cooling vehicles.

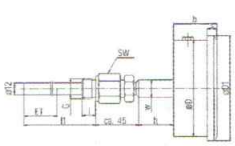
Technical Data

Display Range	-200...100 °C / -150...100 °C -50...10 °C / -100...50 °C
Nominal Size, Material	63, 80 or 100 mm, stainless steel 1.4301
Dial	Silver coloured, black markings
System	Nitrogen filled system
Immersion Tube	Stainless steel
Standard Immersion Tube Lengths (l_1)	100, 135, 160, 200, 250, 300, 400 mm
Thread Connection	Adjustable compression fitting
Thread Size	G1/2, G3/4
Accuracy (EN 13190)	Class 1.0

Bottom connection
Type 301



Central back connection
Type 302



Dimensions according to drawing (mm)

CODE	Type	NS	a	b	D	D1	h	s	W
65 34 60	301	63	12	39	62	67	60	8	12
61	302	63	12	39	62	67	34	8	18

*Remark: NS 80mm/100mm are available on request.

How to order: CODE

Dial thermometer, low temperature, type 301 or 302, NOMINAL SIZE, SCALE RANGE, IMMERSION TUBE LENGTH L1, CONNECTION TYPE, CONNECTION THREAD, CONNECTION THREAD MATERIAL, IMMERSION TUBE DIAMETER

Type	SIKA Order Code
Bottom connection	301
Central back connection	302
Nominal Size	
63 mm	A2
80 mm	B2
100 mm	C2
Scale Range	
-200....100 °C	F2
-200..... 50 °C	A2
-150....100 °C	E4
-50....100 °C	F1
-100.....50 °C	95
Immersion Tube Length l1 / **Nominal Length L (= L1 + 45 mm)**	
100 mm / 145 mm	100
135 mm / 180 mm	135
160 mm / 205 mm	160
200 mm / 245 mm	200
250 mm / 295 mm	250
300 mm / 345 mm	300
400 mm / 445 mm	400
Connection Type	
Connection type A, plain immersion tube	0
Connection type Ak, adjustable compression fitting	9
Connection Thread	
Without - plain immersion tube, type A	0
G1/2	2
G3/4	3
1/2 NPT	B
3/4 NPT	C
M20 x 1.5	7
Connection Thread Material	
Without - plain immersion tube, type A	0
Steel	2
Immersion Tube Diameter	
10 mm (for NS 63 and NS 80 mm only)	3
12 mm	4
13 mm	6

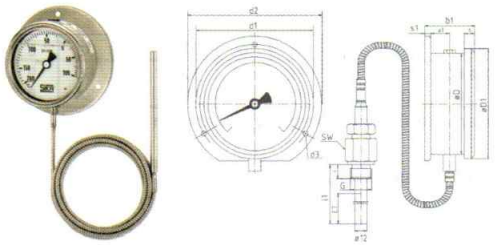
Name of Mfr. : SIKA

Remote reading - Type 320 for measuring ranges -200...100 °C

For monitoring temperature critical cooling applications, and suitable for the use in various cooling applications.

Remote reading low temperature dial thermometers were specifically developed for measuring points which are not directly accessible. The capillary of these measuring devices is protected by a stainless steel spiral tube and therefore always adapted to the demanding operating conditions on the high seas. Protection of the measuring system by a vibration absorbing case filling, and stable, durable housing design made of stainless steel.

Typical Applications
- Gas transport for LNG, CNG, LPG, etc.
- Cooling ships and other cooling vehicles.



with Rear Mounting Flange

Technical Data

Display Range	-200...100 °C / -150...100 °C -50...10 °C / -100...50 °C
Nominal Size, Material	63, or 100 mm, stainless steel 1.4301
Dial	Silver coloured, black markings
System	Nitrogen filled system
Immersion Tube	Stainless steel
Standard Immersion Tube Lengths (l_1)	100, 135, 160, 200, 250, 300, 400 mm
Thread Connection	Adjustable compression fitting
Thread Size	G1/2, G3/4
Accuracy (EN 13190)	Class 1.0, Limits of error acc. DIN EN 13190

Dimensions mm

NG	a1	b1	D	D1	d1	d2	d3	s	s1
80	18	48	79	86	95	110	4.8	8	5
100	18.5	49	99	106	116	132	4.8	10	6

How to order: 65 - 34 - 62

Dial thermometer, low temperature, type 320, NOMINAL SIZE, SCALE RANGE, IMMERSION TUBE LENGTH L1, CONNECTION TYPE, CONNECTION THREAD, IMMERSION TUBE DIAMETER, CAPILLARY LENGTH, CAPILLARY MATERIAL PROTECTION

Type	SIKA Order Code
With rear mounting flange	320
Nominal Size	
80 mm	B2
100 mm	C2
Scale Range	
-200....100 °C	F2
-200..... 50 °C	A2
-150....100 °C	E4
-50..... 10 °C	F1
-100..... 50 °C	95
Immersion Tube Length l1 / Nominal Length L (= L1 + 45 mm)	
100 mm / 145 mm	100
135 mm / 180 mm	135
160 mm / 205 mm	160
200 mm / 245 mm	200
250 mm / 295 mm	250
300 mm / 345 mm	300
400 mm / 445 mm	400
Connection Type	
Connection type A, plain immersion tube	1
Connection type Ak, adjustable compression fitting	9
Connection Thread	
Without - plain immersion tube	0
G1/2	2
G3/4	3
1/2 NPT	B
3/4 NPT	C
M20 x 1.5	7
Immersion Tube Diameter	
ø12 mm	2
Capillary Length	
1 mtr	1
3 mtr	3
5 mtr	5
Capillary Material Protection	
Stainless steel, stainless steel spiral protection	C

Name of Mfr. : SIKA

Exhaust Gas Thermometers

Remote Reading

Termómetro de Gas de Escape de Lectura Remota

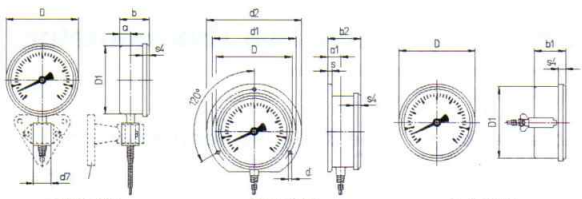
排気ガス用耐振隔測型温度計　隔測形式排気温度計

Based on the same system as the direct mounting exhaust thermometers. The case is filled with a shock absorbing liquid of high viscosity. 3 types of case configuration are available: wall bracket, rear flange or U-clamp for panel mounting.

Approved by German Lloyd Certificate No.12 027-98 HH. When ordering, please specify the capillary length according to the customers needs, in addition to 6 digit IMPA code number.

Technical Data

Casing	Dia. 80 or 100 mm stainless steel 1.4301
Range	+50 +650°C
System	Nitrogen filled system
Capillary Tube	Stainless steel, spiral protection
Immersion Tube	Heat resistant steel
Accuracy	Class 1 according to EN 13 190



Type 311 with wall bracket

Type 321 with mounting flange

Type 331 with type U bracket

Dimensions according to drawing (mm)

Type 311 WH with wall bracket

NS	a	b	D	D1	D7	s4	Filled (kg)
80	15	42	86	79	26	8	0.60
100	15	43	106	99	26	10	0.78

Type 321 TA rear mounting flange

NS	a1	b2	D	d1	d2	d3	s	s4	Filled (kg)
80	18	45	86	95	110	4.8	5	8	0.60
100	18.5	46.5	106	116	132	4.8	6	10	0.78

Type 331 KL with Tyuupe U bracket

NS	b1	D	D1	D2	d1	d2	d3	s2	s3	s4	Filled (kg)
80	42	86	79	81	95	110	4.8	1	9	8	0.60
100	43	106	99	101	116	132	4.8	1	11.5	10	0.78

Unit Per Pc.

CODE	Mounting Length DL in mm	Thread Size	SIKA Code
Casing Dia 80 mm for Wall Bracket			
65 35 01	135	1/2" BSP	Z311B256135922XX
65 35 02		3/4" BSP	Z311B256135932XX
65 35 03	160	1/2" BSP	Z311B256160922XX
65 35 04		3/4" BSP	Z311B256160932XX
65 35 05	200	1/2" BSP	Z311B256200922XX
65 35 06		3/4" BSP	Z311B256200932XX
65 35 07	250	1/2" BSP	Z311B256250922XX
65 35 08		3/4" BSP	Z311B256250932XX
65 35 09	300	1/2" BSP	Z311B256300922XX
65 35 10		3/4" BSP	Z311B256300932XX
65 35 11	400	1/2" BSP	Z311B256400922XX
65 35 12		3/4" BSP	Z311B256400932XX

(to be continued)

Unit Per Pc.

CODE	Mounting Length DL in mm	Thread Size	SIKA Code
Casing Dia 80 mm with Rear Flange for Panel Mounting			
65 35 15	135	1/2" BSP	Z321B256135922XX
65 35 16		3/4" BSP	Z321B256135932XX
65 35 17	160	1/2" BSP	Z321B256160922XX
65 35 18		3/4" BSP	Z321B256160932XX
65 35 19	200	1/2" BSP	Z321B256200922XX
65 35 20		3/4" BSP	Z321B256200932XX
65 35 21	250	1/2" BSP	Z321B256250922XX
65 35 22		3/4" BSP	Z321B256250932XX
65 35 23	300	1/2" BSP	Z321B256300922XX
65 35 24		3/4" BSP	Z321B256300932XX
65 35 25	400	1/2" BSP	Z321B256400922XX
65 35 26		3/4" BSP	Z321B256400932XX
Casing Dia 80 mm for U-clamp for Panel Mounting			
65 35 31	135	1/2" BSP	Z331B256135922XX
65 35 32		3/4" BSP	Z331B256135932XX
65 35 33	160	1/2" BSP	Z331B256160922XX
65 35 34		3/4" BSP	Z331B256160932XX
65 35 35	200	1/2" BSP	Z331B256200922XX
65 35 36		3/4" BSP	Z331B256200932XX
65 35 37	250	1/2" BSP	Z331B256250922XX
65 35 38		3/4" BSP	Z331B256250932XX
65 35 39	300	1/2" BSP	Z331B256300922XX
65 35 40		3/4" BSP	Z331B256300932XX
65 35 41	400	1/2" BSP	Z331B256400922XX
65 35 42		3/4" BSP	Z331B256400932XX
Casing Dia 100 mm for Wall Bracket			
65 35 51	135	1/2" BSP	Z311C256135922XX
65 35 52		3/4" BSP	Z311C256135932XX
65 35 53	160	1/2" BSP	Z311C256160922XX
65 35 54		3/4" BSP	Z311C256160932XX
65 35 55	200	1/2" BSP	Z311C256200922XX
65 35 56		3/4" BSP	Z311C256200932XX
65 35 57	250	1/2" BSP	Z311C256250922XX
65 35 58		3/4" BSP	Z311C256250932XX
65 35 59	300	1/2" BSP	Z311C256300922XX
65 35 60		3/4" BSP	Z311C256300932XX
65 35 61	400	1/2" BSP	Z311C256400922XX
65 35 62		3/4" BSP	Z311C256400932XX
Casing Dia 100 mm with Rear Flange for Panel Mounting			
65 35 65	135	1/2" BSP	Z321C256135922XX
65 35 66		3/4" BSP	Z321C256135932XX
65 35 67	160	1/2" BSP	Z321C256160922XX
65 35 68		3/4" BSP	Z321C256160932XX
65 35 69	200	1/2" BSP	Z321C256200922XX
65 35 70		3/4" BSP	Z321C256200932XX
65 35 71	250	1/2" BSP	Z321C256250922XX
65 35 72		3/4" BSP	Z321C256250932XX
65 35 73	300	1/2" BSP	Z321C256300922XX
65 35 74		3/4" BSP	Z321C256300932XX
65 35 75	400	1/2" BSP	Z321C256400922XX
65 35 76		3/4" BSP	Z321C256400932XX

(to be continued)

Casing Dia 100 mm for U-clamp for Panel Mounting			
65 35 81	135	1/2" BSP	Z331C256135922XX
65 35 82		3/4" BSP	Z331C256135932XX
65 35 83	160	1/2" BSP	Z331C256160922XX
65 35 84		3/4" BSP	Z331C256160932XX
65 35 85	200	1/2" BSP	Z331C256200922XX
65 35 86		3/4" BSP	Z331C256200932XX
65 35 87	250	1/2" BSP	Z331C256250922XX
65 35 88		3/4" BSP	Z331C256250932XX
65 35 89	300	1/2" BSP	Z331C256300922XX
65 35 90		3/4" BSP	Z331C256300932XX
65 35 91	400	1/2" BSP	Z331C256400922XX
65 35 92		3/4" BSP	Z331C256400932XX

Remark: Please replace XX at the last part of SIKA code number with the ordering code according to the capillary length in full meter the customers needs when ordering.

Ordering code capillary line

1 mtr.	1C
3 mtr	3C
5 mtr.	5C

Example for ordering:
Type 321, case dia 100 mm, range +50+650°C, 200 mm, ½"BSP, 5 mtr. Capillary

Ordering-code:
Z 321 B2 65 200 9 2 2 5 C

Type 321, case dia 80 mm, range 0+120°C, 200 mm, ½"BSP, 3 mtr. Capillary

Ordering-code:
Z 321 B2 12 200 9 2 2 3 C

Diesel Engine Dial Thermometers

with Integrated Temperature Sensor KombiTemp K8312

Termómetros de aguja de motor diésel con sensor de temperatura integrado
温度センサー一体型ディーゼルエンジン用ダイアル型温度計
温度传感器一体式柴油机用表盘式温度计

An ideal solution for combined temperature measurement of exhaust gas on large diesel engines. The dial thermometer displays the temperature locally whereas the integrated sensor provides the basis for the corresponding electrical signal to be transmitted to the engine control room.

Measuring in the same measuring point saves cost and ensures matching temperature values both at the local display as well as in the vessel's electronic system.

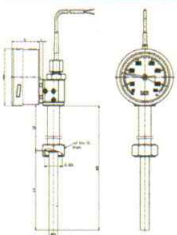
Two different versions for common diesel engine types:

version 1 for 4-stroke engines and version two for 2-stroke engines.

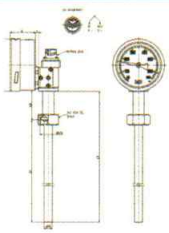
Performance features :

- Two in one measuring point temperature measurement.
- Matching indicator values of dial thermometer and temperature sensor.
- With thermocouple type K.

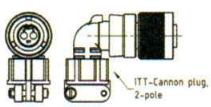
Technical Data	
Case	Bayonet ring case, st. steel 1.4301
Nominal Size	80 mm
Case Filling	Silicone oil
Dial	White coloured, black markings
Display Range	50...650 °C
System/Accuracy	Gas-filled dial thermometer acc. 1,0, DIN EN 13190, Thermocouple type K (NiCr-Ni), class 2.0
Electrical Connection	Cable output with 9 m cable length (version 1) 2 pole MIL connector, without cable (version 2)
Degree of Protection	Dial thermometer IP65 Electrical sensor IP56
Connection Position	Bottom connection
Immersion Tube Length/Material	l1 = 115 x Ø 13 mm (version 1), st. steel 1.4571 l1 = 220 x Ø 13 mm (version 2), st. steel 1.4571
Connection Thread/Material	Union Nut, G 3/4, brass



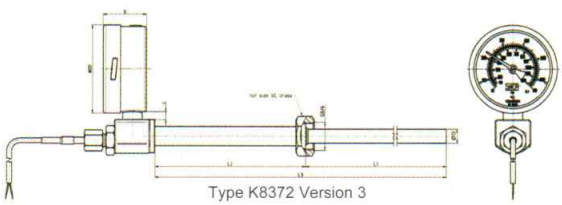
Type K8312
Version 1



Type K8312
Version 2



90° Angle
Military Plug



Type K8372 Version 3

Dimensions mm

	b	c	øD	L_1	L_2	L_3
Version 1	40	5	82	115	165	274
Version 2	40	5	82	220	51.5	265
Version 3	40	7.5	82	215	140	355

65 35 93	Thermometer, dial, diesel engine with temperature sensor, Kombitemp K8312, version 1	Pc.
94	Thermometer, dial, diesel engine with temperature sensor, Kombitemp K8312, version 2	Pc.
96	Thermometer, dial, diesel engine with temperature sensor, Kombitemp K8372, version 3	Pc.
95	Plug, military, 90° angle for Kombitemp K8312, version 2	Pc.

Name of Mfr. SIKA

Temperature Calibrators

Termómetro　温度センサー用測定器　温度测定仪

Exact temperature measurement and monitoring are "musts" in applications crucial to operational safety of machinery and industrial installations. In 2002, this was applied to all ships by the Safety of Life at Sea (SOLAS), Chapter IX and the ISM (the International Safety Management) Code as mandatory regulation. Regular inspection of the temperature sensors used in these applications is essential for economic and technical safety reasons and is already prescribed as obligatory in many sectors.



This calibrator contains an electrically controlled metal block with a bore for the insertion of the test piece. Adaptor sleeves are used for test pieces with smaller diameter. The block is mounted in a heat insulated housing.

The complete electronic is located in the front of the calibrator. The required temperature is easily set on the digital controller. The current temperature will automatically be adjusted to the set value. The current temperature and set temperature are constantly shown on the 2-line, 4-digit, 7-segment LED display.

Unit Per Set

CODE	**65 25 07**	**65 25 08**	**65 25 09**
Model	TP 17 165M	TP 17 650M	
SIKA Code	EP17160M281503	EP17650M281502	EP17650M281500
Temperature Range	-35°C up to 165°C	Ambient temp. up to 650°C	
Block Temperature Control	Digital PID controller, automatic fine adjustment with softstart for fan		
Accuracy	±1°C	±1°C	
Block Temperature Display	4-digit, 2-line, 7-segment LED, 7 mm high, red and green		
Display Range	-50°C up to 165.0°C	0.0°C up to 650.0°C	
Resolution	1°C		
Test Piece Fixture			
Block Material	Aluminium	Brass	
Block Bore	ø28 mm	ø28 mm	
Block Depth	150 mm		
Adapter Sleeves	Inside diameter between 1.5 mm and 25 mm in steps of 0.5 mm		
General Data			
Power Supply	100 to 240 VAC, 50/60 Hz	115 VAC, ±10%, 50/60 Hz	230 VAC, ±10%, 50/60 Hz
Power Consumption	Approx. 375 W	Approx. 1,000 W	
Dimensions L × W × H	210 × 380 +50 × 300 mm	150 × 330 + 70 × 270 mm	
Weight	10 kg	7.5 kg	
Options			
Accessories	Aluminium transport case	Aluminium transport case, Nylon service case	
Certificate	DAkkS-certificates, SIKA certificate		
Engineering Unit	Display of temperature in °F		

Name of Mfr.: SIKA

Series TP 17 200



Unit Per Set

CODE	65 25 14
Model	TP 17 200
SIKA Code	EP172000281503
Control Sensor	Internal
Dry Block	
Temperature Range	-55°C up to 200°C
Accuracy	±0.4°C
Stability	±0.1°C
Measurement Zone	110 – 150 mm
Block Dimensions	
Diameter	ø28 mm
Depth	150 mm
Display Unit	
Display	2-line, 4-digit display, Red / Green, unit °C / °F
Display range	-60°C - 200°C
Resolution	0.1°C
General Data	
Dimensions W x H x D	210 x 380 + 50 x 300 mm
Weight	Approx. 12.5 kg
Power Supply	100 to 240 VAC, 50/60 Hz
Power Consumption	Approx. 555W

Name of Mfr.: SIKA

Series TP Basic Marine



New calibrator model optimized for the requirements of the marine market. More competitive for large projects than predecessor model TP 17650M. Smaller, lighter and technically better, simplest operation. Particularly small calibration inserts which leads cost savings on accessories.

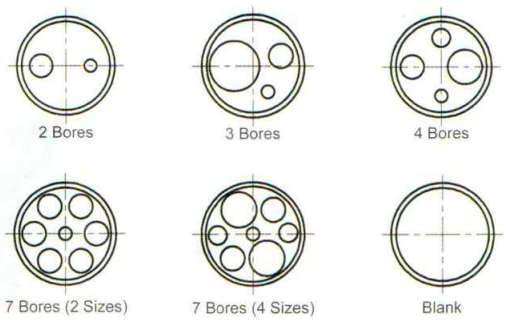
Unit Per Set

CODE	65 25 47	65 25 48
Model	TP Basic Marine	
SIKA Code	EPMA650M131102	EPMA650M131100
Power Supply	115 V	230 V
Display	2.4 inch colour display	
Temperature Range	Ambient temp. up to 650°C	
Dru Block		
Accuracy	Approx. ±1.5°C	
Resolution (temperature display)	0.1°C	
Temperature Unit	°C / °F	
Reference Temperature Sensor	Internal, fixed installation	
Block Bore Hole	Φ13.5 mm	
General Data		
Dimensions W × H × D	127 × 274 + 50 × 272 mm	
Weight	5.1 kg	

Name of Mfr.: SIKA

Adapter Sleeves for Temperature Calibrator

Designed for use with SIKA dry block calibrators. The sleeves are configured with various diameter bores to accomodate industry standard temperature sensors. Outside diameter of adapter sleeve is 28 mm.



Unit Per Pc.

CODE	No. of Bore	Bore Size
65 25 49	1	1 x 3.5 mm
65 25 50	1	1 x 6.5 mm
65 25 15	2	1 x 3.5 mm, 1 x 6.5 mm
65 25 18	3	1 x 3.5 mm, 1 x 6.5 mm, 1 x 13.5 mm
65 25 19	4	1 x 3.5 mm, 1 x 5.0 mm, 1 x 6.5 mm, 1 x 9.5 mm
65 25 28	7 (2 sizes)	1 x 3.5 mm , 6 x 6.5 mm
65 25 29	7 (4 sizes)	1 x 3.5 mm, 2 x 5.0 mm, 2 x 6.5 mm, 2 x 9.5 mm
65 25 30	Blank	-

Name of Mfr. : SIKA

Portable Infrared Temperature Calibrators

Calibradores de temperatura por infrarrojos portátiles
持ち運び式赤外線温度測定器　便携式红外线测温仪



Used for calibrating long distance infrared thermometer, which are designed with light weight as handhold and small calibrators.

It easily certifies IR pyrometers to 600°C with large 2.25" (57 mm) blackbody target. Resistance thermometer detectors reference well for high precision whether you're using in-line or handheld infrared pyrometers. For even higher precision, a contact calibration well is located directly behind the blackbody surface. Using an optional digital RTD (Resistance Temperature Detector) thermometer and calibrated secondary probe, accuracies of ±0.1°C can be achieved.

Unit Per Set

CODE	65 25 38
Model	DR600P
Temperature Range	50°C to 600°C/122°F to 1,112°F
Resolution	0.1°C/°F
Accuracy	±0.5°C@100°C/±1.0°F@212°F ±1.8°C@600°C/±3.6°F@1,112°F
Stability	±0.1°C@100°C/±0.2°F@212°F ±0.3°C@600°C/±0.6°F@1,112°F
Heating Time	Max. 40 min.
Cooling Time	Max. 45 min. to 100°C
Well Dia.	2.25"/57 mm
Power Supply	230V AC (±10%), 1.5 A; or 110V AC, 3A
Weight	2.7 kg

Name of Mfr.: Clip-on

High Temperature Calibrators

Model WY1200

Calibradores de alta temperatura　高温度測定器　高温检测仪

Ideal for steel, glass, metallurgical industries, cement plants, refineries, fertilizer plants, thermal power stations, marine & offshore etc. It is stable with high temperature source up to 1,200°C for calibration of multiple sensors at high temperature.



Calibration software "485" shall be supplied by optional request.

Unit Per Set

CODE	**65 25 39**
Model	WY1200
Temperature Range	300°C to 1,200°C
Resolution	1.0°C
Accuracy	800°C : 2°C
Stability	±0.2°C/15 min.
Block Temperature Control	Digital PID controller, Auto-tune
Well Depth x Diameter	150 mm x 29 mm
Power Supply	90 to 240 VAC, 50/60 Hz
Power Consumption	1,200 W
Dimension	180 x 300 x 370 mm
Weight	9.5 kg

Name of Mfr.: Clip-on

Temperature Sensors

Sensores de temperatura　温度センサー　温度传感器

For measuring the temperature in many applications like measuring the temperature of exhaust gas, cooling water, lubricating oil on diesel and gas engines. Please refer some temperature sensors as listed for major applications for your guidance.

Temperature Sensors for Exhaust Gas Temperature Measurement

Type W20

Technical features

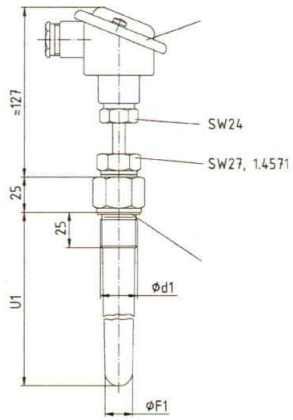
- Very high vibration resistance > Reliable and long-lasting operation
- Customer-specific variant possible > Simple integration into plants / systems
- Available as single and double resistance thermometer or thermocouple
- Optionally integrable transmitter > Simple integration into process control systems

Specification

Accuracy Class	: Resistance thermometer class B Thermocouple class 1
Measuring insert is interchangeable	14/17 mm conical up to 150 mm
Diameter	: 17/23 mm conical up to 150 mm
(acc. immersion tube length)	: 20/23 mm conical from 200 mm
Degree of Protection	: IP 54
Max. Temperature	: Depending on immersion tube material
Process Connection	: Fix connecting thread
Electric Connection	: Head type B
Approvals	: DNV type approval

How to order: 65 - 25 - 22

Temperature sensor for exhaust gas temperature measurement, with SIKA order code (as indicated in the table below)



Type		SIKA Order Code				
Resistance thermometer	W					
Thermocouple	T					
Diameter 14/17 mm conical (U1=up to 150 mm)	14					
17/23 mm conical (U1= up to 150 mm)	17					
20/23 mm conical (U1=200 mm up to 300 mm)	20					
Material Stainless steel 1.4571. (max. 450°C)		3				
Steel 1.7335 (max. 600°C)		5				
Sensor Element						
1 x Pt 100 3-wire / class B			P31			
1 x Pt1000 2-wire / class B			P12			
1 x NiCr-Ni (Type K)			1TK			
2 x NiCr-Ni (Type K)			2TK			
Immersion Tube Length 100 mm				100		
120 mm				120		
150 mm				150		
200 mm				200		
250 mm				250		
300 mm				300		
Measuring Insert	Interchangeable				2	
Electric Connection	Head form B with ceramic socket					BO
	Head form B with transmitter					BT
Process Connection	G1/2 A (ø14/17 mm)					2T6
	G3/4					3T6
	M27 × 2					HT6
	M33 × 2					FT6

Name of Mfr.: SIKA

Cable Sensors for Exhaust Gas Temperature Measurement

Type TWE

Technical features

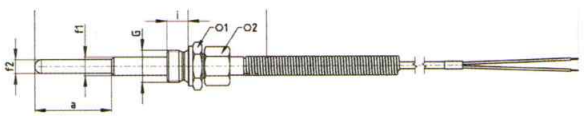
- For exhaust gas temperature measurement on diesel and gas engines, turbines and compressors > Up to 800 °C media temperature
- Available as resistance thermometer or thermocouple
- Very high vibration and shock resistance > Reliable and long-lasting operation
- Extremely resistant connecting cable > Enables use in harsh environments

Specification

Accuracy Class	: Resistance thermometer class B Thermocouple class 1
Measuring insert is	Not interchangeble
Diameter	: 8 or 12 mm
Degree of Protection	: IP 54
Max. Temperature	: 800°C (TWECK) : 600°C (TVACP/TVACK)
Process Connection	: Without or with clamp coupling
Electrical Connection	: FEP cable, wire braided : Fibreglass, wire braided
Approvals	: DNV type approval (only TWE)

How to order: 65 - 25 - 27

Cable sensor for exhaust gas temperature measurement, with SIKA order code (as indicated in the table below)



Type	SIKA Order Code					
Diameter 8 mm	TVA					
12 mm	TWE					
Material						
Stainless steel 1.4571	C					
Sensor Element						
1 x NiCr-Ni (type K)		K11				
2\ x Pt100 3-wire/class B		P31				
Length 100 mm			0100			
150 mm			0150			
200 mm			0200			
250 mm			0250			
Electrical Connection						
FEP cable, wire-braided				07		
Fibreglass, wire-braided				08		
Process Connection						
Without					0	
Clamp coupling steel, galvanized G1/4					1	
Clamp coupling steel, galvanized G1/2					K	
Clamp coupling steel, galvanized M27 x 2					H	
Cable Length LK						
1.0 mtr						01
1.5 mtr						02
2.0 mtr						03
2.5 mtr						04
3.0 mtr						05

Name of Mfr.: SIKA

Temperature Sensors for Cooling Water and Oil Temperature Measurement

Type W12

Technical features

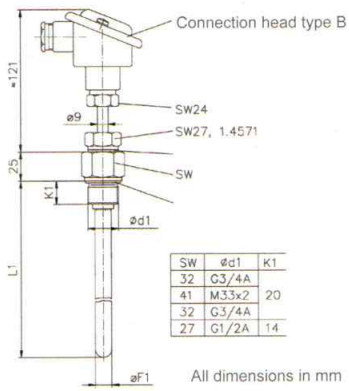
- Application in industrial and marine applications
- Very high vibration resistance > Reliable and long-lasting operation
- Customer-specific variant possible > Simple integration into plants / systems
- Available as single and double resistance thermometers
- Optionally integrable transmitter > Simple integration into process control systems

Specification

Sensor element	: Resistance thermometer class B
Measuring insert	Interchangeble
Diameter	: 12 or 14 mm
Degree of Protection	: IP 54
Max. Temperature	: 200°C resistance thermometer
Process Connection	: Fix connecting thread
Electrical Connection	: Head from type B

How to order: 65 - 25 - 23

Temperature sensor for cooling water, lubricating oil hydraulic oil temperature measurement, with SIKA order code (as indicated in the table below)



SW	Ød1	K1
32	G3/4A	
41	M33x2	20
32	G3/4A	
27	G1/2A	14

All dimensions in mm

Type	SIKA Order Code					
Resistance Thermometer	W					
Diameter 12 mm		12				
14 mm		14				
Material						
Stainless steel 1.4571		3				
Sensor Element						
1 x Pt100 3-wire / class B			P31			
2 x Pt100 3-wire / class B			P32			
1 x Pt100 4-wire / class B			P41			
Immersion Tube Length 80 mm				080		
100 mm				100		
120 mm				120		
150 mm				150		
200 mm				200		
250 mm				250		
Measuring Insert Interchangeable					2	
Electric Connection						
Head form B with ceramic socket (W12)						BO
Head form B with transmitter (W12)						BT
Process Connection d1 G1/2 A						2T2
G3/4 A						3T2
M27 x 2						HT2
M33 x 2						FT2

Name of Mfr.: SIKA

Temperature Sensors for Cooling Water and Oil Temperature Measurement

Type WMJ

Technical features

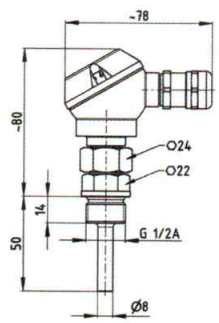
- Simple alignment of the connection head > Simple installation on site
- Very high vibration resistance > Reliable and long-lasting operation
- Customer-specific variant possible > Simple integration into plants / systems
- Available as single and double resistance thermometers
- Optionally integrable transmitter > Simple integration into process control systems

Specification

Sensor element	: Resistance thermometer class A and B
Measuring insert	Interchangeble
Diameter	: 8 or 12 mm
Degree of Protection	: IP 54
Max. Temperature	: 200°C resistance thermometer
Process Connection	: Fix connecting thread
Electrical Connection	: Head form type J
Approvals	: DNV, ABS, LR, BV and RINA type approval

How to order: 65 - 25 - 40

Temperature sensor for cooling water, lubricating oil hydraulic oil temperature measurement, with SIKA order code (as indicated in the table below)



l1	G	f1
50 mm	G1/2	8 mm
80 mm	G3/4	12 mm
100 mm	G1/4	
150 mm		
200 mm		

Type	SIKA Order Code				
Resistance Thermometer	W				
Diameter 8 mm	08				
14 mm	12				
Material					
Stainless steel 1.4571	3				
Sensor Element					
1 x Pt100 3-wire / class B		P31			
2 x Pt100 2-wire / class B		P22			
1 x Pt1000 2-wire / class B		P12			
2 x Pt1000 2-wire / class B		P24			
Resistance thermometer/class A		AXX			
Immersion Tube Length 50 mm			050		
80 mm			080		
100 mm			100		
120 mm			120		
150 mm			150		
200 mm			200		
Measuring Insert Interchangeable				2	
Electric Connection					
Head form J with ceramic socket					J0
Head form J with transmitter (without approvals)					JT
Process Connection G					
G1/2 A					2
G3/4 A					3
G1/4 A					L

Name of Mfr.: SIKA

Temperature Sensors for Cooling Water and Oil Temperature Measurement

Type W3M

Technical features

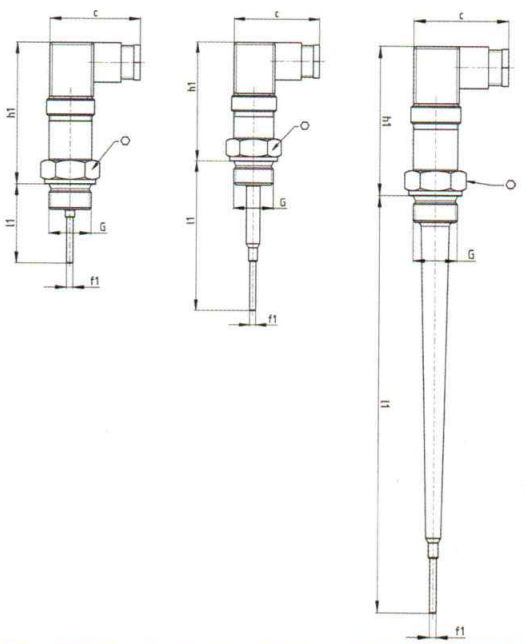
- With integrated transmitter
- Efficient control due to very short response times (Version with 4 mm Immersion tube diameter / T90=<5 s)
- Safe and compact electrical connection due to DIN angle plug
- High protection class against moisture, dust and dirt ingress
- Very high vibration resistance > Reliable and long-lasting operation
- Customer-specific variant possible > Simple integration into plants / systems

Specification

Analog output	: 4...20 mA
Supply voltage	: 10...35 VDC
Sensor element	: 1 × PT100 class B
Measuring insert	Interchangeble
Diameter	: 4 mm
Degree of Protection	: IP 65
Max. Temperature	: 200°C resistance thermometer
Process Connection	: Fix connecting thread
Electrical Connection	: Angled plug, DIN EN 175 301-803, Form A
Approvals	: EU RO Mutual Recognition Type Approval Certificate

How to order: 65 - 25 - 46

Temperature sensor for cooling water, lubricating oil hydraulic oil temperature measurement, with SIKA order code (as indicated in the table below)



Type	SIKA Order Code		
Resistance Thermometer	W		
Diameter 4 mm (stopped from 9 mm)	04		
Material Stainless steel 1.4571	3		
Sensor Element			
1 x Pt100 / class B		P21	
Nominal length l1 / Process connection G / Measuring range analog output			
50 mm / G3/4 A / 0...100 °C			050-6396
100 mm / G3/4 A / 0...100 °C			100-7352
100 mm / G3/4 A / 0...150 °C			100-8741
100 mm / G1/4 A / 0...200 °C			100-2786
100 mm / G1/2 A / 0...200 °C			100-0176
100 mm / G3/4 A / 0...200 °C			100-0211
140 mm / G1/4 A / 0...200 °C			140-2798
140 mm / G1/2 A / 0...200 °C			140-0188
140 mm / G3/4 A / 0...200 °C			140-0223
150 mm / G3/4 A / 0...100 °C			150-7364
150 mm / G3/4 A / 0...150 °C			150-8728
200 mm / G3/4 A / 0...100 °C			200-7388
200 mm / G3/4 A / 0...150 °C			200-8704
250 mm / G3/4 A / 0...100 °C			250-7411
Approvals EU RO Type Approval Certificate			M

Name of Mfr.: SIKA

Manual Temperature Monitors of Bulk Cargo

Cargo Temp Roller

Medidores manuales de temperatura para carga a granel
ばら積み貨物用温度計測器　　散装货物用温度监测器



A manual mobile temperature monitoring device of bulk cargo. Easy to handle, cable with depth indication, large integrated LC display and comes in a sturdy plastic suitcase.

As a basic principle, all goods falling under the IMDG Code, chapter 2.4 class 4.2, should be temperature monitored, in order to detect the incipient self-heating process in time. Many products are self-heating and/or self-igniting as bulk cargo. This autonomous process may lead to the cargo destroying itself, if measures to counteract are not taken in time.

Unit Per Set

CODE	65 25 20
SIKA Code	ETCTP000350004
Measurement Input	Pt1000 / 2-wire
Cable Length	35 mtr
Cable Design	Temperature proofed, braided FEP cable, with 6 marks every 5 meters for depth indication, Tension = 50 N
Measuring Probe	Length = 100 mm, ø = 20 mm, weight = 200 grm
Measuring Input	Pt1000 / 2-wire
Measuring Range	-40.0 to 150.0°C
Resolution	0.1°C
Accuracy	±0.5% FS ±1 digit
Display	3 1/2 digit LCD, 18 mm high
Measuring Rate	3 sec.
Power Supply	Maintenance-free battery
Battery Life Time	Approx. 10 years
Degree of Protection	IP40
Housing Size	234 mm / 285 mm × 85.5 mm (D/H × D)
Weight	2 kg incl. case
Accessories	Portable ABS-plastic case with foam inlay case Dimensions 450 × 360 × 123 mm

Name of Mfr.: SIKA

FP Temperature Sensors

1800 series

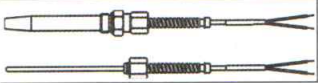
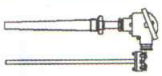
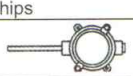
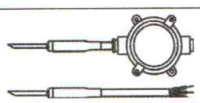
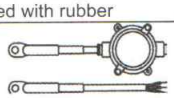
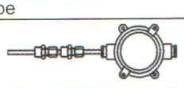
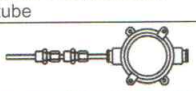
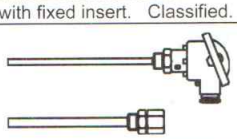
Sensores de temperatura FP, Serie 1800
FP 型温度センサー 1800 シリーズ　FP 温度传感器 1800 系列

Marine sensors type approved for marine applications such as measuring exhaust gases and cooling water in diesel engines as well as product and room temperatures in refrigeration stores. The temperature sensors are specially designed with high resistance against vibration according to IEC 68-2-6. Approved by Lloyds Register of Shipping and Det Norske Veritas.

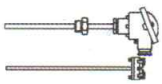
The 1800 – 1812 series of temperature sensors is typically used within the following fields of applications:

- Marine sector
- Diesel engines for generators
- Generators
- Big ship engines
- Containers
- Refrigeration industry

Unit Per Set

65 25 51	
1801 – Type UST 1 Thermocouple assembly for exhaust gases 	Measurement of exhaust temperature in ships and stationary diesel engines. The operating range is up to 800°C in gaseous media.
65 25 52	
1802 – UST 2 Thermocouple assembly for exhaust gasses with interchangeable insert 	Measurement of exhaust temperature in ships and stationary diesel engines. The operating range is up to 800°C in gaseous media with high flow velocity.
65 25 53	
1803 – Type UST 3 Thermocouple assembly UST 3 for exhaust gasses with interchangeable insert 	Measurement of exhaust temperature in ships and stationary diesel engines. The operating range is up to 800°C in gaseous media with high flow velocity.
65 25 54	
1804 – Type RM 2 Resistance Thermometer, room sensor for ships 	Measurement of temperature in rooms e.g. refrigeration, freeze and cargo stores, specially onboard ships. The operating range is from -40 to 80°C.
65 25 55	
1805 – Type IM Resistance thermometer, insertion sensor 	Measurement of temperature in e.g. meat and fruit during transportation specially onboard ships. The operating range is from -40 to 70°C.
65 25 56	
1806 – Type GM Resistance Thermometer GM, vulcanized with rubber 	Measurement of temperature in cold and wet areas e.g. in cargo rooms, in refrigeration and fishing ships, reservoirs and containers. The operating range is from -40 to 70°C.
65 25 57	
1807 – Type ST Thermocouple assembly, stern tube 	For measurement and surveillance of bearing temperature in stern tubes on ships in order to avoid damages and breakdown of costly equipment. The operating range is up to 800°C.
65 25 58	
1808 – Type SM Resistance Thermometer, stern tube 	For measurement and surveillance of bearing temperature in stern tubes on ships in order to avoid damages and breakdown of costly equipment. The operating range is up to 400°C.
65 25 59	
1809 – Type BFM Resistance Thermometer, screw-in type with fixed insert. Classified. 	Measurement of temperature in gasses, vapours and fluids in pipes and cooling systems. Threaded connection to the process directly or with separate screw-in pocket. The operating range is up to 250°C, max. 50 bar and flow velocity is up to 25 m/sec (air).

(to be continued)

65 25 60	
1810 – Type BM Resistance Thermometer, screw-in type with interchangeable insert 	Measurement of temperature in pipes and containers with gaseous and liquids media, such as air, vapour, gasses, water and oil. The operating range is up to 600°C, max. 50 bar and flow velocity is up to 25 m/sec (air).
65 25 61	
1812 – HLM Resistance Thermometer HLM for bearing and surface temperature measurement 	For measurement and surveillance of bearing temperature on ship engines and machine constructions. Can be used on surfaces up to 180°C.

Name of mfr. : AMETEK Sensors, Test & Calibration

Engine Indicators

Indicadores de Motor
エンジンインディケーター
机械示功器



The engine indicators are the pressure measuring instruments for reciprocating engines. They record the pressure change in the cylinders of internal combustion engines, reciprocating steam engines and gas or air compressors. The results are used for checking uniform and efficient performance of each cylinder, thus to assess the engine characteristics and to calculate the generated horse-power.

Application

Max. r.p.m.	Up to 350 r.p.m.	Up to 600 r.p.m.	Up to 1,000 r.p.m.
Suitable for	Low speed internal combustion engines, reciprocating steam engines, and air and gas compressors.	Medium speed internal combustion engines, reciprocating steam engines, and air and gas compressors.	Diesel engines, gasoline engines, and other high-speed internal combustion engines.
Nagano Keiki	MM20	MM30	MW30
Baewert GmbH (Max. Pressure Frequency) Permissible Pressure	50/2 (Outside spring-joint indicator) (300 r.p.m.) 600 bar	30/2 (Outside spring-joint indicator) (500 r.p.m.) 600 bar	25-M (Bar spring indicator) (1,000 r.p.m.) 220 bar
Weight Approx.	1.4 kg	1.1 kg	-

How to order: CODE

Engine indicator, MAXIMUM INTERMEDIATE SPEED r.p.m., MAXIMUM PRESSURE kgf/cm² .

Unit Per Pc.

CODE	Max. Pressure kgf/cm²	Spindle Scale Marking mm/ kgf/cm²	Piston		Indicator Diagram		Drum Diam. mm
			Size	Diam. mm	Max. Height mm	Max. Length mm	
Max. Intermediate Speed : 350 r.p.m.							
65 26 01	40	1.2	1/5	9.06	50	90	40
02	50	1.0					
03	60	0.8					
04	70	0.7					
05	80	0.6					
65 26 06	100	0.5	1/10	6.41	50	90	40
07	120	0.4					
08	140	0.35					
09	160	0.3					
Max. Intermediate Speed : 600 r.p.m.							
65 26 11	40	0.8	1/5	9.06	35	60	30
12	50	0.7					
13	60	0.5					
14	70	0.4					
65 26 15	85	0.35	1/10	6.41			
16	100	0.3					
17	130	0.25					
18	150	0.2					

The above listed items are the most common types, but high speed, high pressure types are also available.

(to be continued)

Planimeters

for Engine Indicator

Pllanimetros para Indicadores de Motor
エンジン・インディケーター用プラニメーター
用于发动机指示器的平面仪



Used to determine the average effective pressure from the indicator diagram of the engine indicator easily and accurately. Also capable of, similarly to ordinary planimeters, measuring the area of intricate plane figures.

Clip the figure to be measured on the plate to move the stylus along the closed figure. The difference between readings on the graduated ring before and after the stylus trip will provide the movement area of the figure in cm².

* Range of the stylus ..... within 65 x 130 mm
* One graduation on the ring ..... 1 cm²
* Accurate reading ..... up to 0.1 cm²

65 26 21	Planimeter for engine indicator	Set

Engine Peak Indicators

Indicador Presion (Pico)
エンジンピークインディケーター
爆炸压力表



Peak Pressure Indicator MSI-3

Simple,quick and cheap way of maintaining of engines and measurement of the maximum peak pressure. It is often used for the first step to identify potential issues of engines when the combustion engine loses power.

Unit Per Pc.

CODE	**65 26 32**
Model	MSI-3
Measurement Range	0 – 160 bar, 0 – 250 bar, 0 – 300 bar,
Engine Range	Up to 2,500 rpm
Permissible Temperature	Ambient – 20 to 60°C
Error Margin	±1.6%
Dimensions	210 mm × 155 mm × 60 mm
Weight	3.0 kg with wooden box
Standard Connection	W 27 × 1/10"
Standard Accessories	1 wooden box, 1 hollow spanner – connecting nut, 1 test protocol, 1 operating instructions

Engine Indicator Type 50



Especially designed to analyze the performance of slow-running marine diesel engines, locomotive engines, and engines used in stationary power plants. It features a union nut, a pressure housing, an internal piston assembly, a stylus arm and a recording drum. The engine indicator is connected to the engine´s indicator valve using the union nut.

Unit Per Pc.

CODE	65 26 38
Model	Type 50
Measurement Range	0 – 140 bar, 0 -160 bar, 0 – 200 bar, 0 – 250 bar, 0 – 300 bar,
Engine Range	Up to n = 300 rpm or max. dp/dt = 9 × 10cub. bar/sec.
Max. Diagram	50 mm/80 mm (height / length)
Drum Diameter	50 mm
Paper Size	180 mm × 65 mm
Dimensions	165 mm × 130 mm × 90 mm
Weight	1.5 kg (without wooden box) 4.4 kg (with wooden box)
Standard Connection	W 27 x 1/10"
Standard Accessories	1 Wooden box, 1 spring, 1 measuring scale, 1 block indicator paper each 40 sheets, 1 cord tightening hook, 1 oil can for piston and links, 1 screwdriver, 1 hollow spanner, 1-cylinder cleaner, 1 stand for instrument 1 tube incl. 5 recording pencils, 1 operating instructions

Electronic Indicator Systems

PMI mk2

Sistemas electrónicos de indicadores de motores
電子式エンジンインディケーターシステム
电子式发动机指示器系



A microprocessor controlled portable instrument for quick and simple recording of combustion pressure cycles in combustion engines. The evaluation of the data is carried out with a PC-software which is in the scope of supply. The data recorded by this indicator are transmitted via serial interface to a PC.

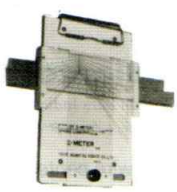
- No need to install TDC sensor on the engine for power calculation.
- ISO Correction in the PC software included.
- Easy handling and Plug 'n' play installation of the soft- and hardware results in less user related problems.
- Excellent price-performance ration.
- Usage of a high-quality sensor.
- Static pressure checks on site.
- Menu controlled operation.
- Sufficient memory and battery to analyze up to 50 engines cylinders each.
- Storage of motor and measurement parameters.
- Easy, on-site hand-held software update (via download or e-mail).
- No copy limitation of the software.

Unit Per Pc.

CODE	65 26 41
Model	PMImk2
Pressure Range	0 to 2,300 bar
Engine Range	50 to 5.000 rpm
Accuracy	<0.5 %
A/D sampling precision	16 bit (0.0092 bar/sample)
Memory Capacity	50 engines
Battery Type	Standard AA, Rechargeable
Battery Capacity	>6 hours (charging via USB)
Display	20 × 4 alphanumeric characters, backlight, high contrast
Standard Connection	W 27 × 1/10"
Operating Temperature	0 to 55°C (Hand-held unit) 0 to 350°C (Pressure sensor)
Dimensions	211 × 100 × 45 mm (Hand-held unit) Dia = 60 mm, L = 210 mm (Pressure sensor)
Weight	380 g (hand-held unit), 830 g (Pressure sensor)
Name of Mfr.	TX Marine Messsysteme GmbH

∑ (Sigma) – Meters

Σ Medidor Sigma para Motores
シグマメーター　　平均有效压力速算器



Is a scale with which you can calculate the effective average pressure of the ships main diesel engine with the indicator card easily and accurately. The addition of P1 + P2 .... P10 on the indicator card can be read more quickly and precisely by simply sliding the transparent 3 slides on the indicator card. The size of the scale plate is 130 x 200 mm. This unit is made of plastic and is light, compact, and easy to handle.

65 26 51	Sigma meter, 130 × 200 mm	Pc.

Portable Steel Dust Checkers

Comprobador de concentración de polvo de hierro lubricante
潤滑油鉄粉濃度チェッカー　　润滑油铁粉浓度检测仪



A unit which diagnoses the bearing condition, even long before wear-induced vibration becomes detectable, by measuring the amount of steel dust in the grease/oil around the bearing. Take a grease sample, insert into the "SAMPLE" port and then the unit measures and displays the steel dust density automatically. Suitable to diagnose low-speed rotation machinery and variable-speed rotating machinery, able to diagnose with only a small amount of grease/oil sample.

Unit Per Pc.

CODE	65 26 52
Model	SDM-73
Measurable principle	Magnetic balance type electromagnetic induction method
Applicable to	Steel dust concentration in lubricating oil
Measuring range	0 – 19,999 Wt ppm (Minimum solution 1 Wt ppm)
Power source	4 × AA alkaline dry-cell batteries
Battery life	Approx. 30 hours
Dimensions	84 (W) × 190 (H) × 40(D) mm
Weight	Approx. 500 grm (including batteries)

Name of Mfr.: New Cosmos Electric Co., Ltd.

Indicator Paper

Papal Indeicador　インディケーターペーパー　试纸

Recording paper for use with an engine pressure indicator.

Can be furnished in white or red for the sizes listed below. Provided in pads of 50 sheets.



Unit Per Pad

CODE	Type	Size
65 26 54	M-2L Metalic White	65 x 180 mm
65 26 55	M-2 Metalic White	65 x 145 mm
56	M-2 Red	66 x 146 mm
65 26 57	M-3 Red	55 x 113 mm
58	M-3 Metalic White	45 x 115 mm
65 26 59	W-3 Metalic White	45 x 145 mm

Indicator Cords

Cordón Para Indicador-Presión Motor
インディケーターコード　示功器绳

With wire center cord for use with an engine pressure indicator.

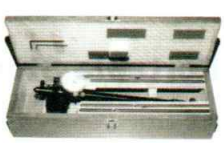


65 26 60	Indicator cord	Mtr

Crankshaft Distortion Dial Gauges

Verificador Cigüeñal
クランクシャフトデフレクショゲージ　开度表

An inside gauge for checking the distortion of webs on crankshafts. With these gauges it is possible to check bearing alignments or deflections of the shaft without having to dismantle the engine.



Usable on diesel engine shafts as well as center crankshafts of engines or compressors. Can also be applied as a strain gauge on engine frames while the engine is in operation. Indicator is graduated in increments of 0.01 mm with a reading of 0 - 50 - 0 one turn equals 1 mm. 6 rods and one extension are included providing a range of sizes from 100 to 500 mm.

65 26 70	Crankshaft distortion dial gauge, in 0.01 mm graduation, 100 to 500 mm	Set

Pen Type Vibration Testers

Analizador de vibraciones de tipo lápiz
ペン型振動計　笔式振动测试仪



For fast failure detecting of motor, electric fan, pump, air compressor, machine tools and so on, and for prompt testing of vibration on the workshop machines as well as for quick checking of unbalance and misalignment of bearings and gears. Holding tested value for 40 seconds, and automatic switch off after 40 seconds.

Unit Per Pc.

CODE	65 26 71
Model	TA415EB
Velocity Range	0.01 mm/s – 199.9 mm/s (RMS)
Frequency	10Hz ~ 1,000Hz
Accuracy	±5% ±2 digits
Display	3 ^ 1/2 digital LCD
Power Source	LR44 × 2 pcs
Size	150 × 22 × 18 mm
Weight	55 grm

Name of Mfr. : ICHINEN TASCO Co., Ltd.

Inspection Mirrors

Espejos para Inspección Telescópico
点検鏡　检查镜

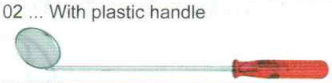
Designed for inspection of the rear as well as inaccessible areas of precision machinery.

The angle of the mirror head on these units is adjustable.

65 27 01 ... For use in tight and narrow place



65 27 02 ... With plastic handle



65 27 03 ... 2 Extension Shaft



65 27 04... Flexible Tube Shaft



Concave magnifying mirrors (38 mmø, 50 mmø) are available for 65 27 02 – 04 and also plain square mirrors (50 x 100 mm) for 65 27 02 and 03 available upon request.

Unit Per Pc.

CODE	Mirror Size	Type	Overall Length	Weight grm
65 27 01	22 mmø	For use in tight & narrow space	255 mm	45
65 27 02	50 mmø	w/plastic handle	390 mm	93
03		w/extension shaft	220 - 340	180
04		w/flexible shaft	345	155

Inspection Flashlights

with Mirror

Espejo para Inspección Telescópico
点検灯　闪光检查镜

Inspection mirror complete with a small lamp, suitable for use in narrow interiors and places that are not exposed to light.

65 27 07



65 27 08



Unit Per Set

CODE	65 27 07	65 27 08
Type	Small Portable	Portable
Overall Length	380 mm	770 mm
Mirror	Plain 22 mmø	Concave 50 mmø Plain 25 × 50 mm
Battery	R6 (UM3) × 2	R14P (UM2) × 3
Lamp	2.5V	3.6V
Weight	148 grm	490 grn
Standard Accessories	Battery Case (Handle) 1 Extension Pipe with Flexible Section 1 Mirror 1 Lamp 3	Battery Case (Handle) 1 Connection Pipe 165 mm 2 Flexible pipe 180 mm 1 Mirror 2 Lamp 2 Carrying Case 1

20 Times Microscope Probe Tubes

Oculares de Microscopio 20 Aumentos
照明式検査鏡　　20 次显微镜取样管



A microscopic probe that magnifies images up to 20 times their original size. Fitted with a light making it suitable for the internal inspection of diesel engine fuel nozzles. The inspection tube is 4.8 mm in diameter, furnished with two spare lamps, 2 pieces of dry batteries R20P (UM-1) and a 45° reflector for side inspection.

Supplied with a carrying case. A 70 mm long table is also available upon request.

Unit Per Set

CODE	Tube Length mm	Tube Diam. mm	Magnification	Battery
65 27 11	80 mm	4.8 mm	20	R20P (UM-1)x2 pcs
12	140 mm	"	"	"

Magnetic Coating Thickness Gauges

Medidores de Espesores (Magnético)
磁力式膜厚計　　磁力式膜厚计



Non-destructive thickness measurement of non-magnetic coatings, e.g.: zinc, copper, chrome, cadmium, etc. Also paint enamel, plastic, etc. on iron and steel. The measurement of film thickness depends on the degree of magnetic attraction to a surface. The attraction depends on the distance of a permanent magnet from a steel surface. This distance represents the thickness of a non-magnetic coating. No power supply or calibration necessary.

Ambient temperature: -20°C...100°C, · Dimensions: Gauge 215 mm x 55 mm x 29 mm, · Plastic carrying case 235 mm x 185 mm x 46 mm, · Weight: Case incl. gauge approx. 560 g.

Type	Application
Standard version	
5/6 G	Electroplating and paint coatings on steel**
5/6 F	Paint on steel**
Automatic version	
6 S3	Enamel, plastic, rubber on steel**
6 S5	
6 S10	
6 S20	
6 Ni50	Electroplated nickel on non-ferrous substrates
6 Ni100	
6 Nife50	Electroplated nickel on steel**

** Steel: ST 33 to ST 60

Unit Per Pc.

CODE	Type	Range	Tolerance	Min. Surface	Min. Curvature Radius of the Sample	Min. Base Thickness
65 27 21	5/6 G	0 - 100 µm	±1 µm or 5% of reading	ø20 mm	5 mm convex / 25 mm concave	0.5 mm
65 27 22	5/6 F	0 - 1,000 µm	±5 µm or 5% of reading	ø30 mm	8 mm convex / 25 mm concave	0.5 mm
65 27 23	6 S3	0.2 - 3 mm	±5% of reading	ø30 mm	15 mm convex / 25 mm concave	1.0 mm
65 27 24	6 S5	0.5 - 5 mm	±5% of reading	ø50 mm	15 mm convex / 25 mm concave	1.0 mm
65 27 25	6 S10	2.5 - 10 mm	±5% of reading	ø50 mm	15 mm convex / 25 mm concave	2.0 mm
65 27 26	6 S20	7.5 - 20 mm	±5% of reading	ø100 mm	100 mm convex / 150 mm concave	7.0 mm
65 27 27	6 Ni50	0 - 50 µm	± (1µm + 5% of reading)	ø15 mm	5 mm convex / 25 mm concave	-
65 27 28	6 Ni100	0 - 100 µm	± (1µm + 5% of reading)	ø15 mm	5 mm convex / 25 mm concave	-
65 27 29	6 NiFe50	0 - 50 µm	± (2µm + 8% of reading)	ø20 mm	10 mm convex / 25 mm concave	0.5 mm

Name of Mfr. : Elektro-Physik

Ultrasonic Thickness Indicators

Medidores de Espesores Ultrasónicos
超音波厚み計　超声波测厚计



TI-56L/TI-66W/TI-56F



TI-120T

Applicable for measuring the wall thickness and state of corrosion of tanks, pipings, hull plates of ships, and structures. Extremely compact and light weight, simple to measure the

thickness by putting the probe. Quick display update with last reading retained on the display. Display symbols alert user to poor coupling and low battery conditions. Automatically shut down when not in use for 3 minutes

Model TI-120T can measure wall thickness under coating. Simply place a probe on a painted surface to measure wall thickness without removing its coating. This model serves for effective maintenance at ship facilities.(ex. SOx scrubber pipes, etc.)

*Data memory function in TI-120T

Effective and easy data management with data grouping function. (Max. 10,000 data recording capacity)

General Specifications

Measurable Materials	Steels, cast iron, stainless steel, other metals, glass, hard plastics, ceramics
Measuring Method	Ultrasonic pulse echo method
Display	Liquid crystal device with illumination light button
Power Supply	LR6 (SUM-3) alkaline battery × 1 LR6(SUM-3) alkaline battery × 2 (TI-120T)
Test Piece for Calibration	5 mm thick test piece installed on the main frame
Velocity Range	1,000 m/s to 12,000 m/s
Dimensions	W69 × D144 × H29.5 mm W70 × H155 × D33 mm (TI-120T)
Weight	150 grm (main frame), 50 grm (probe) 200 grm (main frame), 50 grm (probe, TI-120T)

Unit Per Pc.

CODE	65 27 35	65 27 37		65 27 38	65 27 39
Model	TI-56L	TI-66W		TI-56F	TI-120F
Measuring Range	1.5-250 mm	Probe B 0.4-15 mm	Probe L 3.0-250 mm	2-100 mm (for castings) 2-60 mm (for steel)	3.0-20.0 mm
Minimum pipe size (wall under coating)	OD 27.2 mm T:1.5 mm or more	OD 10.5 mm T:1.5 mm or more	OD 27.2 mm T: 3.0 mm or more	OD 34.0 mm T: 3.2 mm or more	OD 27.2 mm T: 3.0 mm or more
Minimum pipe size (wall without coating)	-	-		-	OD 27.2 mm T: 1.5 mm or more
Resolution Accuracy	±0.1 mm (1.5 - 19.9 mm)	±0.05 mm (0.4 - 99.99 mm)		±0.1 mm (2.0 - 9.9 mm)	±0.1 mm (0.4 - 19.9 mm)
	±0.5% rdg (20 - 250 mm)	±0.2% rdg (100-250 mm)		±1.0% rdg (10 - 100 mm)	±0.5% rdg (20 - 250 mm)
Operating Temperature	-5 to 50°C	-5 to 50°C		0 to 50°C	-5 to 50°C
Probe	5Z10NDT-L 5 MHz OD 13 mm	10Z10NDT-B 10 MHz OD 13 mm	5Z10NDT-L 5 MHz OD 13 mm	2Z15NDT-F3 2 MHz OD: 18 mm	7Z10NDT-T 7.55 MHz OD 13 mm

Name of Mfr. : JFE Advantech Co., Ltd.

Cable Break Position Locators

Localizadores de Posición de Ruptura de Cable Eléctrico
ケーブル断線位置探索器　　电缆断位探测器

Works by sending a fixed signal between two conductors and measuring the capacity of the returning signals and indicating them on the recombination meter. Suitable for pinpointing broken wires on all types of 2-wire cables and coaxial cables, measuring the length of cable, and checking poor circuits.



Specifications

Measuring Range	1 m - 1,000 m × 1 m × 10 m × 100 m } 3-range change over system
Power Source	R6P (UM-3) × 4 pcs, 6V
Current Consumption	Approx. 15 mA
Dimensions	163 × 100 47 mm
Weight	Approx. 300 g

65 27 50	Cable break position locator	Set

Explosion-Proof Smartphones & Tablets

Smartphones/tablets a prueba de explosiones
防爆型スマートフォン / タブレット
防爆智能手机 / 平板电脑





Designed to be intrinsically safe in hazardous areas, built with specialized components and materials ensure not to create sparks or generate excessive heat possibly to be cause of explosion. Certified by ATEX and IECEx, rugged designed with high-resolution display, and extended temperature range to be suitable for even the harshest environment.

As for smartphone, support 21 LTE frequency bands, no SIM lock and can be connected to worldwide networks.

As for tablet, even though it has an ultra compact form, robust and large screen size is excellent substitute for Desktop PC or laptop. Fast access with private 4G or LTE frequencies helps you to perform the task at hand. Also, it provides up to 256GB of SSD memory to meet your on-board data storage needs when working in remote areas without Wi-fi or 4G. There are many different manufacturers and models available, so please specify prefer model, manufactures, operation system, zone, when ordering.

Unit Per Set

CODE	65 27 51	65 27 52
Model	ecom Smart- Ex 02	ecom Pad-Ex 01 P8
Operating System	Android	Windows 10 pro
Connectivity	WiFi 2.4Ghz and 5Ghz: WiFi 802.11 a/b/g/n/ac/e/k/r/h, Bluetooth 4.2 GPS/A-GPS/Glonass/ Beidou/Galileo NFC	WiFi 2.4Ghz and 5Ghz: WiFi 802.11 a/b/g/n/ac, Bluetooth 5.0 4G LTE(Option), GPS/Glonass/Beidou/ Galileo(Option),
Band	Support 4G LTE, Dual SIM	Support 4G LTE(Option)
Size	163 × 82 × 22 (mm) w/ 5" multitouch display	192 × 298 × 20 (mm) w/11.6" multitouch display
Weight	Approx. 380 g	1,200 g
Power source	Replaceable Li-Ion 4,400 mAh Battery	Replaceable Li-Ion 3,950 mAh Battery, 7,800 mAh (Optional)
Port	Waterproof magnetic USB 2.0 connection	2 × USB 3.0 (type A)
Memory	3 GB RAM, 32GB ROM, Up to 128GB additional with micro SD	8GB RAM, 256GB ROM, Up to 2TB additional with microSDXC
Extended Temperature Range	-20°C to +60°C	-10°C to +55°C

Thermal Imagers

Sensor de imágenes térmicas
温度撮像器　　热成像撮像器



Ideal for maintenance engineers and can be used to quickly find faults and identify failing components to save money.

Electrical Safety :
- Identifies overloaded circuits, loose / corroded connections and failing breakers in electrical panels.
- Identifies blown fuses, overloads, phase imbalance, and harmonics problems.
- Identifies hot spots from high resistance connections.

Preventive Maintenance :
- Identifies equipment efficiencies/inefficiencies.
- Application includes motors, pumps, boilers, radiators, heaters, chillers and transformers.

Energy Efficiency
- Identifies inefficient heating and cooling transfer.
- Identifies draft sources from missing insulation in rafters / walls / floors.
- Identification of problem areas helps reduce heat gain / loss and carbon footprint.

Features :
- One Navigator Key Operation.
- 16,384 pixels thermal image after interpolation.
- True D/S 30:1 with precise laser indication.
- Bright flashlight with 5 white LEDs.
- Ergonomically designed pistol grip housing with excellent industrial design.
- Quick response time (<300 ms).

Technical Specification

Unit Per Set

CODE	65 27 55
Model :	TG-301
Temperature Range	Range: -30°C to 650°C (-22°F to 1,202°F)
Accuracy	±1.5°C or ±1.5% of reading ±2.0°C at -10°C to 0°C ±3.0°C at -30°C to -10°C
Optical Resolution	30 : 1 (calculated at 95% energy)
Display Resolution	0.1°C (0.2°F)
Repeatability of Readings	±0.5% of reading or ±0.5°C (1°F), whichever is greater
Operating Temp.& Humidity	Temp: -10°C to 50°C (14°F to 122°F), 10% to 90% RH
Thermal Imaging Detector	IR-EX™ Technology (Integrated IR Array Sensor with CMOS Section)
Imaging Resolution	16,384 pixels (128 x 128 pixels)
Field of View	33° x 33°
Vibration and Shock	IEC 68-2-6 2.5 g, 10 to 200 Hz, IEC 68-2-27, 50 g, 11 ms
EMC	EN 61326-1:2006, EN 61326-2:2006
Operating Altitude	2,000 meters above mean sea level
Battery Life	16 hours with laser and backlight on (3 x AA batteries)
Weight/ Dimension	300 g / 185 × 51 × 100 mm

Name of Mfr. : Atlas Marine Services Pte Ltd

Borescopes/ Inspection Cameras

Boroscopio/Cámara de inspección　ボアカメラ　内孔摄像机



Designed to assist visual inspection of narrow or hard-to-reach areas such as narrow tubes, engines, or other internal components of machinery. By inserting borescope in a cavity and object lens or camera transmits the captured image back to display on a screen.

It has snapshot and recording functions and images are saved on TF memory card.

IBS450 / IBS 450S

Equipped with an LED-assisted illumination and small-diameter HD camera uses high sensitivity chip to support working in the dark.

IBS500 Series

Compared to IBS450 series, it has bigger screen and better picture resolution, and waterproofed probe. Auto focus lens is available.

Various types and sizes of lens and cable length are available, so please specify when ordering. Please ask for further information with brochure from your local suppliers.

Unit Per Set

CODE	65 27 57	65 27 58	65 27 59
Model	IBS450S	IBS 450D	IBS 500 series
Screen Size	4.5inches IPS HD Display		5 inches Color IPS Display
Diameter of Camera	5.5 mm	8 mm	14.5 mm
Diameter of Lens	5.5 mm	8 mm	3.9-12.5 mm (depends on lens)
Length of Cable	5 mtr		1-15 mtr (depends on lens)
HD Viewing angle	70 degree		
Light Source	6 adjustable high-intensity LEDs		4pcs high brightness LEDs
Waterproof	-		IP67 Water & Rain Resistant
Operating Temperature	0°C to 45°C		
Power Source	2,500 mAh Lithium Battery		3,500 mAh Lithium Battery
Port	Type-C Charging port, TF memory card slot		Micro-USB Charging port, Micro SD Card slot

Pinhole and Holiday Detectors

Detector de Poros　ピンホール探知器　小孔探测器



An instrument for detecting and indicating the locations of pinholes and fractures in non-conductive coatings (paints, linings, films, porcelain, enamel, coal tar, asphalt, etc.) that are applied to a metal surface. Completely transistorized, low frequency electrical pulse generator assures efficient detections with no harm to the coatings. They also permit indirect grounding. Output voltages are variable as desired and readable on built-in meters. Units are housed in portable dust and moisture proof PVC sturdy cases.

General Specifications

Principle	Low frequency, high voltage, pulse discharge
Test Voltage	Variable peak voltage with a direct reading meter
Power Source	Built-in NiMH battery(AC100V rechargeable)
Probe	Joint type for 540 - 870 mm, PVC made with brush holder and cord 5 mtr
Accessories	Joint type probe, grounding cable 5 mtr, switching lead cord, power source cord and flat type brush electrode 30 x 300 mm 2 pcs

Unit Per Set

CODE	65 27 63	65 27 67
Model	TRS-250	TRS-70
Output Voltage	5 - 25 kV	1 - 7 kV
Power Source	AC 100V, 50/60Hz, 20VA	
Indication by	Neon lamp and buzzer	
Coating Thickness	Over 1 mm	Less than 1 mm
Dimensions	W370 × D150 × H190 mm	
Weight	5.1 kg	4.1 kg

Name of Mfr. : Sanko Electronic Laboratory Co., Ltd.

Portable Ultrasonic Liquid Level Indicators

Indicador de nivel de líquido ultrasónico portátil
超音波液化ガス残留量測定計　　超声波液化气液位仪

Designed to inspect the liquid level of Fire Suppression System Cylinders by Ultrasonic Waves to comply with IMO SOLAS FSS Code. The unique Extension Rod allows the operator to test effectively for multi-banked Cylinders, reaches 2nd, 3rd and 4th rows deep to make the measurement as quick as possible. The equipment is proven accurate to +/- 1.5mm and significantly safer and quicker solution when compared to weighing as a means of identifying cylinder content. RINA Classification Society Approved. UL-approved. NATO-approved.



Portalevel® Max Marine PLUS



Portamarine®

Portalevel® Max Marine Plus

Designed for testing CO2, FM-200TM, NOVEC 1230TM, FE-13, FE-25, NAF S III, CEA410, Halons and a range of other extinguishing agents. With three extended calibration features and a display that will indicate if the sensor is in the GAS or LIQUID phase of a fire suppression cylinder With a Mini-Marine Extension Rod enabling the sensor to take measurements of the ships 2nd, 3rd, and 4th banked cylinder rows.

Portamarine®

Designed specifically for testing multi-banked CO_2 Cylinder in ships Fire Suppression System. It can be also used on FM200™, NOVEC 1230™, and variety of other clean agent systems. Carrying strap enables hands free operation for quick inspection.

*Available in two variants Extension Rod.

Standard marine Extension Rod – 20 mm – ideal for the vast majority of applications and Standard spacing between cylinders.

Mini-Extension Rod – 12 mm – The compact, lightweight variant at only 14 mm wide, able to work on even the most tightly packaged cylinder system.

Unit Per Set

CODE	65 27 76	65 27 77
Model	Portalevel® Max Marine PLUS	Portamarine®
Sensor	TX/RX sensor 14 mm diameter head, contained within a magnetized sensor applicator, connected by BNC connectors to 1 mtr length co-ax cable	Ultrasonic, single crystal, piezoelectric, transceiver sensor, fitted with hand enclosure and magnetic head
Display	Membrane control operated, LCD back-lit Display measuring 55 x 28 mm	LCD Numeric Digital and LED display
Power Source	1 x PP3 9V Batteries, approx. 10 hr battery life.	4 x A4 1.5V Batteries, approx. 10 hr battery life.
Dimension	160 x 82 x 30 mm	158 x 98 x 45.5 mm
Weight	300 grm	420 grm

Name of Mfr: Coltraco Ultrasonics Limited UK.

Portable Ultrasonic Watertight Integrity Test Indicators

Indicador de prueba de integridad de estanqueidad ultrasónico portátil
超音波式完全防水性測定計
完全防水型超声波检测仪



Designed for inspecting almost any watertight, gas-tight or weather-tight seal for areas of weak seal compression or leak sites, by using ultrasonic technology. Primarily for testing the seal integrity of watertight compartment doors, hatch covers, and multiple cable transit areas, and also for hatches, storage tanks, bulkheads and other watertight compartments. Pin-point accuracy to 0.06 mm with a tolerance of +/-0.02 mm, quicker, cleaner and more efficient watertight integrity testing, ideal to replace high pressure hoses testing or chalk testing. It comes complete in a protective carrying case including receiver, standard generator, extension rod "Wand", headphones, and operating instructions. ABS Type Approved. RINA Society approved. NATO-approved.

Technical Specifications		
Product	Portascanner® Watertight™ Plus Receiver	Portascanner® Watertight™ Plus Generator
Output	1 watt(max), audible signal with visual 4 digit LCD display and bar graph	0.1 watt/100 dB, unidirectional
Exposure	Waterproof IP65	
Power	1 × PV PP3 Batteries with low battery indication, approx. 10 hr battery life.	2 × 9V Batteries, approx. 10 hr battery life.
Battery Life	10 hours continuous use minimum	
Dimension	215 × 85 × 35 mm	150 × 90 × 50 mm
Weight	420 grm	430 grm

65 27 78	Ultrasonic watertight integrity test indicator Portascanner® WATERTIGHT PLUS	Set

Fixed Ultrasonic Transit-time Flow Meters

Caudalímetro ultrasónico fijo de tiempo de tránsito
固定式超音波通過時間流量計　　固定式超声波瞬时流量计



To monitor the fuel consumption onboard vessels. The Permaflow® is a fixed, clamp-on, ultrasonic transit time flow and heat meter that is non-invasive for measuring the flow rates of liquids containing less than 10% of gas/solid contents. It is mains powered, designed for 24/7 monitoring and is accurate to +/- 0.5% of measured value under ideal conditions. It has a unique ability to incorporate PT100 thermometer inputs so fuel consumption can be monitored alongside volumetric flow rates. Shipping companies currently must put in place measures focused on reducing energy and fuel consumption. Shipowners have to take action to ensure compliance for their existing fleets with EEXI and CII requirements, effective on 1 January 2023, that are intended to meet the IMO´s initial goal to cut the carbon intensity of shipping by 40% within 2030 and halve emissions by 2050.

Unit Per Set

CODE	65 27 79
Model	Permaflow®
Pipe Dia Range	Standard Sensor (Model DM10) DN15 - DN700(1/2" – 28") Large Sensor (Model DS10) DN25 – DN2500(1" – 98")
Liquid Type	Most clean liquids with gas/solids less than 10% volume
Measurement Units	Flow velocity (m/s). Volumetric flow rate, mass flow rate, Energy flow rate/Heat quantity, Volume, Mass, Energy – also suitable for heat metering applications
Data Logging	16 MB datalogger included – all measurement values can be logged. Serial Communications RS232 and USB included for device control.
Operating Temperature	Main Unit: -10°C to 65°C Sensors: -20°C to 150°C
Power Source	12 V – 36 V DC configuration at 10 W
Dimension	215 × 185 × 100 mm
Weight	840 grm

Name of Mfr: Coltraco Ultrasonics Limited UK.

Portable Tank Condition Detecting Systems

Sistema Portátil Detector Condición de Tanque
ポータブルタンク状況検出器　　便携式油柜状况侦测系统

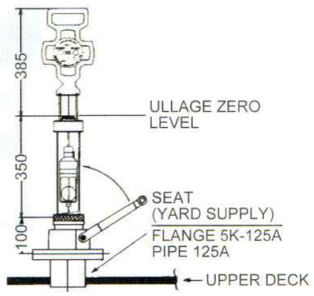
A measuring unit to note all important tank conditions for compliance with SOLAS and MARPOL regulations.

This device will measure tank conditions such as the cargo level, the oil – water interface level, the temperature, and a dry check to determine the level of water at the tank bottom. The gauge is explosion proof and portable weighing only 4.3 kg. It has a measuring range of 0 – 30/35 mtr for ullage and a 0 – 100°C temperature range. It is powered with a 2.4 V rechargeable battery and can be provided with optional gas and oil sampling units.

Equipped with a vapor seal valve necessary for compliance with USCG regulations for Marine Vapor Control. Allows you to take samples from tanks that are closed and pressurized.

Accessories included :
- Carrying bag
- Sink weight
- Dry check adaptor
- D.C. charger

Optional equipment :
- Digital thermometer
- Gas sampling unit
- Oil sampling unit



65 27 81	Portable tank condition detecting system	Set

Viscosity Meters

Viscosímetros　　粘度計　　粘度计



Suitable for one-point viscosity measurement of oil, fat, paint, medicine, etc. Due to handy and high durability compact mechanism, it requires only 10 seconds for measurement. The instrument can measure a wide range of viscosity by changing rotors. When ordering, please specify kinds of fluid to be measured, atmospheric temperature, flow characteristics (Newtonian or Non-Newtonian), etc.

Specifications

Speed	5 rpm / 10 rpm / 20 rpm
Accuracy	Less than ±3%full scale (Rotor No.2,3,4) Less than ±4% full scale(Rotor No. 0,1,5)
Rotor rpm	5 - 20 rpm
Power Source	AA dry cell battery x 4 pcs
Accessories	Instruction manual, Operation unit / Measurement unit connection cable (1m) AA dry cell batteries x 4 pcs
Measurement units	SI units (mPa·s / Pa·s), % value displayed
Operation temperature range	5 – 40°C
Operating humidity range	Less than 90% (non-condensation)
Weight	Approx. 880 g (including batteries, guard)

CODE	Description	Unit
	Main unit	
65 28 01	Viscosity meter (Operation unit, measurement unit)	Set

Rotor (Option)

CODE	Speed / Rotor	20 rpm	10 rpm	5 rpm	Unit
65 28 03	No. 0	100 mPa·s	200 mPa·s	400 mPa·s	Pc.
04	No. 1	500 mPa·s	1000 mPa·s	2000 mPa·s	Pc.
05	No. 2	2.00 Pa·s	4.00 Pa·s	8.00 Pa·s	Pc.
06	No. 3	10.0 Pa·s	20.0 Pa·s	40.0 Pa·s	Pc.
07	No. 4	50.0 Pa·s	100.0 Pa·s	200.0 Pa·s	Pc.
08	No. 5	200 Pa·s	400 Pa·s	800 Pa·s	Pc.

Digital Water-in-oil and BN Test Kits "Twin Check"

Kit de prueba digital de agua en aceite y BN "Twin Check"
デジタル式油中水分及びアルカリ価テストキット
数字式油品水分和碱值测试套件传感器



Designed in line with digitalization concept, the portable test kit "TWIN CHECK" enables regular on-site measurements of two critical parameters of lubricating and hydraulic oil: water concentration in oil and base number (BN). Water represents substantial threat to any mineral oil application and base number shows the degree of oil protection against deposit formations and possible corrosive wear of the engine system. Early detection of any changes in the oil condition (i.e., water contamination) or degradation of the oil quality (when BN is too low or too high) helps to take responsive corrective actions at the exact time when they are required in order to ensure effective functioning of machinery.

Water concentration in oil and BN of the used lubricant are measured similarly employing the digital test device "TWIN CHECK" with integrated microprocessor and pressure sensor and special chemical reagents. Total measuring time can vary from 2 minutes up to max. 20 minutes and is directly dependant on the exact amount of water contained in the oil sample/ BN value. The digital test device facilitates massively the testing process and delivers quick and precise digital test results. It is offered in modular design with interchangeable components (plugged or screwed) to allow cost-effective maintenance and easy repair directly on board a vessel. An internal memory chip of large capacity and USB to serial connection allow data recording and transfer for trend analysis.

Unit Per Set

CODE	65 28 21	
Measurement	Water-in-Oil	Base Number
Measuring range	0 - 1.0 vol. % H_2O	0 - 150 BN
Measuring time	Depends on the measured value (min. 2 - max. 20 min.)	
Accuracy	+/- 3%	+/- 1 BN
Dimensions (mm)	510 x 400 x 210	
Weight	6 kg	

Name of Mfr.: Martechnic GmbH

Lube Oil Test Kits

for 5 Different Tests

Equipo de pruebas para aceite lubricante
潤滑油テストキット　　润滑油测试套件

Specifically designed for conducting advanced test analyses of lubricating oil condition directly on site. The portable test devices offer easy, quick and accurate measurements of five important oil parameters: water-in-oil content, base number, oil viscosity comparison, salt water and soot contamination. Regular assessment of these parameters gives direct and comprehensive information to ship operators, engineers and users about any occurring changes in the oil condition. Trend monitoring with the LUBE OIL CHECK 5 might help to reduce maintenance expenses as well as to prolong the operating time of the engine system components.



Specifications

	Water-in-Oil	BN	Viscosity Comparison	Salt Water Test	Spot Test (Soot Contamination)
Measuring range	0 - 1.0 vol. % H_2O	0 - 150 BN	max. lube oil	go / no go	all lube oils
Measuring time	up to 20 min. (maximum total reaction time)		about 3 min.	about 10 min.	about 1 min.
Accuracy	+/- 3 %	+/-1 BN			

Items included in the test kit: TWIN Check test unit; WA-SOL® - water-in-oil reagent composition kit (WA-SOL® Basic and WA-SOL® Activator); ALCA Solution for BN test; VISCOSITY COMPARATOR with 2 syringes of 5 ml; Solution W, indicator pads and other accessories for salt water determination; Spot Test paper A4 and glass rod; cleaning spray Test Kit Cleaner, 4 syringes 10 ml, plastic beaker and safety gloves (set of 5 pairs)

65 28 22	Lube Oil Test Kit, for 5 Different Tests, LUBE OIL CHECK 5	Set

Name of Mfr.: Martechnic GmbH

Marine Fuel Oil Test Kits

for Compatibility, Stability, and Density

Kit de prueba de aceite combustible marino
船舶用燃料油テストキット　　船用燃油测试套件



Designed for quick on-board testing of marine heavy fuel oil (high sulphur and low sulphur fuel oil) and marine gas oil (MGO) for stability and/or compatibility in order to estimate the quality/ condition of the delivered bunker fuel and to carefully consider potential commingling of two different fuels. In addition, the test kit enables density verification of light and heavy fuel oil as well as lubricant and hydraulic oil.

The issue of stability and compatibility is especially important with regard to various types of very low sulphur fuel oils (VLSFOs) with different compositional structures. VLSFOs with high paraffinic content tend to be or to become more unstable during storage and /or prolonged sea voyages as a result of temperature and pressure fluctuations as well as oxidization over time.

In accordance with the IMO and CIMAC guidelines, marine fuel oils require adequate on-board handling and management practices including segration of fuels from different sources and evaluation of stability and/or compatibilty of different fuels, and this test kit can provide reliable support in assessing the fuel oil quality in relation to storage conditions, storage time and the posibillity of blending.

The testing process is extremely easy, takes only 20 minutes and follows ASTM D 4740-04 (2014).

Unit Per Set

CODE	65 28 23	
Type of test	**Stability/Compatibility**	**Density**
Measuring range	all heavy fuels + MGO	0.82 - 1.05 g/ml
Measuring time	about 20 min.	about 2 min.
Oil Sample Required	stability - 100 ml/ compatibility - 2 x 50 ml	120 ml
Accuracy	go/ no go	+/- 3 %
Dimensions (mm)	410 x 320 x 360	
Weight	8 kg	

Name of Mfr.: Martechnic GmbH

Cat Fines Determination Test Kits

Kit de prueba para la determinación de multas de gatos
触媒粒子テストキット　催化剂颗粒检测试剂盒



Designed for prompt on-board determination of cat fines concentration in marine heavy fuel oil (high sulphur and low sulphur fuel oil) before its use for the engine operation. Cat fines (Al and Si compounds) are small, hard abrasive particles that remain in fuel oil as a by-product resulting from the catalytic cracking technology. They can substantially damage the components of the engine system (fuel pumps, injection valves, cylinder liners, pistons and piston rings) if they find their way to the engine.
In accordance with ISO 8217 cat fines concentration in bunker fuel is limited to 60 mg/kg (ppm) at the time of delivery. At engine inlet the recommended concentration of cat fines is 15 mg/kg (ppm) or lower.
This test kit with its visual quantification assessment method can help to estimate the cleaning efficiency of the separators by testing representative fuel oil samples for cat fines concentration before and after fuel oil treatment in separator system and prior to the main engine (M/E).

Unit Per Set

CODE	**65 28 24**
Measuring time	about 15 min.
Measuring process	up to 8 simultaneous measurements possible
Measuring method	visual quantification
Dimensions (mm)	580 × 400 × 260
Weight	6 kg

Name of Mfr.: Martechnic GmbH

Infrared Water in Oil Sensors

Sensor infrarrojo de agua en aceite
赤外線油中水分センサー　红外线油水分传感器



A continuous real-time 24/7 monitoring of water concentration in lubricating oil. The water-in-oil sensor with individual alarm settings allows early identification of any abnormal water concentration and immediate detection of sudden seawater ingress to proactively prevent corrosion. The sensor can be used for various application systems: diesel engines, gearboxes and hydraulic systems, and can monitor the environmentally acceptable lubricants (EALs) which this sensor is the best suitable tool to measure the water in oil concentration. As the infrared sensor AHHOI works on the principle of infrared waves, it is possible to determine water in all three states: saturated, emulsified and free. The content of water is determined in molecular form in the expanded measurement range of up to 10,000 ppm/1.0 vol.%.

Installation of the intelligent water-in-oil sensor AHHOI can effectively contribute to sustainability of the vessel's engine operation allowing optimized condition-based maintenance intervals, minimized downtime, increased productivity, real-time statistics/ trendline and reduced oil sampling.

Unit Per Set

CODE	**65 28 26**
Measuring range	0 – 10,000 ppm / 0 - 1.0 vol. % H_2O
Measuring temperature	0 – 59°C
Operating voltage	100 - 240 V AC / 50 – 60 Hz 24 VDC is available on request
Oil system pressure	1 – 10 bar
Operating pressure	0.8 – 1.5 bar
Protection	IP 54
Dimensions (mm)	410 × 410 × 330
Weight (kg)	10

Name of Mfr.: Martechnic GmbH

Flash Point Testing Equipment

Equipos de ensayo del punto de inflamación
引火点試験装置　闪点测试设备



The flash point testing equipment enables easy and quick verification of flash point of marine fuels delivered and/ or stored on board a vessel. According to SOLAS and ISO 8217:2017, the flash point of marine fuels has to be minimum 60°C. If the flash point is lower, this can be due to some low flash point components used for fuel oil refining and blending processes of very low sulphur fuel oils (VLSFOs) or indicate fuel dilution in engine oil, thus increasing a risk of spontaneous fire and/or explosion. The device is based on Pensky-Martens Closed Cup Flash Point method. Field-tested and approved by the German Navy, the device allows determination of the flash point in diesel fuel, biodiesel and gas oils in accordance with ISO 2719 DIN EN 22719 and ASTM D-93 test methods.

Precision in measurement is achieved through simulation of real-life conditions of accidental exposure of a storage tank to an ignition source. A small amount of oil sample is heated in the closed cup test device to the temperature of about 20°C below the expected flash point and then subjected to small flame with the help of the ignition tool. The sample is checked for inflammability with 1°C temperature increase interval. As soon as the inflammation of gas occurs (i.e., a flash appears), the lowest temperature is registered as the flash point of the sample.

Unit Per Set

CODE	**65 28 27**
Measuring range	ambient temperature - up to 200°C
Measuring time	about 15 min.
Accuracy	+/- 2 % < 100 °C +/- 6 °C > 100 °C
Dimensions (mm)	480 × 210 × 400
Weight	5 kg

Name of Mfr.: Martechnic GmbH

Marine Portable Water Test Kits

Equipo portátil de análisis de agua para uso naval
船用ポータブル水質検査キット　船用便携式水质检测套装

From the issue of MLC2006, every ship has been required to examine and record the quality of drinking water. Check items are mainly referred to the guideline by WHO, specific directions for items and the frequency of the examination

are depends upon discretion of each nation administration.
Marine portable water test kit contains everything needed to monitor the drinking water onboard in compliance to WHO guidelines, ILO 178 (2009), MLC (Maritime Labour Convention, 2006) and IHR (International Health Regulations, 2005) requirements.



Application ; One sample should be directly from the tank and one sample at the furthest point of the distribution system. The tank sample gives information about the quality of the water supply on board, while the bridge sample gives information about the quality of the water for the consumer. It is recommended that Microbial Load be monitored at representative taps. Records of readings must be documented, and should be maintained for 12 months and should be available.

Test Kit Contents;

Test	Range	Comments
pH	6.8 – 8.4	Ideal pH depends on the materials used. A pH above 8.0 does not allow effective water disinfection with chlorine and should be assessed further.
Free chlorine (DPD 1)	0.01 – 5.00 mg/l	For effective disinfection, there should be a residual concentration of free Chlorine of at least 0.5 mg/l.
Total chlorine (DPD 1 & 3)	0.01 – 5.00 mg/l	Complemental / confirmational to free Chlorine.
Cyanuric acid	2 – 200 mg/l	Cyanuric Acid protects Chlorine from the sun. No traces should be detected.
HPC (at 20°C) HPC (at 37°C)	Growth of colonies	Heterotrophic Plate Count. No abnormal deviations should be observed. Do not consume water in case of rapid growth of the colonies on any side of the test pad.
Total coliforms	Growth of colonies	No abnormal deviations should be observed. Do not consume water in case of rapid growth of the salmon / red colonies on the test pad.
Entero-bacteria	Growth of colonies	No abnormal deviations should be observed. Do not consume water in case of rapid growth of the colonies on any side of the test pad.
E. coil	Growth of colonies	Escherichia coli, should be 0 cfu / 100 ml. Do not consume water if blue / violet colonies are formed on the test pad.
Refill pack	As above	Includes all chemical & microbial load monitoring reagents
Items included in the kit	Instrument, Carrying case, Instructions, 4 Crushing rods, Test tube brush, 4 Photometer tubes, and all tests mentioned in this table.	

Note: Instructions are based on literature and are meant only as a guide since circumstances and Flag Administration Requirements vary. They are not intended to interfere with the judgment of the vessel's responsible personnel.

65 28 25	Test kit, water, marine portable	Set

Karl Fischer Moisture Titrators

Aparato de valoración de humedad de Karl Fischer
カールフィッシャー水分計　　卡尔费休水分测定仪

Karl Fischer Moisture titrators are indispensable in the measurement of trace amounts of water in industrial chemical, petroleum and other products. Range includes 3 varieties: the MKV-710 Volumetric Titrator, MKC-710 Coulometric Titrator and the MKH-710 Hybrid Moisture Titrator.

Features:
Up to 4 titrators can be connected allowing simultaneous measurement. The titrator models compatible for connection include the MKC-710B (Coulometric), MKV-710B (Volumetric), MKH-710/2nd (Hybrid) Karl Fischer moisture titrators, as well as the AT-710B Automatic potentiometric titrator.

The included "MCU" (Main Control Unit) can control the titrator/s remotely (for example in a fume hood setup) thanks to Bluetooth(R) integration. The MCU features a large color TFT-LCD screen with an 8.4-inch touch panel. Two different user levels and permissions can be set for access management. Measurement results can be exported as a PDF and can be stored on a USB flash drive. By using the patented scan mode (ADP-611), the optimal evaporation temperature can be automatically determined.

Applications:

Model	Standards	Details
MKC-710 MKH-710	ASTM D1533	Standard test method for water in insulating liquids by coulometric Karl Fischer titration.
	ASTM D4928	Standard test method for water in crude oils by coulometric Karl Fischer titration.
	ASTM D6304	Standard test method for determination of water in petroleum products, lubricating oils, and additives by coulometric Karl Fischer titration.
MKV-710 MKH-710	ASTM D4377	Standard Test Method for Water in Crude Oils by Potentiometric Karl Fischer Titration
	ASTM E203	Test method for water using volumetric Karl Fischer titration.
MKC-710 MKV-710 MKH-710	ISO 760	Determination of water – Karl Fischer method (General method).



For Volumetric Moisture Titration
MKV-710M



For Coulometric Titration
MKC-710M

For Volumetric Moisture Titration

Titrant information is stored on an IC chip in the burette unit (Smart burette). End point detection by compensating liquid resistance is adopted. Can resume titration automatically after interruption. Automatic solvent change unit is included.

Unit Per Set

CODE	**65 28 31**
Model	MKV-710M
Product configuration	MCU-710M+MKV-710+IDP-100+ Automatic Solvent Change unit
Measuring Range	Water content: 0.1 – 500 mgH_2O (depends on KF reagent factor) Concentration: 10 ppm – 100%H_2O
Burette Precision	Capacity: 10 mL burette Discharge precision: ±0.015 mL Reproductibility: ±0.005 mL
EP Detection Method	By polarized potential level detected with a twin platinum electrode

(to be continued)

Unit Per Set

CODE	65 28 31
EP Sense Method	Detection of potential level maintained during preset end time. End time range: 1 to 99 sec
Titration Form	Normal titration / Back titration (Option additional burette required)
Required Solvent	30 to 100 mL (in S-type titration vessel)
Display	8.4-inch colour LCD 800 x 600 dots Language: English/ Japanese / Mandarin Chinese / Korean / Russian / Spanish / German / French Simultaneous 4-channel display (Can also display Automatic Potentiometric Titrator simultaneously)
Calculation	Concentration of water content , statistics data processing (mean , SD and RSD) and automatic averaging of blank value and factor value
Data Storage	500 samples
Power Source	AC100 to 240 V +/- 10% 50/60 Hz
Dimensions	Touch panel controller: 225(W) × 190(D) × 42(H) mm Titration unit: 141(W) × 292(D) × 367(H) mm (not incl. tubing) Stirrer: 107(W) × 206(D) × 322(H) mm (not incl. Solvent Change unit) Solvent Change Unit: 240(W) × 140(D) × 400(H) mm (not incl. tubing) Printer : 106(W) × 180(D) × 88(H) mm
Weight	Touch panel controller : Approx. 1.5 kg Titration unit : Approx. 4.0 kg Stirrer: Approx. 2.0 kg Solvent Change Unit: Aprox. 0.6 kg Printer: Aprox. 0.4 kg
Conformity Standard	CE marking EMC : EN61326-1 LVD: EN61010-1 RE Directive Burette unit EBU FCC Part15 SubpartC FCC ID: 2ABSVEBU01

Name of manufacturer : Kyoto Electronics Manufacturing Co., Ltd.

For Coulometric Titration

Reduction of power consumption by 30% compared to conventional titrators. Using a unique mechanism, the ceramic diaphragm of the optional titration cell unit can be replaced. Manual solvent change unit is included.

Unit Per Set

CODE	65 28 33
Model	MKC-710M
Product configuration	MCU-710M+MKC-710+IDP-100+ Automatic Solvent Change unit
Measuring Range	Water content / Bromine index: 10 ug to 300 mg (depends on reagent)
Measurement cell	2-Component or 1-Component
Precision	Relative standard deviation: less than 0.3%* (n=10) *Per KEM's standard measurement conditions and standard liquids
Control method	Constant current pulse time control
EP Detection Method	Alternate current polarization method with a twin platinum electrode
EP Sense Method	Selective drift stability or limit measurement time
Required Solvent	2-Component cell: Anolyte 100 mL, Catholyte 5 mL 1-Component cell: Anolyte 150 mL
Display	8.4-inch colour LCD 800 x 600 dots Language: English/ Japanese / Mandarin Chinese / Korean / Russian / Spanish / German / French Simultaneous 4-channel display (Can also display Automatic Potentiometric Titrator simultaneously)
Calculation	Concentration of water content , statistics data processing (mean, SD and RSD) and automatic averaging of blank value and factor value
Data Storage	500 samples
Power Source	AC100 to 240 V +/- 10% 50/60 Hz
Dimensions	Touch-on panel controller : 225(W) x 190(D) x 42(H) mm Titration unit : 141(W) x 292(D) x 244(H) mm Stirrer : 107(W) x 206(D) x 340(H) mm (not incl. Solvent Change unit) Solvent Change Unit : 240(W) x 140(D) x 405(H) mm (not incl. tubing) Printer : 106(W) x 180(D) x 88(H) mm
Weight	Touch-on panel controller : Approx. 1.5 kg Titration unit : Approx. 3.0 kg Stirrer : Approx. 2.0 kg Solvent Change Unit : Aprox. 0.6 kg Printer : Aprox. 0.4 kg
Conformity Standard	CE marking EMC : EN61326-1 LVD : EN61010-1

Name of Manufacturer: Kyoto Electronics Manufacturing Co., Ltd.

Hybrid Karl Fischer Moisture Titrators

Tituladores de humedad Karl Fischer híbridos
ハイブリッドカールフィッシャー水分計
混合型卡尔费休水分滴定仪

With high speed and precision, it adopts a "Hybrid titration method" combining volumetric and coulometric titration methodology. The "Electrolytic Factor Measurement System" brings convenience as it carries out factor determination automatically and eliminates the tedious weighing and measuring of pure water.



MKH-710M

The "Hybrid titration method" allows automatic switching between titration methods by monitoring the moisture content in the titration cell with high-speed & high-precision, eliminating the need to adjust the sample amount.

With the press of just a single button, the "Electrolytic Factor Measurement System" automatically performs factor determination of the Karl Fischer reagent, saving time & effort. Cleaning the diaphragm and inner burette is made easier thanks to their structural orientation, especially useful for samples such as petroleum.

It is possible to select one method each from the "Volumetric titration method", "Coulometric titration method", and "Hybrid titration method".

It is possible to store measurement result data and method settings, as well as manage data as an electronic record.

Unit Per Set

CODE	65 28 34
Model	MKH-710M
Coulometric Titration	
Measuring Range	Water content: 1 µg - 300 mg H_2O
Precision	RSD: less than 0.3% (n=10) Display resolution: 0.1 µg
Volumetric Titration	
Measuring Range	Water content: 100 µg - 500 mg H_2O (depends on KF reagent factor) Concentration: 1 ppm - 100% H_2O
Burette Precision	Volume: 10 mL Resolution: 1/20,000 Discharge precision: ±0.015 mL Repeatability: ±0.005 mL
Hybrid Titration	
Measuring Range	Water content: 10 µg - 500 mg H_2O

(to be continued)

Unit Per Set

CODE	65 28 34
Precision	RSD: less than 0.3% (n=10) (Karl Fischer reagent factor 3 mg/mL) Display resolution: 0.1 µg
Factor Measurement of Reagent by Electrolysis	
Measuring Range	KF reagent : Reagent factor from 1 to 5 (With the provisions of dose volume)
Precision	RSD: less than 1.0% (n=3) (Dose volume 0.5 mL, Reagent factor 3 mg/mL)
Number of Methods	Coulometric/Volumetric/Hybrid/Electrolysis: Up to 120
Data Storage	On-board memory: 500 data
	External memory: USB flash drive
GLP Conformance	Registration of operator / User group administration Titrant: Reminder of factor measurement date / Alarm to indicate remaining reagent / Reminder of piston replacement date / Reminder of reagent replacement date / History of factor measurement / Reminder of expiration Check performance: Reminder of scheduled check date / Record of check results Management of conduction time: Display of operating time
External I/O (Measuring Unit)	RS-232C port × 2: COM1: Dot matrix printer COM2: Multiple sample changer / Evaporator USB ×1: MCU-710 (USB cable for wired connection, Bluetooth adapter for wireless connection) SS-BUS × 1: Automatic piston burette: Can control max 2 burette drives (Including two built-in burette drives)
External I/O (Main Control Unit)	RS-232C port × 2: Dot matrix printer (only for COM1), Electronic balance, PC USB × 1: USB flash drive, Thermal printer, A4 printer, Keyboard, Barcode reader, Foot switch, Bluetooth adapter, USB HUB, Measuring unit (MKH-710/2nd, AT-710, MKV-710, MKC-710) LAN × 1: PC
Main Control Unit	8-inch LCD
	800 × 600 dots
Language	English / Japanese / Chinese / Korean
Power Supply	Measuring unit: DC24V 5A (Main unit) AC100-240V ±10% 50-60Hz 2A (Comes with AC Adapter)
	Main control unit: DC12V 3A (Main unit) AC100-240V ±10% 50-60Hz (Comes with AC Adapter)
Dimensions	Touch panel controller: 225(W) × 190(D) × 42(H)mm Titration unit: 141(W) × 292(D) × 377(H)mm Stirrer/ Cell: 107(W) × 206(D) × 364(H)mm Solvent change unit: 240(W) × 140(D) × 400(H)mm Printer: 106(W) × 180(D) × 88(H)mm
Weight	Touch panel controller: Approx. 1.5 kg Titration unit: Approx. 4 kg Stirrer/ Cell: Approx. 2 kg Solvent change unit: Approx. 0.6 kg Printer: Approx. 0.4 kg
CE Marking	CE marking EMC: EN61326-1 LVD: EN61010-1 RE Directive Burette unit EBU FCC Part15 Subpart C FCC ID: 2ABSVEBU01

Name of Manufacturer: Kyoto Electronics Manufacturing Co., Ltd.

Magnetic Inductive Flow Sensors

VMI induQ

Sensores magnéticos inductivos de caudal
磁気誘導式フローセンサー　磁感应式流量传感器

Highlights
- Robust metal housing for high temperature and pressure
- Maintenance-free - no moving parts
- Frequency or analogue and frequency output
- Delivery inlcuding works calibration certificate



Unit Per Pc.

CODE	65 28 36	65 28 37	65 28 38
Model	VMI02	VMI07	VMI10
Nominal Dia.	DN 2	DN 7	DN 10
Process Connection	G¼-ISO 228 male	G½-ISO 228 male	G½-ISO228 male or G¾-ISO228 male
Inner Dia. [mm]	2	4 × 10	10
Flow Range [l/min]	0.0083...1 or 0.05...2	0.1…30	0.2…60
Accuracy*	0...50 % of range: ±1 % of range 50…100 % of range: ±2 % of range	± (0.7 % of reading + 0.3 % of range)	
Repeatability*	1 %		
Response time	< 500 ms		
Medium	Water and other conductive liquids		
Min. Conductivity of Medium	50 µS/cm		
Medium Temperature	-20...90 °C		
Ambient Temperature	Min. -10°C, max. see figure temperature limits		
Pressure Rating	PN 16		
Flow Indication	LED green, flow proportional flashing		
Protection	IP65 and IP67 (with attached cable socket)		
Electrical Connection	Plug connector M12 × 1		
Power Supply	12...24 VDC (±10 %)		
Current Consumption	≤ 150 mA		
Approval	EU RO Mutual Recognition Type Approval Certificate (Covers: ABS, BV, CCS, CRS, DNV, IRS, KR, LR, Class NK, PRS, RINA, RS)		

Name of Mfr.: SIKA

Room Condition Monitors

for Engine Room, Type RCM 880

Monitor ambiental de la sala de máquinas
エンジンルーム環境モニター　发动机室环境监控器

The room condition monitor RCM880 in combination with the SIKA multisensor E03 simultaneously monitors humidity, temperature and pressure at one measuring point. The robust measuring system is specially designed for use under extreme environmental conditions.



The digital 3-channel standard signal transmitter enables safe signal transmission, for example to engine control systems, and easy integration into your system.

The permanent monitoring of the operating condition guarantees safe, reliable operation, enables compliance with emission standards and is used to maximize efficiency as well as performance evaluation of marine engines.

Technical features

- Multi sensor system > Simultaneous measuring of humidity, temperature and pressure at one measuring point
- Integrated Transmitter > Simple integration into your system by standard signal
- Graphical trend display of all parameters > Intuitive recognition of process parameters and trends
- Robust construction > Reliable and long-lasting operation also at high mechanical stress
- Insensitive to electromagnetic interference
- Dirt-proof keyboard > Use in dusty or oily environments

Unit Per Set

CODE	65 28 41
SIKA Code	880TPHXMU1SET1
Version	Wall mounting
Measuring Input	On site digital multi sensor for humidity, temperature and pressure
Measuring Range	Humidity 0…100 % RH Temperature -40…85 °C -40...185 °F Pressure 300…1,200 mbar abs.
Output	Number of channels: 3 Signals: 0...20 mA or 4…20 mA or 0…10 V or 0…5 V
Accuracy	Transmitter: 16 bit / ±0.1 % of range ±1 digit @ 25 °C Humidity ±2.5 % RH @ 10...90 % RH, 20...60 °C (typ.) Temperature ±0.3 K Pressure ±1.0 mbar @ 950...1,050 mbar (typ.)
Measuring Rate	1 sec.
Display	Type Dot matrix graphic display, Backlight Size (W x H) 83 mm x 33 mm Resolution 256 x 100 Pixel
Indication accuracy	0.01
Power Supply	24 VDC (16…32 V)
Operating elements	5 capacitive keys
Ambient Temperature	-20…70 °C
Degree of Protection	IP65, plug & cable connected
Housing Size	170 mm x 150 mm x 35 mm (W / H x D)
Weight	1 kg

Name of Mfr.: SIKA

Deflection Indicators

Indicador de desviación　たわみ測定計測器　偏转测量仪器

A measuring device to check deflection of engine crankshaft and cylinder liner wear and ovality. Crankshaft alignment checking is used to be time-consuming, dirty and giving uncertain accuracy with analog dial gauges, but this electronic measurement makes it much easier and the accuracy will be improved. It has 4 buttons and select, change and accept values on the display such as temperature, engine number, number of cylinders, measurement direction and etc. You also can download data of the measurement to PC for reference and future comparisons.



Unit Per Set

CODE	65 28 51	65 28 52
Model	DI-5 / DI-5C	DI-5 Small / DI-5C Small
Storage & transfer to PC Transducer	DI-5 (No), DI-5C (Yes) 89 mm / 100 mm	DI-5 (No), DI-5C (Yes) 60 mm
Measuring distance	89-565 mm / 100-570mm	60-536 mm
Measuring range	+/- 2.048 mm	+/- 1.000 mm
Resolution	0,001 mm	0,001mm
Zero balance range	+/- 2.048 mm	+/-1.000
Zero drift	0.001 mm / 5 min.	0.001 mm / 5 min.
Instrument operating range	0 - 55°C/32-130°F	0 - 55°C/32-130°F
Transducer operating range	0 – 80°C/ 32-175°F	0 – 80°C/ 32-175°F
Battery	3.6 V Lithium Ion, rechargeable	3.6 V Lithium Ion, rechargeable
Battery life	10 hours / charge, shelf life 5 years	10 hours / charge, shelf life 5 years
Extension bars (invar alloy)	10, 20, 40, 80 and 2 x 160 mm	10, 20, 40, 80 and 2 x 160 mm
Cable Length	7 mtr	7 mtr
Gross Weight	3.5 kg	3.5 kg
Dimensions (mm)	Instrument: 190 × 167 × 50 Transducer: Ø31 × 81 Case: 300 × 280 × 140	Instrument: 190 × 167 × 50 Ø22 dia × 56

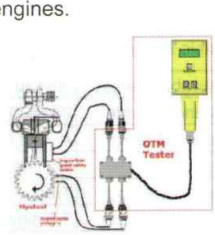
Name of Mfr : TX Marine

Overspeed Testers/Simulators (OTM)

Simulador de sobrevelocidad (OTM)
過速度テスター / シミュレータ（OTM）　超速测试仪 / 模拟器（OTM）

Overspeed tester and simulator can safely check overspeed of engine including speed pickup test. By connecting to the existing overspeed protection system, it measures, displays, and plausibility check of the generated signals from the pickups, and send speed value to the overspeed protection device. It is also possible to perform a real over-speed test on the engine while it is at a standstill or operating at any other speed. There are 30 machine types in the device memory and programmable. Supplied with a engine-specific plug-set and adapter for the different types of engines.





Unit Per Set

CODE	65 28 53
Voltage	24 VDC +30/-25% V/c-s
Power Consumption	50 mA
Frequency Range	Up to 5 kHz
Resolution	1 Rpm
Standard Cable Length	1.7 mtr (other length on request)
Distribution Box	For all engine types available (acc. to customer requirement)
Display	4 × 20 characters, illuminated

Name of Mfr.: TX Marine

Shaft Power Measurement Systems

Sistema de medición de la potencia del eje
シャフトパワー計測システム　轴功率测量系统



This shaft power measurement system is one of the best cost-effective and easy to be installed system to measure permanent the shaft speed, torque and shaft power. It is useful to help calculation of fuel consumption, optimizing and improving the performance of a vessel by permanent monitoring of propeller, and shaft system conditions. It is easy to operate by using its own extremely fast (EXFR) magnetic scanning system of the magnetic pattern of the sensor belts. Also, you can check the measured values (torque, speed, shaft power) with a local display or by connecting to external systems. Please ask more detail from local suppliers.

Unit Per Set

CODE	65 28 54	
Model	TORXmeter mkII	
System Accuracy	Shaft Torque / Shaft Power	<0.1% +Ke*
	Shaft RPM	<0.1%
Shaft Diameter	150 mm – 3,000 mm	
Speed Range	Up to 1,200 rpm	
Data Storage	Mini SD card Terminal Box mkII control board	Measurement data and report as .txt files
Measurement principle	Extreme fast response magnetic belt scanning	
Environmental	Operating Temperature	0°C - 50°C
Environmental Sealing	Terminal Cabinet / Sensors	IP67
Supply Voltage Power consumption	100/240 VAC, 5-60Hz, 16A 24 Volt / < 2A	
Option	Repeater Display for ECT or WH	

Name of Mfr.: TX Marine
*Ke: Total error in shaft modulus constant and shaft diameter

Sound Level Meters

Contadores para Nivel de Ruido (Sonido)　騒音計　噪声级测试仪



Light weight and handheld type meter for noise level with 3.5 digits on a liquid crystal display and MAX hold function. As provided with Over and Under scale indication, the meter will determine if noise is over or under the maximum or minimum scale range. Conforms with JIS C-1502 and IEC Standard Pub. 60651 Type Ⅱ.

Specifications

Model	1067
Dynamic Range	30-70, 60-100, 80-120 dB, Changeable by 3 steps and 40 dB width.
Measurable Range	30-120 dB
Frequency Range	20-8,000 Hz
Weighting Network	A, and C
Microphone	1/2 inch electret condenser microphone
Detection Method	True r.m.s.
Display	3.5 digits LCD, 0.1 dB resolution
Auxiliary Displaying	*Over scale ; "OVER" mark is displayed when the measurement value gets upper than maximum scale range by 4 dB. *Under scale ; " - " mark is displayed when the measurement value gets lower than minimum scale range by 4 dB. * Battery voltage ; "BATT" is displayed when the voltage of the batteries droops down less than 2 volts.
Power Supply	R-6P (UM-3) battery x 2 pcs
Dimensions	W72 x H240 x T24 mm
Weight	210 grm
Accessories	* 1 pc Windscreen for microphone * 1 pc Hand strap * 1 pc Screwdriver (for calibration) * 2 pcs Batteries * 1 pc Carring case

Name of Mfr. : SOTEC Ltd

65 29 01	Sound level meter, model 1067	Set

Emissions Analysers

for marine applications

RASI 800

Analizador de emisiones para aplicaciones navales
舶用排気分析器　船用排气分析仪



The RASI 800 Engine Test KIT MCERTS approved (0_2, CO, NO, NO_2) Portable Emissions Analyser Marine Kit provides a reliable and accurate measurements for O_2, CO, CO_2, True NOx ($NO+NO_2$), Low SO_2, and CxHy hydrocarbons to help ships achieve and confirm compliance with MARPOL AnnexVI and the NOx Technical Code.

The KIT is equipped with:
- O_2, Low CO, Low NO, Low NO_2, SO_2 electrochemical sensors
- Special NDIR bench for CO_2 % and CH_4 ppm
- Heated sampling line to provide accurate NO_2 and SO_2 readings

65 29 02	Emissions analyser, portable, RASI 800 engine test kit for marine application	Set

Name of Mfr.: Atlas Marine Services Pte Ltd.

(to be continued)

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Conversion Table (kgf - N)

kgf → N		N → kgf		kgf → N		N → kgf	
1	9.8066	1	0.1020	51	500.1	51	5.2006
2	19.613	2	0.2039	52	510.0	52	5.3025
3	29.420	3	0.3059	53	519.8	53	5.4045
4	39.227	4	0.4079	54	529.6	54	5.5065
5	49.033	5	0.5099	55	539.4	55	5.6084
6	58.840	6	0.6118	56	549.2	56	5.7104
7	68.647	7	0.7138	57	559.0	57	5.8124
8	78.453	8	0.8158	58	568.8	58	5.9144
9	88.260	9	0.9177	59	578.6	59	6.0163
10	98.066	10	1.0197	60	588.4	60	6.1183
11	107.87	11	1.1217	61	598.2	61	6.2203
12	117.68	12	1.2237	62	608.0	62	6.3222
13	127.49	13	1.3256	63	617.8	63	6.4242
14	137.29	14	1.4276	64	627.6	64	6.5262
15	147.10	15	1.5296	65	637.4	65	6.6282
16	156.91	16	1.6315	66	647.2	66	6.7301
17	166.71	17	1.7335	67	657.1	67	6.8321
18	176.52	18	1.8355	68	666.9	68	6.9341
19	186.33	19	1.9375	69	676.7	69	7.0360
20	196.13	20	2.0394	70	686.5	70	7.1380
21	205.94	21	2.1414	71	696.3	71	7.2400
22	215.75	22	2.2434	72	706.1	72	7.3420
23	225.55	23	2.3453	73	715.9	73	7.4439
24	235.36	24	2.4473	74	725.7	74	7.5459
25	245.17	25	2.5493	75	735.5	75	7.6479

kgf → N		N → kgf		kgf → N		N → kgf	
26	254.97	26	2.6513	76	745.3	76	7.7498
27	264.78	27	2.7532	77	755.1	77	7.8518
28	274.59	28	2.8552	78	764.9	78	7.9538
29	284.39	29	2.9572	79	774.7	79	8.0558
30	294.20	30	3.0591	80	784.5	80	8.1577
31	304.01	31	3.1611	81	794.3	81	8.2597
32	313.81	32	3.2631	82	804.2	82	8.3617
33	323.62	33	3.3651	83	814.0	83	8.4636
34	333.43	34	3.4670	84	823.8	84	8.5656
35	343.23	35	3.5690	85	833.6	85	8.6676
36	353.04	36	3.6710	86	843.4	86	8.7696
37	362.85	37	3.7729	87	853.2	87	8.8715
38	372.65	38	3.8749	88	863.0	88	8.9735
39	382.46	39	3.9769	89	872.8	89	9.0755
40	392.27	40	4.0789	90	882.6	90	9.1774
41	402.07	41	4.1808	91	892.4	91	9.2794
42	411.88	42	4.2828	92	902.2	92	9.3814
43	421.69	43	4.3848	93	912.0	93	9.4834
44	431.49	44	4.4868	94	921.8	94	9.5853
45	441.30	45	4.5887	95	931.6	95	9.6873
46	451.11	46	4.6907	96	941.4	96	9.7893
47	460.91	47	4.7927	97	951.3	97	9.8912
48	470.72	48	4.8946	98	961.1	98	9.9932
49	480.53	49	4.9966	99	970.9	99	10.095
50	490.33	50	5.0986	100	980.7	100	10.197

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67
Metal Sheets, Bars, etc.

Steel Materials  P. 67-1 ~ 8	Stainless Steel Materials  P. 67-8 ~ 9
Copper Materials  P. 67-9 ~ 10	Brass/Bronze Materials  P. 67-10 ~ 13
Aluminium Materials  P. 67-13 ~ 14	Lead/Zinc Materials  P. 67-14 ~ 17
Gratings   P. 67-18 ~ 20	Gauze Wire   P. 67-20

Steel Rounds – Cold Finished

Redondos de Acero　ミガキ丸形鋼　冷轧圆钢

For bolts, nuts, screws, and shaftings. Supplied in the following standard lengths.

Europe : 3 M　　U. S. : 12-20 ft.
Japan : 4 M　　Singapore : 4 M

If you require a length other than the standard mentioned, please specify when ordering.



How to order: CODE

Steel round, cold finished, DIAM mm x TOTAL LENGTH mtr

Unit Per Lgh.

Diam mm	Kg Per Mtr	4 mtr (Japan & Singapore)	3 mtr (Europe)	12 feet - up to 5/8"(16 mm) 20 feet - over 5/8" (U.S.A.)
5	0.154	**67 01 01**	**67 01 43**	**67 02 96**
6	0.222	**02**	**44**	**97**
7	0.302	**03**	**45**	**98**
8	0.395	**04**	**46**	**99**
9	0.395	**05**	**47**	**67 03 00**
10	0.617	**67 01 06**	**67 01 48**	**67 03 37**
11	0.746	**07**	**49**	**38**
12	0.888	**08**	**50**	**39**
13	1.04	**09**	**69**	**40**
14	1.21	**10**	**70**	**41**
15	1.39	**67 01 11**	**67 01 71**	**67 03 42**
16	1.58	**12**	**72**	**43**
17	1.78	**13**	**73**	**44**
18	2.00	**14**	**74**	**45**
19	2.23	**15**	**75**	**46**
20	2.47	**67 01 16**	**67 01 76**	**67 03 47**
22	2.98	**17**	**77**	**48**
23	3.26	**18**	**78**	**49**
24	3.55	**19**	**79**	**50**
25	3.85	**20**	**80**	**75**
26	4.17	**67 01 21**	**67 01 81**	**67 03 76**
28	4.83	**22**	**82**	**77**
30	5.55	**23**	**83**	**78**
32	6.31	**24**	**84**	**67 08 30**
34	7.13	**25**	**85**	**31**
36	7.99	**67 01 26**	**67 01 86**	**67 08 32**
38	8.90	**27**	**87**	**33**
40	9.87	**28**	**88**	**34**
42	10.9	**29**	**89**	**35**
45	12.5	**30**	**90**	**36**
48	14.2	**67 01 31**	**67 01 91**	**67 08 37**
50	15.4	**32**	**92**	**38**
55	18.7	**33**	**93**	**39**
60	22.2	**34**	**94**	**40**
65	26.0	**35**	**95**	**41**
70	30.2	**67 01 36**	**67 01 96**	**67 08 42**
75	34.7	**37**	**97**	**43**
80	39.5	**38**	**98**	**44**
85	44.5	**39**	**99**	**45**
90	49.9	**40**	**67 02 00**	**46**
95	55.6	**67 01 41**	**67 02 17**	**67 08 47**
100	61.7	**42**	**18**	**48**

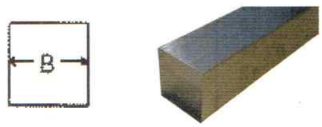
Steel Squares – Cold Finished

Cuadrados de Acero - Laminado en Frío　ミガキ角形鋼　冷轧方钢

For bolts, nuts, screws, and shaftings. Sizes larger than those listed below are available upon request. Supplied in the following standard lengths:

Europe : 3 M　　Japan : 4 M
U.S : 12 ft.　　Singapore : 12 ft.

If you require a length other than the standard mentioned, please specify when ordering.



How to order : CODE

Steel square, cold finished, ACROSS FLAT mm x TOTAL LENGTH mtr

Unit Per Lgh.

AF mm	Kg Per Mtr	4 mtr (Japan)	3 mtr (Europe)	12 feet (U.S.A. & Singapore)
6	0.238	**67 01 51**	**67 02 19**	**67 08 49**
7	0.385	**52**	**20**	**50**
8	0.502	**53**	**21**	**61**
9	0.636	**54**	**22**	**62**
10	0.785	**55**	**23**	**63**
12	1.13	**67 01 56**	**67 02 24**	**67 08 64**
14	1.54	**57**	**25**	**65**
16	2.01	**58**	**26**	**66**
17	2.27	**59**	**27**	**67**
19	2.83	**60**	**28**	**68**
20	3.14	**67 01 61**	**67 02 29**	**67 08 69**
22	3.80	**62**	**30**	**70**
25	4.91	**63**	**31**	**71**
28	6.15	**64**	**32**	**72**
30	7.07	**65**	**33**	**73**
32	8.04	**67 01 66**	**67 02 34**	**67 08 74**
36	10.2	**67**	**35**	**75**
40	12.6	**68**	**36**	**76**

* AF denotes Across Flat.

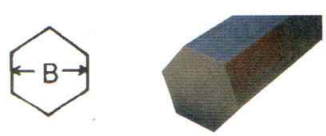
Steel Hexagons – Cold Finished

Hexagonales de Acero - Laminado en Frío　ミガキ六角鋼　冷轧六角钢

Used for free cutting bolts, nuts, screws, and shaftings. Sizes larger than those listed below are available upon request. Supplied in the following standard lengths :

Europe : 3 M
U.S. : 12 ft.
Japan : 4 M
Singapore : 12 ft.

If you require a length other than the standard mentioned, please specify when ordering.



How to order: CODE

Steel hexagon, cold finished, ACROSS FLAT mm x TOTAL LENGTH mtr

Unit Per Lgh.

AF mm	Kg Per Mtr	4 mtr (Japan)	3 mtr (Europe)	12 feet (U.S.A. & Singapore)
6	0.245	**67 02 01**	**67 02 37**	**67 08 77**
7	0.333	**02**	**38**	**78**
8	0.435	**03**	**39**	**79**
9	0.551	**04**	**40**	**80**
10	0.680	**05**	**41**	**89**

(to be continued)

Unit Per Lgh.

AF mm	Kg Per Mtr	4 mtr (Japan)	3 mtr (Europe)	12 feet (U.S.A. & Singapore)
12	0.979	**67 02 06**	**67 02 42**	**67 08 90**
14	1.33	**07**	**43**	**91**
17	1.96	**08**	**44**	**92**
19	2.45	**09**	**45**	**93**
21	3.00	**10**	**46**	**94**
22	3.29	**67 02 11**	**67 02 47**	**67 08 95**
25	4.25	**12**	**48**	**96**
28	5.33	**13**	**49**	**97**
32	6.96	**14**	**50**	**98**
35	8.33	**15**	**67**	**99**
38	9.82	**67 02 16**	**67 02 68**	**67 09 00**

Steel Rounds – Hot Rolled

Redondos de Acero - Laminado en Caliente　丸鉄　热轧圆钢

Larger sizes than those listed below are also available upon request. Supplied in the following standard lengths :

Europe : 6 M
U.S. : 20 ft.
Japan : 5.5 M and Random
Singapore : 6 M



If you require a length other than the standard mentioned, please specify when ordering.

How to order: CODE

Steel round, hot rolled, DIAM mm x TOTAL LENGTH mtr

Unit Per Lgh.

Diam mm	Kg Per Mtr	5.5 mtr (Japan)	6 mtr (Europe & Singapore)	20 feet (U.S.A.)
6	0.222	**67 02 51**	**67 02 69**	**67 09 26**
7	0.302	**52**	**70**	**27**
9	0.499	**53**	**71**	**28**
12	0.888	**54**	**72**	**29**
13	1.04	**55**	**73**	**30**
16	1.58	**67 02 56**	**67 02 74**	**67 09 31**
19	2.23	**57**	**75**	**32**
22	2.98	**58**	**76**	**33**
25	3.85	**59**	**77**	**34**
28	4.83	**60**	**78**	**35**
32	6.31	**67 02 61**	**67 02 79**	**67 09 36**
36	7.99	**62**	**80**	**37**
38	8.90	**63**	**89**	**38**
44	11.9	**64**	**90**	**39**
48	14.2	**65**	**91**	**40**
50	15.4	**67 02 66**	**67 02 92**	**67 09 41**

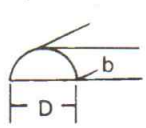
Steel Half Rounds – Hot Rolled

Medio Redondos de Acero Caliente　半丸鉄　热轧半圆钢

Usually supplied in the following standard lengths:

Europe : 5.5 M
Japan : 5.5 M
Singapore : 6 M

If you require a length other than the standard mentioned, please specify when ordering.





How to order: CODE

Steel half round, hot rolled, SIZE (b) x (D) mm x TOTAL LENGTH mtr

Unit Per Lgh.

Size mm b	Size mm D	Kg Per Mtr	5.5 mtr (Japan)	6 mtr (Europe & Singapore)
30	60	11.1	**67 02 85**	**67 02 93**
25	50	7.71	**87**	**94**
37.5	57	17.3	**88**	**95**

Steel Squares – Hot Rolled

Cuadrados de Acero - Laminado en Caliente　角鉄　热轧方钢

Supplied in the following standard lengths. Sizes larger than those listed below are available upon request.

Europe : 6 M
U.S. : 20 ft.
Japan : 5.5 M
Singapore : 6 M



If you require a length other than the standard mentioned, please specify when ordering.

How to order: CODE

Steel square, hot rolled, ACROSS FLAT mm x TOTAL LENGTH mtr

Unit Per Lgh.

AF mm	Kg Per Mtr	5.5 mtr (Japan)	6 mtr (Europe & Singapore)	20 feet (U.S.A.)
6	0.283	**67 03 01**	**67 03 19**	**67 09 42**
7	0.385	**02**	**20**	**43**
8	0.502	**03**	**21**	**44**
9	0.636	**04**	**22**	**45**
10	0.785	**05**	**23**	**46**
12	1.13	**67 03 06**	**67 03 24**	**67 09 47**
14	1.54	**07**	**25**	**48**
16	2.01	**08**	**26**	**49**
17	2.27	**09**	**27**	**50**
19	2.83	**10**	**28**	**76**
20	3.14	**67 03 11**	**67 03 29**	**67 09 77**
22	3.80	**12**	**30**	**78**
25	4.91	**13**	**31**	**79**
28	6.15	**14**	**32**	**80**
30	7.06	**15**	**33**	**81**
32	8.04	**67 03 16**	**67 03 34**	**67 09 82**
36	10.2	**17**	**35**	**83**
40	12.6	**18**	**36**	**84**

* AF denotes Across Flat.

Steel Hexagons – Hot Rolled

Hexagonales de Acero - Laminado en Caliente　六角鉄　六角钢

Supplied in the following standard lengths.

Europe : 3 M
U.S. : N/A
Japan : 5.5 M and Random
Singapore : 12 ft.

If you require a length other than the standard mentioned, please specify when ordering.





How to order: CODE

Steel hexagon, hot rolled, ACROSS FLAT mm x TOTAL LENGTH mtr

Unit Per Lgh.

AF mm	Kg Per Mtr	5.5 mtr (Japan)	3 mtr (Europe)	12 feet (Singapore)
6	0.245	**67 03 51**	**67 03 79**	**67 09 85**
7	0.333	**52**	**80**	**86**
8	0.435	**53**	**81**	**87**
9	0.551	**54**	**82**	**88**
10	0.680	**55**	**83**	**89**
12	0.979	**67 03 56**	**67 03 84**	**67 09 90**
14	1.33	**57**	**85**	**91**
17	1.96	**58**	**86**	**92**
19	2.45	**59**	**87**	**93**
21	3.00	**60**	**88**	**94**
23	3.60	**67 03 61**	**67 03 89**	**67 09 95**
26	4.60	**62**	**90**	**96**
29	5.72	**63**	**91**	**97**
32	6.96	**64**	**92**	**98**
35	8.33	**65**	**93**	**99**
38	9.82	**67 03 66**	**67 03 94**	**67 13 01**
41	11.4	**67**	**95**	**02**
46	14.4	**68**	**96**	**03**
50	17.0	**69**	**97**	**04**
54	19.8	**70**	**98**	**05**
58	22.9	**67 03 71**	**67 03 99**	**67 13 06**
63	27.0	**72**	**67 04 00**	**07**
67	30.5	**73**	**88**	**08**
71	34.3	**74**	**89**	**09**

* AF denotes Across Flat.

Steel Flats – Hot Rolled

Pletinas de Acero - Laminado en Caliente　平鉄　热轧扁钢

Sizes larger than those listed below are available upon request. Supplied in the following standard lengths:

Europe : 6 M
U.S. : 20 ft.
Japan : 5.5 M
Singapore : 6 M

If you require a length other than the standard mentioned, please specify when ordering.



How to order: CODE

Flat, hot rolled, THICKNESS x WIDTH mm x TOTAL LENGTH mtr

Unit Per Lgh.

Size mm		Kg Per Mtr	5.5 mtr (Japan)	6 mtr (Europe & Singapore)	20 ft (U.S.A.)
Thick	Width				
3 mm (1/8)	13	0.306	**67 04 01**	**67 04 90**	**67 13 10**
	16	0.377	**02**	**98**	**11**
	19	0.447	**03**	**99**	**12**
	22	0.518	**91**	**67 05 00**	**13**
	25	0.589	**04**	**12**	**14**
	32	0.754	**05**	**25**	**15**
	38	0.895	**06**	**27**	**16**
	50	1.180	**07**	**29**	**17**
	65	1.530	**92**	**30**	**18**
4.5 mm (3/16)	22	0.777	**67 04 93**	**67 05 45**	**67 13 19**
	25	0.880	**08**	**46**	**20**
	32	1.130	**09**	**47**	**21**
	38	1.340	**10**	**48**	**22**
	44	1.550	**11**	**49**	**23**
	50	1.770	**12**	**50**	**24**
	65	2.300	**94**	**51**	**25**
	75	2.650	**95**	**52**	**26**
	90	3.180	**96**	**53**	**27**
	100	3.530	**97**	**54**	**28**

(to be continued)

Unit Per Lgh.

Size mm		Kg Per Mtr	5.5 mtr (Japan)	6 mtr (Europe & Singapore)	20 ft (U.S.A.)
Thick	Width				
6 mm (1/4)	13	0.612	**67 05 01**	**67 05 55**	**67 13 29**
	16	0.754	**02**	**56**	**30**
	19	0.895	**03**	**57**	**31**
	22	1.04	**04**	**58**	**32**
	25	1.16	**67 04 13**	**59**	**33**
	32	1.51	**14**	**60**	**34**
	38	1.79	**15**	**61**	**35**
	44	2.07	**16**	**62**	**36**
	50	2.36	**17**	**63**	**37**
	65	3.06	**18**	**64**	**38**
	75	3.53	**19**	**65**	**39**
	90	4.24	**20**	**66**	**40**
	100	4.71	**21**	**67**	**41**
	125	5.89	**67 05 05**	**68**	**42**
	150	7.06	**06**	**69**	**43**
	175	8.24	**07**	**70**	**44**
	180	8.48	**08**	**86**	**45**
	200	9.42	**09**	**87**	**46**
	250	11.8	**10**	**88**	**47**
	300	14.1	**11**	**89**	**48**
9 mm (3/8)	16	1.13	**67 05 13**	**67 05 90**	**67 13 49**
	22	1.55	**14**	**91**	**50**
	25	1.77	**67 04 22**	**92**	**51**
	32	2.26	**23**	**93**	**52**
	38	2.68	**24**	**94**	**53**
	44	3.11	**25**	**95**	**54**
	50	3.53	**26**	**96**	**55**
	65	4.59	**27**	**97**	**56**
	75	5.30	**28**	**98**	**57**
	90	6.36	**29**	**99**	**58**
	100	7.06	**30**	**67 06 00**	**59**
	125	8.83	**31**	**28**	**60**
9 mm (3/8)	150	10.6	**67 05 15**	**67 06 29**	**67 13 61**
	165	11.7	**16**	**30**	**62**
	175	12.4	**17**	**31**	**63**
	180	12.7	**18**	**32**	**64**
	190	13.4	**19**	**33**	**65**
	200	14.1	**20**	**34**	**66**
	240	17.0	**21**	**35**	**67**
	250	17.7	**22**	**36**	**68**
	290	20.5	**23**	**37**	**69**
	300	21.2	**24**	**38**	**70**
12 mm (1/2)	25	2.36	**67 04 32**	**67 06 39**	**67 13 71**
	32	3.01	**33**	**40**	**72**
	38	3.58	**34**	**41**	**73**
	44	4.14	**35**	**42**	**74**
	50	4.71	**36**	**43**	**75**
	65	6.12	**37**	**44**	**76**
	75	7.06	**38**	**45**	**77**
	90	8.48	**39**	**46**	**78**
	100	9.42	**40**	**47**	**79**
	125	11.8	**41**	**48**	**80**
	150	14.1	**42**	**49**	**81**
	200	18.8	**43**	**50**	**82**
	250	23.6	**44**	**61**	**83**
	300	28.3	**45**	**62**	**84**
16 mm (5/8)	25	3.14	**67 05 26**	**67 06 63**	**67 13 85**
	32	4.02	**67 04 46**	**64**	**86**
	38	4.77	**47**	**65**	**87**
	50	6.28	**48**	**66**	**88**
	65	8.16	**49**	**67**	**89**
	75	9.42	**50**	**68**	**90**
	90	11.3	**51**	**69**	**91**
	100	12.6	**52**	**70**	**92**
	125	15.7	**53**	**71**	**93**
	150	18.8	**54**	**72**	**94**
	180	22.6	**55**	**73**	**95**
	200	25.1	**56**	**74**	**96**
	230	28.9	**57**	**75**	**97**
	250	31.4	**58**	**76**	**98**
	280	35.2	**59**	**77**	**99**
	300	37.7	**60**	**78**	**67 14 00**

(to be continued)

Unit Per Lgh.

Size mm Thick	Size mm Width	Kg Per Mtr	5.5 mtr (Japan)	6 mtr (Europe & Singapore)	20 ft (U.S.A.)
	32	4.77	**67 05 28**	**67 06 79**	**67 14 35**
	38	5.67	**67 04 61**	**80**	**36**
	50	7.46	**62**	**81**	**37**
	65	9.69	**63**	**82**	**38**
	75	11.2	**64**	**83**	**39**
19 mm (3/4)	90	13.4	**65**	**84**	**40**
	100	14.9	**66**	**85**	**41**
	125	18.6	**67**	**86**	**42**
	150	22.4	**68**	**87**	**43**
	180	26.8	**69**	**88**	**44**
	200	29.8	**70**	**89**	**45**
	250	37.3	**72**	**90**	**46**
	300	44.7	**74**	**91**	**47**
	50	8.46	**67 04 75**	**67 06 92**	**67 14 48**
	65	11.2	**76**	**93**	**49**
	75	13.0	**77**	**94**	**50**
	90	15.5	**78**	**95**	**85**
22 mm (7/8)	100	17.3	**79**	**96**	**86**
	125	21.6	**80**	**97**	**87**
	150	25.9	**81**	**98**	**88**
	180	31.1	**82**	**99**	**89**
	200	34.5	**83**	**67 07 00**	**90**
	250	43.2	**85**	**26**	**91**
	300	51.8	**87**	**27**	**92**

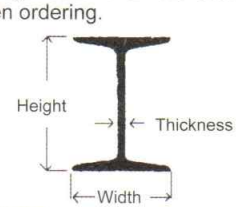
Steel I Beams – Hot Rolled

Perfiles Doble T Acero - Laminado en Caliente　I形鋼　热轧工字钢

Supplied in the following standard lengths:

Europe : 6 M　　U.S. : 20 ft.
Japan : 5.5 M　　Singapore : 6 M

If you require a length other than the standard mentioned, please specify when ordering.



How to order : CODE

Steel I beam, hot rolled, HEIGHT x WIDTH x THICKNESS mm x TOTAL LENGTH mtr

Unit Per Lgh.

Size mm Height	Size mm Width	Size mm Thick	Kg Per Mtr	5.5 mtr (Japan)	6 mtr (Europe & Singapore)	20 ft (U.S.A.)
75	75	5	11.9	**67 05 31**	**67 07 28**	**67 14 93**
100	75	5	12.9	**32**	**29**	**94**
125	75	5.5	16.1	**33**	**30**	**95**
150	75	5.5	17.1	**34**	**31**	**96**
150	125	8.5	36.2	**35**	**32**	**97**
180	100	6	23.6	**67 05 36**	**67 07 33**	**67 14 98**
200	100	7	26.0	**37**	**34**	**99**
200	150	9	50.4	**38**	**35**	**67 15 00**
250	125	7.5	38.3	**39**	**36**	**21**
250	125	10	55.5	**40**	**37**	**22**
300	150	8	48.3	**67 05 41**	**67 07 38**	**67 15 23**
300	150	10	65.5	**42**	**39**	**24**
300	150	11.5	76.8	**43**	**40**	**25**
350	150	9	58.5	**44**	**62**	**26**

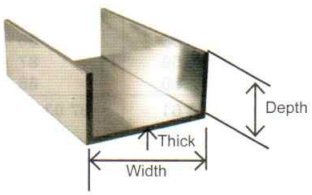
Steel Channels – Hot Rolled

Perfiles U Acero - Laminado en Caliente　溝形鋼　热轧槽形钢

Supplied in the following standard lengths.

Europe : 6 M
U.S. : 20 ft.
Japan : 5.5M
Singapore : 6 M

If you require a length other than the standard mentioned, please specify when ordering.



How to order: CODE

Steel channel, hot rolled , WIDTH x DEPTH x THICKNESS mm x TOTAL LENGTH mtr

Unit Per Lgh.

Size mm Width	Size mm Depth	Size mm Thick	Kg Per Mtr	5.5 mtr (Japan)	6 mtr (Europe & Singapore)	20 ft (U.S.A.)
75	40	5	6.92	**67 05 71**	**67 07 63**	**67 15 27**
100	50	5	9.36	**72**	**64**	**28**
125	65	6	13.4	**73**	**65**	**29**
150	70	6	15.8	**74**	**66**	**30**
150	75	6.5	18.6	**75**	**67**	**51**
150	75	9	24.0	**67 05 76**	**67 07 68**	**67 15 52**
180	75	7	21.4	**77**	**69**	**53**
200	80	7.5	24.6	**80**	**70**	**54**
200	90	8	30.3	**81**	**71**	**55**
250	90	9	34.6	**85**	**72**	**56**

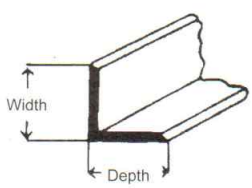
Steel Equal Angles – Hot Rolled

Ángulos Iguales de Acero - Laminado en Caliente
等辺アングル鋼　热轧等边角钢

Supplied in the following standard lengths.

Europe : 6 M
U.S. : 20 ft.
Japan : 5.5 M and random
Singapore : 6 M

If you require a length other than the standard mentioned, please specify when ordering.



How to order: CODE

Steel equal angle, hot rolled, WIDTH x DEPTH x THICKNESS mm x TOTAL LENGTH mtr

Unit Per Lgh.

Size mm Width	Size mm Depth	Size mm Thick	Kg Per Mtr	5.5 mtr (Japan)	6 mtr (Europe & Singapore)	20 ft (U.S.A.)
20	20	3	0.885	**67 06 01**	**67 07 73**	**67 15 57**
25	25	3	1.12	**02**	**74**	**58**
30	30	3	1.36	**03**	**75**	**59**
30	30	5	2.16	**04**	**76**	**60**
40	40	3	1.83	**05**	**77**	**61**
40	40	5	2.95	**67 06 06**	**67 07 78**	**67 15 62**
50	50	4	3.06	**07**	**79**	**63**
50	50	6	4.43	**08**	**80**	**64**
65	65	6	5.91	**09**	**90**	**65**
65	65	8	7.66	**10**	**91**	**66**
75	75	6	6.85	**67 06 11**	**67 07 92**	**67 15 67**
75	75	9	9.96	**12**	**93**	**68**
75	75	12	13.0	**13**	**94**	**69**
90	90	7	9.59	**14**	**95**	**70**
90	90	10	13.3	**15**	**96**	**71**

(to be continued)

Unit Per Lgh.

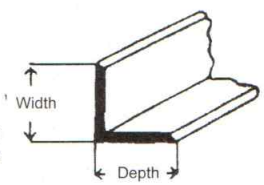
Size mm			Kg	5.5 mtr	6 mtr	20 ft
Width	Depth	Thick	Per Mtr	(Japan)	(Europe & Singapore)	(U.S.A.)
90	90	13	17.0	**67 06 16**	**67 07 97**	**67 15 72**
100	100	7	10.7	**17**	**98**	**73**
100	100	10	14.9	**18**	**99**	**74**
100	100	13	19.1	**19**	**67 08 00**	**75**
130	130	9	17.9	**20**	**08**	**76**
130	130	12	23.4	**67 06 21**	**67 08 09**	**67 15 77**
130	130	15	28.8	**22**	**10**	**78**
150	150	12	27.3	**23**	**11**	**79**
150	150	15	33.6	**24**	**12**	**80**
150	150	19	41.9	**25**	**13**	**81**
200	200	15	45.3	**67 06 26**	**67 08 14**	**67 15 82**
200	200	20	59.7	**27**	**15**	**83**

Steel Unequal Angles – Hot Rolled

Ángulos Desiguales de Acero - Laminado en Caliente
不等辺アングル鋼　热轧不等边钢

Supplied in the following standard lengths.

Europe : 6 M
U.S. : 20 ft.
Japan : 5.5 M and random
Singapore : 6 M



If you require a length other than the standard mentioned, please specify when ordering.

How to order: CODE

Steel unequal angle, hot rolled, WIDTH x DEPTH x THICKNESS mm x TOTAL LENGTH mtr

Unit Per Lgh.

Size mm			Kg	5.5 mtr	6 mtr	20 ft
Width	Depth	Thick	Per Mtr	(Japan)	(Europe & Singapore)	(U.S.A.)
65	50	5	4.36	**67 06 51**	**67 08 23**	**67 15 84**
75	50	6	5.67	**53**	**24**	**85**
75	65	6	6.38	**55**	**25**	**86**
90	75	6	7.56	**56**	**26**	**87**
90	75	9	11.0	**57**	**27**	**88**
100	75	7	9.32	**67 06 59**	**67 08 28**	**67 15 89**
100	75	10	13.0	**60**	**29**	**90**

Steel Plates – Hot Rolled

Chapas de Acero - Laminado en Caliente　鋼板　热轧钢板

Ungalvanized or galvanized plates are available in the following sheet sizes:

914 × 1,829 mm (3 ft. x 6 ft.) or 1,219 × 2,438 mm (4 ft. x 8 ft.).

If you require a sheet size other than the ones listed above, please specify the dimensions you require in your order.



Ungalvanized

How to order: CODE

Steel plate, hot rolled, ungalvanized, THICKNESS x WIDTH x LENGTH mm, NUMBER of SHEETS required

Unit Per Sht.

Ungalvanized

914 x 1,829 mm (3' x 6')			1,219 x 2,438 mm (4' x 8')		
CODE	Thickness mm	Kg Per Sht	CODE	Thickness mm	Kg Per Sht
67 07 01	0.6	7.8	**67 07 41**	1.6	37.3
02	0.8	10.5	**42**	2.0	46.7
03	1.0	13.1	**43**	2.3	53.7
04	1.2	15.8	**44**	3.2	74.7
05	1.6	21.0	**45**	4.5	105
67 07 06	2.0	26.3	**67 07 46**	5.0	140
07	2.3	30.2	**47**	8.0	187
08	3.2	42.0	**48**	9.0	210
09	4.5	59.1	**49**	10	233
10	6.0	78.8	**50**	11	257
67 07 11	8.0	105	**67 07 51**	12	280
12	9.0	118	**52**	16	373
13	10	131	**53**	19	443
14	11	144	**54**	22	513
15	12	158	**55**	25	583
67 07 16	16	210	**67 07 56**	28	653
17	19	249	**57**	32	747
18	22	289	**58**	36	840
19	25	328	**59**	40	933
20	28	368	**60**	45	1,050
67 07 21	32	420	**67 07 61**	50	1,167
22	36	473			
23	40	525			
24	45	591			
25	50	656			

Galvanized

914 x 1,829 mm (3' x 6')

How to order: CODE

Steel plate, hot rolled, galvanized,THICKNESS mm, 914 x 1,829 mm (3 ft. x 6 ft.), NUMBER of SHEETS required

Unit Per Sht.

CODE	Thickness mm	Kg Per Sht	CODE	Thickness mm	Kg Per Sht
67 07 81	0.27	4.18	**67 07 86**	0.8	11.1
82	0.3	4.57	**87**	1.0	13.8
83	0.4	5.89	**88**	1.2	16.4
84	0.5	7.20	**89**	1.6	21.6
85	0.6	8.51			

Steel Checker Plates – Hot Rolled

Chapas Estriadas de Acero - Laminado en Caliente
縞鋼板　热轧网纹钢板



For the construction or repair of floor plates, iron ladder steps, etc. Standard sheet size: 914 x 1,829 mm (3 ft. x 6 ft.) or 1,219 x 2,438 mm (4 ft. x 8 ft.).

If you require a different size sheet, please specify the dimensions you require in your order.

How to order: CODE

Steel checker plate, hot rolled, WIDTH x LENGTH mm, THICKNESS mm, NUMBER of SHEETS required

Unit Per Sht.

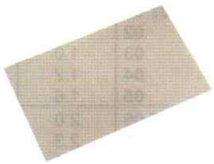
914 x 1,829 mm (3' x 6')			1,219 x 2,438 mm (4' x 8')		
CODE	Thickness mm	Kg Per Sht	CODE	Thickness mm	Kg Per Sht
67 08 01	3.2	44.8	**67 08 16**	3.2	79.6
02	4.5	61.8	**17**	4.5	110
03	6	81.5	**18**	6	145
04	8	108	**19**	8	192
05	9	121	**20**	9	215
67 08 06	10	134	**67 08 21**	10	238
07	12	167	**22**	12	285

Tinned Plates

Chapas de Hojalata　ブリキ板　鍍錫鋼板

Standard sheet size : 508 x 711.2 mm (20" x 28").

If you require a different size sheet, please indicate the dimensions of the sheet you require in your order.



How to order: CODE

Tinned plate, 508 x 711.2 mm, THICKNESS mm, NUMBER of SHEETS required

Unit Per Sht.

CODE	Thickness mm	Gram Per Sht	CODE	Thickness mm	Gram Per Sht
67 08 51	0.214	607	**67 08 56**	0.285	810
52	0.229	648	**57**	0.294	834
53	0.243	688	**58**	0.306	867
54	0.257	729	**59**	0.320	907
55	0.271	770	**60**	0.357	1,012

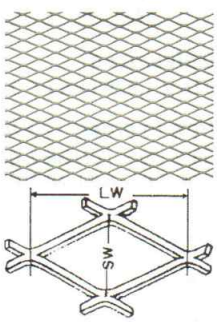
Steel Bleaching Plates

(Diamond Expanded Metal)

Chapas Blanqueadas de Acero　エキスパンドメタル　网眼钢板

Standard size: 914 × 1,829 mm (3 ft. × 6 ft.) or 1,219 × 2,438 mm (4 ft. × 8 ft.).

Made of rolled steel for use as a general structural material. When ordering, please specify the size of the mesh you require (as shown in the illustration as above) as well as the thickness of the mesh wire and the length and width of the sheet required for use.



How to order: CODE

Steel bleaching plate, WIDTH x LENGTH mm, MESH (SW x LW) mm, THICKNESS mm, NUMBER of SHEETS required

Unit Per Sht.

914 x 1,829 mm (3' x 6')				1,219 x 2,438 mm (4' x 8')			
CODE	Mesh mm		Thickness mm	CODE	Mesh mm		Thickness mm
	SW	LW			SW	LW	
67 08 81	25	61	3.2	**67 08 86**	25	61	3.2
82	34	135	4.5	**87**	34	135	4.5
83	34	135	6.0	**88**	34	135	6.0

Carbon Tool Steel Rounds

Redondos de Acero Carbono para Harramientas　炭素工具鋼　圆碳钢棒

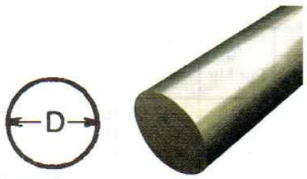
Water hardened carbon tool steel, SK3 (content ratio of carbon, 1 - 1.1 %), for taps, dies, chisels, etc.

SK5 type (content ratio of carbon, 0.8 - 0.9 %) tool steel is for stamping plates for letters and figures or as saw blades. Annealed and processed for the easiest machinability.

Supplied in the following standard lengths:

Europe : 3 M
Japan : 5.5 M
U.S. : 12 ft.
Singapore : 6 M

If you require a length other than the standard mentioned, please specify when ordering.



How to order: CODE

Tool steel, carbon, round, SK3 or SK5, DIAM mm x TOTAL LENGTH mtr

Unit Per Lgh.

SK-3 For Tap-Dies-Chisel etc.		5.5 mtr (Japan)	3 mtr (Europe)	12 feet (U.S.A.)	6 mtr (Singapore)
Diam mm	Kg Per Mtr				
10	0.62	**67 09 01**	**67 15 91**	**67 16 60**	**67 17 10**
11	0.75	**02**	**92**	**61**	**11**
12	0.89	**03**	**93**	**62**	**12**
13	1.04	**04**	**94**	**63**	**13**
14	1.21	**05**	**95**	**64**	**14**
15	1.39	**67 09 06**	**67 15 96**	**67 16 65**	**67 17 15**
16	1.58	**07**	**97**	**66**	**16**
17	1.78	**08**	**98**	**67**	**17**
18	2.00	**09**	**99**	**68**	**18**
19	2.23	**10**	**67 16 00**	**69**	**19**
20	2.47	**67 09 11**	**67 16 20**	**67 16 70**	**67 17 20**
21	2.72	**12**	**21**	**71**	**21**
22	2.98	**13**	**22**	**72**	**22**
23	3.26	**14**	**23**	**73**	**23**
24	3.55	**15**	**24**	**74**	**24**
25	3.85	**67 09 16**	**67 16 25**	**67 16 75**	**67 17 25**
26	4.17	**17**	**26**	**76**	**26**
27	4.49	**18**	**27**	**77**	**27**
28	4.83	**19**	**28**	**78**	**28**
30	5.55	**20**	**29**	**79**	**29**
32	6.31	**67 09 21**	**67 16 30**	**67 16 80**	**67 17 30**
34	7.13	**22**	**31**	**81**	**31**
36	7.99	**23**	**32**	**82**	**32**
38	8.90	**24**	**33**	**83**	**33**
40	9.87	**25**	**34**	**84**	**34**

Unit Per Lgh.

SK-5 For Stamp Letter-Figure-Saw		5.5 mtr (Japan)	3 mtr (Europe)	12 feet (U.S.A.)	6 mtr (Singapore)
Diam mm	Kg Per Mtr				
10	0.62	**67 09 51**	**67 16 35**	**67 16 85**	**67 17 35**
11	0.75	**52**	**36**	**86**	**36**
12	0.89	**53**	**37**	**87**	**37**
13	1.04	**54**	**38**	**88**	**38**
14	1.21	**55**	**39**	**89**	**39**
15	1.39	**67 09 56**	**67 16 40**	**67 16 90**	**67 17 40**
16	1.58	**57**	**41**	**91**	**41**
17	1.78	**58**	**42**	**92**	**42**
18	2.00	**59**	**43**	**93**	**43**
19	2.23	**60**	**44**	**94**	**44**
20	2.47	**67 09 61**	**67 16 45**	**67 16 95**	**67 17 45**
21	2.72	**62**	**46**	**96**	**46**
22	2.98	**63**	**47**	**97**	**47**
23	3.26	**64**	**48**	**98**	**48**
24	3.55	**65**	**49**	**99**	**49**
25	3.85	**67 09 66**	**67 16 50**	**67 17 00**	**67 17 50**
26	4.17	**67**	**51**	**01**	**51**
27	4.49	**68**	**52**	**02**	**52**
28	4.83	**69**	**53**	**03**	**53**
30	5.55	**70**	**54**	**04**	**54**
32	6.31	**67 09 71**	**67 16 55**	**67 17 05**	**67 17 55**
34	7.13	**72**	**56**	**06**	**56**
36	7.99	**73**	**57**	**07**	**57**
38	8.90	**74**	**58**	**08**	**58**
40	9.87	**75**	**59**	**09**	**59**

Steel Piano Wire

(Music Wire)

Alambre de Acero para Piano

ピアノ線　钢琴钢丝



How to order: CODE

Steel piano wire, DIAM mm x TOTAL LENGTH mtr

Unit Per Mtr.

CODE	Diam. mm	Kg Per 1,000 m	CODE	Diam. mm	Kg Per 1,000 m
67 10 01	0.08	0.0394	**67 10 20**	0.70	3.018
02	0.09	0.0499	**21**	0.80	3.943
03	0.10	0.0615	**22**	0.90	4.986
04	0.12	0.0884	**23**	1.0	6.158
05	0.14	0.121	**24**	1.2	8.867
67 10 06	0.16	0.158	**67 10 25**	1.4	12.07
07	0.18	0.199	**26**	1.6	15.77
08	0.20	0.246	**27**	1.8	19.95
09	0.23	0.325	**28**	2.0	24.63
10	0.26	0.416	**29**	2.3	32.58
67 10 11	0.29	0.518	**67 10 30**	2.6	41.62
12	0.32	0.630	**31**	2.9	51.78
13	0.35	0.754	**32**	3.2	63.05
14	0.40	0.980	**33**	3.5	75.43
15	0.45	1.247	**34**	4.0	98.52
67 10 16	0.50	1.537	**67 10 35**	4.5	124.66
17	0.55	1.863	**36**	5.0	153.94
18	0.60	2.219	**37**	5.5	186.27
19	0.65	2.603	**38**	6.0	221.64

Iron Wire

Alambre de Hierro　鉄線　低碳钢丝

Galvanized or ungalvanized wire is available.



How to order: CODE

Iron wire, GALVANIZED or UNGALVANIZED, DIAM mm TOTAL LENGTH mtr

Unit Per Kg.

Galvanized Wire		Kg Per 1,000 m	Ungalvanized Wire	
CODE	Diam. mm		CODE	Diam. mm
67 11 01	0.23	0.326	**67 11 51**	0.23
02	0.26	0.417	**52**	0.26
03	0.29	0.518	**53**	0.29
04	0.32	0.631	**54**	0.32
05	0.35	0.755	**55**	0.35
67 11 06	0.40	0.987	**67 11 56**	0.40
07	0.45	1.25	**57**	0.45
08	0.50	1.54	**58**	0.50
09	0.55	1.87	**59**	0.55
10	0.60	2.22	**60**	0.60
67 11 11	0.65	2.60	**67 11 61**	0.65
12	0.70	3.02	**62**	0.70
13	0.80	3.95	**63**	0.80
14	0.90	4.99	**64**	0.90
15	1.0	6.17	**65**	1.0
67 11 16	1.2	8.88	**67 11 66**	1.2
17	1.4	12.1	**67**	1.4
18	1.6	15.8	**68**	1.6
19	1.8	20.0	**69**	1.8
20	2.0	24.7	**70**	2.0
67 11 21	2.3	32.6	**67 11 71**	2.3
22	2.6	41.7	**72**	2.6
23	2.9	51.8	**73**	2.9
24	3.2	63.1	**74**	3.2
25	3.5	75.5	**75**	3.5
67 11 26	4.0	98.7	**67 11 76**	4.0
27	4.5	125	**77**	4.5
28	5.0	154	**78**	5.0
29	5.5	187	**79**	5.5
30	6.0	222	**80**	6.0
67 11 31	6.5	260	**67 11 81**	6.5

Razor Wire

Alambre de cuchillas　蛇腹式レーザーワイヤー　蛇腹型刀片刺网

A concertina configured galvanized steel wire used for outer boundary fencing on ship's deck to defend ships from the vandals, like pirates. The razor wire prevents any intruders from penetrating by piercing or gripping them. Two patterns of loop are available ; Single Loop or Crossed Loop, and also standard diameter are available from 400 mm to 900 mm. Standard coil length when extended is 15 mtr, and they can be lengthened by connecting clips.



Single Loop



Crossed Loop

Unit Per Mtr.

CODE	Diameter	Standard Extended Length	CODE	Diameter	Standard Extended Length
Single Loop			**Crossed Loop**		
67 12 01	400 mm	15 mtr	**67 12 11**	400 mm	15 mtr
02	500 "		**12**	500 "	
03	600 "		**13**	600 "	
04	700 "		**14**	700 "	
05	800 "		**15**	800 "	
67 12 06	900 "	15 mtr	**67 12 16**	900 "	15 mtr

Connecting Clips and Ties for Razor Wire



Single Clip



Connecting Tie

CODE	Unit	CODE	Unit
Connecting Clip		**Connecting Tie**	
67 12 18	Per Piece	**67 12 20**	Per Piece
19	100's / Packet	**21**	100's / Packet

Stainless Steel Razor Wire

Unit Per Mtr.

CODE	Circle Diam.	CODE	Circle Diam.
67 12 25	900 mm	**67 12 26**	1,000 mm

Remark: Standard length is 15 mtr per coil.

Flat Wrap Razor Wire

Alambre plano de la maquinilla de afeitar

平面式レーザーワイヤー　扁平包裹剃刀电线



A flat wrap razor wire is suitable for installations where a neat appearance is required. Due to its flat construction, it does not overhanging into neighboring property and will therefore not harm innocent bystanders. The flat wrap razor wire can be used to upgrade any existing fence or wall, by adding directly to a wire mesh fence, or adding it on top of a brick or pre-cast wall to instantly upgrade your security.

Unit Per Lgh.

CODE	Diam.	Length
67 12 31	500 mm	10 mtr
32	700 "	

Tools for Razor Wire Installation



19 01 41	Gloves for razor wire installation	Pr.
43	Arm Protector for razor wire installation	Pr.
45	Apron for installation razor wire	Pc.
61 17 65	Razor wire clip pliers	Pr.

Barbed Wire

Alambre de espino 有刺鉄線 有刺铁丝

A galvanized wire with sharp edges to protect your property from invaders by fencing around.



67 12 41	Barbed wire, 250 mtr (App.28 kg)	Rls.

Stainless Steel Rounds

Hot Rolled

Redodos de Acero Inoxidable - Laminado en Caliente
ステンレス鋼棒 熱轧不锈圆钢

SUS 430 - AISI (ASTM) 430 ... 18 Chrome
SUS 304 - AISI (ASTM) 304 ... 18 Chrome & 8 Nickel

Supplied in the following standard lengths. If you require a length other than the standard mentioned, please specify when ordering.

Europe : 3 M
U.S. : 12 ft.
Japan : 4 M
Singapore : 6 M



How to order: CODE

Stainless steel round, SUS 430 or SUS 304, DIAM mm x TOTAL LENGTH mtr

Unit Per Lgh.

SUS 430 18 Chrome Diam mm	Kg Per Mtr	4 mtr (Japan)	3 mtr (Europe)	12 feet (U.S.A.)	6 mtr (Singapore)
9	0.5	67 14 01	67 17 60	67 17 94	67 18 47
10	0.62	02	61	95	48
12	0.89	03	62	96	49
13	1.04	04	63	97	50
14	1.21	05	64	98	68
15	1.39	67 14 06	67 17 65	67 17 99	67 18 69
16	1.58	07	66	67 18 00	70
19	2.23	08	67	20	71
20	2.47	09	68	21	72
22	2.98	10	69	22	73
24	3.55	67 14 11	67 17 70	67 18 23	67 18 74
25	3.85	12	71	24	75
26	4.17	13	72	25	76
28	4.83	14	73	26	77
30	5.55	15	74	27	78
32	6.31	67 14 16	67 17 75	67 18 28	67 18 79
34	7.13	17	76	29	80
36	7.99	18	77	30	81
38	8.90	19	78	31	82
40	9.87	20	79	32	83
42	10.9	67 14 21	67 17 80	67 18 33	67 18 84
44	11.9	22	81	34	85
46	13.0	23	82	35	86
48	14.2	24	83	36	87
50	15.4	25	84	37	88
55	18.7	67 14 26	67 17 85	67 18 38	67 18 89
60	22.2	27	86	39	90
65	26.0	28	87	40	91
70	30.2	29	88	41	92
75	34.7	30	89	42	93
80	39.5	67 14 31	67 17 90	67 18 43	67 18 94
85	44.5	32	91	44	95
90	49.9	33	92	45	96
100	61.7	34	93	46	97

(to be continued)

Unit Per Lgh.

SUS 304 18 Chrome & 8 Nickel Diam mm	Kg Per Mtr	4 mtr (Japan)	3 mtr (Europe)	12 feet (U.S.A.)	6 mtr (Singapore)
9	0.5	67 14 51	67 18 98	67 19 75	67 20 09
10	0.62	52	99	76	10
12	0.89	53	67 19 00	77	11
13	1.04	54	23	78	12
14	1.21	55	24	79	13
15	1.39	67 14 56	67 19 25	67 19 80	67 20 14
16	1.58	57	26	81	15
19	2.23	58	27	82	16
20	2.47	59	28	83	17
22	2.98	60	29	84	18
24	3.55	67 14 61	67 19 30	67 19 85	67 20 19
25	3.85	62	31	86	20
26	4.17	63	32	87	21
28	4.83	64	33	88	22
30	5.55	65	34	89	23
32	6.31	67 14 66	67 19 35	67 19 90	67 20 24
34	7.13	67	36	91	25
36	7.99	68	37	92	26
38	8.90	69	38	93	27
40	9.87	70	39	94	28
42	10.9	67 14 71	67 19 40	67 19 95	67 20 29
44	11.9	72	41	96	30
46	13.0	73	42	97	31
48	14.2	74	43	98	32
50	15.4	75	44	99	33
55	18.7	67 14 76	67 19 45	67 20 00	67 20 34
60	22.2	77	46	01	35
65	26.0	78	47	02	36
70	30.2	79	48	03	37
75	34.7	80	49	04	38
80	39.5	67 14 81	67 19 50	67 20 05	67 20 39
85	44.5	82	72	06	40
90	49.9	83	73	07	41
100	61.7	84	74	08	42

Stainless Steel Hexagons

Hot Rolled

Hexagonales de Acero Inoxidable - Laminado en Caliente
ステンレス六角鋼 六角不锈钢

SUS 430 - AISI (ASTM) 430 ... 18 Chrome
SUS 304 - AISI (ASTM) 304 ... 18 Chrome & 8 Nickel

Supplied in the following standard lengths. If you require a length other than the standard mentioned, please specify when ordering.

Europe : 3 M
U.S. : 12 ft.
Japan : 4 M
Singapore : 12 M





How to order: CODE

Stainless steel hexagon, SUS 430 or SUS 304, ACROSS FLAT mm x TOTAL LENGTH mtr

Unit Per Lgh.

SUS 430 18 Chrome		4 mtr (Japan)	3 mtr (Europe)	12 feet (U.S.A. & Singapore)
Across Flats mm	Kg Per Mtr			
12	0.979	67 15 01	67 20 43	67 20 63
14	1.33	02	44	64
17	1.96	03	45	65
19	2.45	04	46	66
21	3.00	05	47	67
23	3.60	67 15 06	67 20 48	67 20 68
26	4.60	07	49	69
29	5.72	08	50	70
32	6.96	09	51	71
35	8.33	10	52	72
38	9.82	67 15 11	67 20 53	67 20 73
41	11.4	12	54	74
46	14.4	13	55	75
50	17.0	14	56	76
54	19.8	15	57	77
58	22.9	67 15 16	67 20 58	67 20 78
63	27.0	17	59	79
67	30.5	18	60	80
71	34.3	19	61	81
77	40.3	20	62	82

Unit Per Lgh.

SUS 304 18 Chrome & 8 Nickel		4 mtr (Japan)	3 mtr (Europe)	12 feet (U.S.A. & Singapore)
Across Flats mm	Kg Per Mtr			
12	0.979	67 15 31	67 20 83	67 21 45
14	1.33	32	84	46
17	1.96	33	85	47
19	2.45	34	86	48
21	3.00	35	87	49
23	3.60	67 15 36	67 20 88	67 21 50
26	4.60	37	89	51
29	5.72	38	90	52
32	6.96	39	91	53
35	8.33	40	92	54
38	9.82	67 15 41	67 20 93	67 21 55
41	11.4	42	94	56
46	14.4	43	95	57
50	17.0	44	96	58
54	19.8	45	97	59
58	22.9	67 15 46	67 20 98	67 21 60
63	27.0	47	99	61
67	30.5	48	67 21 00	62
71	34.3	49	43	63
77	40.3	50	44	64

Stainless Steel Plates

Hot Rolled

Chapas de Acero Inoxidable - Laminado en Caliente
ステンレス鋼板　不锈钢板

SUS 304 - AISI (ASTM) 304 ... 18 Chrome & 8 Nickel
Supplied in the following standard sizes.

Europe : 1 x 2 M
Japan : 1 x 2 M
U.S. : 4 x 8 ft.
Singapore : 4 x 8 ft.



How to order: CODE

Stainless steel plate, SUS 304, THICKNESS mm, 1 x 2 mtr, NUMBER of SHEETS required

Unit Per Sht.

Thickness mm	Kg Per Sht	1 x 2 mtr (Japan & Europe)	4 x 8 feet (U.S.A.& Singapore)
0.5	8.0	67 16 01	67 21 65
0.6	9.6	02	66
0.8	12.7	03	67
1.0	15.9	04	68
1.5	23.8	05	69
2.0	31.7	67 16 06	67 21 70
2.5	39.6	07	77
3.0	47.6	08	78
4.0	63.4	09	79
5.0	79.3	10	80
6.0	95.2	67 16 11	67 21 81
7.0	111	12	82
8.0	127	13	83
9.0	143	14	84
10.0	159	15	85
12.0	190	67 16 16	67 21 86
15.0	238	17	87
20.0	317	18	88
25.0	396	19	89

Copper Rounds

Redondo de Cobre　銅棒　铜棒

Supplied in the following standard lengths. If you require a length other than the standard mentioned, please specify when ordering.

Europe : 4 M
Japan : 4 M
U.S. : 12 ft.
Singapore : 12 ft.



How to order : CODE

Copper round, DIAM mm x TOTAL LENGTH mtr

Unit Per Lgh.

Diam mm	Kg Per Sht	4 mtr (Japan & Europe)	12 feet (U.S.A.& Singapore)
10	0.698	67 18 01	67 21 90
12	1.01	02	91
13	1.18	03	92
14	1.37	04	93
15	1.57	05	94
16	1.79	67 18 06	67 21 95
19	2.52	07	96
20	2.79	08	97
22	3.38	09	98
25	4.36	10	99
28	5.47	67 18 11	67 22 00
30	6.28	12	24
32	7.15	13	25
35	8.55	14	26
38	10.1	15	27
40	11.2	67 18 16	67 22 28
42	12.3	17	29
45	14.1	18	30
50	17.5	19	31

Copper Wire

Alambre de Cobre　銅線　铜线



How to order: CODE

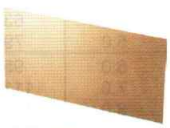
Copper wire, DIAM mm x TOTAL LENGTH mtr

Unit Per Kgs.

CODE	Diameter		Kg Per 1,000 m	CODE	Diameter		Kg Per 1,000 m
	mm	Swg			mm	Swg	
67 18 51	0.3	31	0.6284	**67 18 61**	1.6	16	17.88
52	0.4	27	1.117	**62**	1.8	15	22.63
53	0.5	25	1.746	**63**	2.0	14	27.93
54	0.6	23	2.513	**64**	2.3	13	36.94
55	0.7	22	3.421	**65**	2.6	12	47.20
67 18 56	0.8	21	4.469	**67 18 66**	3.0	11	62.84
57	0.9	20	5.656	**67**	3.5	9	85.53
58	1.0	19	6.982				
59	1.2	18	10.05				
60	1.4	17	13.68				

Copper Sheets

Láminas de Cobre　銅板　铜片



Supplied in the following standard sizes :

Europe : 1,000 x 500 mm or 1,000 x 1,000 mm
Japan : (1) W 365 x L 1,200 mm, 0.4 - 10 mm thick
(2) W 1,000 x L 2,000 mm, 0.5 - 10 mm thick
Singapore : 1 x 1 M, 0.5 - 3 mm thick.

How to order: CODE

Copper sheet, WIDTH x LENGTH mm, THICKNESS mm, NUMBER of SHEETS required

Unit Per Sht.

365 mm × 1,200 mm			1,000 mm × 2,000 mm		
CODE	Thickness mm	Kg Per Sht	CODE	Thickness mm	Kg Per Sht
67 19 01	0.4	1.558	**67 19 51**	0.5	8.89
02	0.5	1.947	**52**	0.6	10.67
03	0.6	2.336	**53**	0.7	12.45
04	0.7	2.726	**54**	0.8	14.22
05	0.8	3.115	**55**	1.0	17.78
67 19 06	1.0	3.894	**67 19 56**	1.2	21.34
07	1.2	4.673	**57**	1.4	24.90
08	1.4	5.453	**58**	1.5	26.68
09	1.5	5.843	**59**	1.6	28.44
10	1.6	6.228	**60**	1.8	32.0
67 19 11	1.8	7.008	**67 19 61**	2.0	35.56
12	2.0	7.788	**62**	2.3	40.9
13	2.3	8.957	**63**	2.6	46.22
14	2.6	10.12	**64**	2.9	51.56
15	2.9	11.29	**65**	3.2	56.9
67 19 16	3.2	12.46	**67 19 66**	4.0	71.12
17	4	15.58	**67**	5.0	88.90
18	5	19.47	**68**	6.0	106.7
19	6	23.36	**69**	7.0	124.5
20	7	27.26	**70**	8.0	142.2
67 19 21	8	31.15	**67 19 71**	10	177.8
22	10	38.94			

Brass Rounds

Redondos de Latón　黄銅（真鍮）棒　黄铜棒



Copper 60 %, Zinc 40 %. Supplied in the following standard lengths:

Europe : 3 M
Japan : 4 M
U.S. : 12 ft.
Singapore : 4 M

If you require a length other than the standard mentioned, please specify when ordering.

How to order: CODE

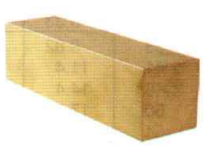
Brass round, DIAM mm x TOTAL LENGTH mtr required

Unit Per Lgh.

Diam mm	Kg Per Mtr	4 mtr (Japan & Singapore)	3 mtr (Europe)	12 feet (U.S.A.)
3	0.060	**67 21 01**	**67 22 32**	**67 23 33**
3.5	0.081	**02**	**33**	**34**
4	0.105	**03**	**34**	**35**
4.5	0.133	**04**	**35**	**36**
5	0.165	**05**	**36**	**37**
5.5	0.20	**67 21 06**	**67 22 37**	**67 23 38**
6	0.237	**07**	**38**	**39**
7	0.323	**08**	**39**	**40**
8	0.422	**09**	**40**	**41**
9	0.534	**10**	**41**	**42**
10	0.660	**67 21 11**	**67 22 42**	**67 23 43**
11	0.797	**12**	**43**	**44**
12	0.950	**13**	**44**	**45**
13	1.11	**14**	**45**	**46**
14	1.29	**15**	**46**	**47**
15	1.48	**67 21 16**	**67 22 47**	**67 23 48**
16	1.69	**17**	**48**	**49**
17	1.90	**18**	**49**	**50**
18	2.14	**19**	**50**	**73**
19	2.38	**20**	**84**	**74**
20	2.64	**67 21 21**	**67 22 85**	**67 23 75**
21	2.91	**22**	**86**	**76**
22	3.19	**23**	**87**	**77**
23	3.49	**24**	**88**	**78**
24	3.80	**25**	**89**	**79**
25	4.12	**67 21 26**	**67 22 90**	**67 23 80**
26	4.46	**27**	**91**	**81**
27	4.81	**28**	**92**	**82**
28	5.17	**29**	**93**	**83**
30	5.94	**30**	**94**	**84**
32	6.76	**67 21 31**	**67 22 95**	**67 23 85**
34	7.63	**32**	**96**	**86**
35	8.08	**33**	**97**	**87**
36	8.55	**34**	**98**	**88**
38	9.53	**35**	**99**	**89**
40	10.6	**67 21 36**	**67 23 00**	**67 23 90**
42	11.6	**37**	**27**	**91**
44	12.7	**38**	**28**	**92**
45	13.4	**39**	**29**	**93**
46	14.0	**40**	**30**	**94**
48	15.2	**67 21 41**	**67 23 31**	**67 23 95**
50	16.5	**42**	**32**	**96**

Brass Squares

Cuadrados de Latón　黄銅（真鍮）角棒　方形黄铜棒



Copper 60 %, Zinc 40 %. Supplied in the following standard lengths:

Europe : 3 M
U. S. : 12 ft.
Japan : 4 M
Singapore : 12 ft.

If you require a length other than the standard mentioned, please specify when ordering.

How to order: CODE

Brass square, ACROSS FLAT mm, TOTAL LENGTH mtr

Unit Per Lgh.

Across Flats mm	Kg Per Mtr	4 mtr (Japan)	3 mtr (Europe)	12 feet (U.S.A. & Singapore)
8	0.538	**67 21 71**	**67 23 97**	**67 24 14**
9	0.680	**72**	**98**	**15**
10	0.840	**73**	**99**	**16**
11	1.02	**74**	**67 24 00**	**17**
12	1.21	**75**	**12**	**18**
13	1.42	**67 21 76**	**67 24 13**	**67 24 19**

Brass Hexagons

Hexagonales de Latón　黄銅（真鍮）六角棒　六角黄铜



Supplied in the following standard lengths.

Europe : 3 M
U. S. : 12 ft.
Japan : 4 M
Singapore : 4 M

If you require a length other than the standard mentioned, please specify when ordering.

How to order: CODE

Brass hexagon, ACROSS FLAT mm x TOTAL LENGTH mtr

Unit Per Lgh.

Across Flats mm	Kg Per Mtr	4 mtr (Japan & Singapore)	3 mtr (Europe)	12 feet (U.S.A.)
6	0.262	**67 22 01**	**67 24 20**	**67 24 65**
7	0.356	**02**	**32**	**66**
8	0.465	**03**	**33**	**67**
9	0.589	**04**	**34**	**68**
10	0.727	**05**	**35**	**69**
12	1.05	**67 22 06**	**67 24 36**	**67 24 70**
14	1.43	**07**	**37**	**71**
17	2.10	**08**	**38**	**72**
19	2.62	**09**	**39**	**73**
21	3.20	**10**	**40**	**74**
23	3.84	**67 22 11**	**67 24 52**	**67 24 75**
25	4.54	**12**	**53**	**76**
30	6.54	**13**	**54**	**77**
32	7.44	**14**	**55**	**78**
35	8.90	**15**	**56**	**79**
40	11.6	**67 22 16**	**67 24 57**	**67 24 80**
41	12.2	**17**	**58**	**81**
46	15.4	**18**	**59**	**82**
50	18.2	**19**	**60**	**83**
54	21.2	**20**	**61**	**84**
58	24.4	**67 22 21**	**67 24 62**	**67 24 85**
63	28.8	**22**	**63**	**86**
67	32.6	**23**	**64**	**87**

Brass Plates

Láminas de Latón
黄銅（真鍮）板　黄铜板



Standard Sizes:

1) W 365 x L 1,200 mm ... 0.15 to 30 mm thick
2) W 1,000 x L 2,000 m ... 0.5 to 30 mm thick.

Please specify if you require plates of a size other than those listed above.

How to order: CODE

Brass plate, WIDTH x LENGTH mm, THICKNESS mm, NUMBER of SHEETS required

Unit Per Sht.

365 mm × 1,200 mm			1,000 mm × 2,000 mm		
CODE	Thickness mm	Kg Per Sht	CODE	Thickness mm	Kg Per Sht
67 22 51	0.15	0.551	**67 23 01**	0.6	8.39
52	0.2	0.735	**02**	0.6	10.1
53	0.25	0.919	**03**	0.7	11.7
54	0.3	1.10	**04**	0.8	13.4
55	0.35	1.29	**05**	1.0	16.8
67 22 56	0.4	1.47	**67 23 06**	1.2	20.1
57	0.45	1.65	**07**	1.4	23.5
58	0.5	1.84	**08**	1.5	25.2
59	0.6	2.20	**09**	1.6	26.8
60	0.7	2.57	**10**	1.8	30.2
67 22 61	0.8	2.94	**67 23 11**	2.0	33.6
62	1.0	3.67	**12**	2.3	38.6
63	1.2	4.41	**13**	2.5	42.0
64	1.4	5.14	**14**	3.0	50.3
65	1.5	5.51	**15**	3.2	53.7
67 22 66	1.6	5.88	**67 23 16**	3.5	58.7
67	1.8	6.61	**17**	4	67.1
68	2.0	7.35	**18**	5	83.9
69	2.3	8.45	**19**	6	101
70	2.5	9.19	**20**	7	117
67 22 71	3.0	11.0	**67 23 21**	8	134
72	3.2	11.8	**22**	10	168
73	3.5	12.9	**23**	15	252
74	4	14.7	**24**	20	336
75	5	18.4	**25**	25	420
67 22 76	6	22.0	**67 23 26**	30	503
77	7	25.7			
78	8	29.4			
79	10	36.7			
80	15	55.1			
67 22 81	20	73.5			
82	25	91.9			
83	30	110			

(to be continued)

Brass Wire

Alambre de Latón
黄銅（真鍮）線　黄铜丝



Sizes other than those listed below are available upon request.

How to order: CODE

Brass wire, DIAM mm x TOTAL LENGTH mtr

Unit Per Kgs.

CODE	Diameter		Kg Per 1,000 m	CODE	Diameter		Kg Per 1,000 m
	mm	Swg			mm	Swg	
67 23 51	0.5	25	1.6830	**67 23 61**	1.8	15	21.7057
52	0.55	24	2.0169	**62**	2.0	14	25.98
53	0.6	23	2.4129	**63**	2.3	13	34.40
54	0.65	-	2.6852	**64**	2.5	-	43.31
55	0.7	22	3.2197	**65**	2.8	-	49.74
67 23 56	0.8	21	4.2817	**67 23 66**	3.0	-	60.26
57	0.9	20	5.2477	**67**	3.2	10	68.60
58	1.0	19	6.6947	**68**	3.5	9	86.87
59	1.2	18	9.6525	**69**	3.8	-	91.57
60	1.4	17	13.1297	**70**	4.0	8	107.16
				67 23 71	4.3	-	128.70
				72	4.5	7	135.50

Brass Shims

(Brass Strips)

Ráminas de Latón　黄銅（真鍮）条　黄铜垫片



A solid shim stock of precision laminated brass. These strips can be easily cut by a power saw or hacksaw and can be punched, bored, or milled by ordinary machinery. The thin stock can be cut easily with metal shears. Supplied in the following standard sizes :

1) 125 mm x 5 mtr
2) 150 mm x 5 mtr
3) 175 mm x 5 mtr

Please specify if you require sizes other than those listed above.

How to order: CODE

Brass shim, WIDTH x LENGTH mm, THICKNESS mm, NUMBER of SHEETS required

Unit Per Sht.

125 mm x 5 mtr			150 mm x 5 mtr		
CODE	Thickness mm	Kg Per Sht	CODE	Thickness mm	Kg Per Sht
67 24 01	0.1	0.525	**67 24 21**	0.1	0.63
02	0.16	0.84	**22**	0.16	1.005
03	0.2	1.05	**23**	0.2	1.26
04	0.26	1.365	**24**	0.26	1.635
05	0.3	1.575	**25**	0.3	1.89
67 24 06	0.35	1.85	**67 24 26**	0.35	2.2
07	0.4	2.1	**27**	0.4	2.515
08	0.5	2.62	**28**	0.5	3.145
09	0.6	3.145	**29**	0.6	3.775
10	0.7	3.67	**30**	0.7	4.405
67 24 11	0.8	4.195	**67 24 31**	0.8	5.05

175 mm x 5 mtr					
CODE	Thickness mm	Kg Per Sht	CODE	Thickness mm	Kg Per Sht
67 24 41	0.1	0.735	**67 24 47**	0.4	2.935
42	0.16	1.175	**48**	0.5	3.675
43	0.2	1.47	**49**	0.6	4.405
44	0.26	1.91	**50**	0.7	5.15
45	0.3	2.2	**51**	0.8	5.85
67 24 46	0.35	2.57			

Naval Brass Rounds

Redondo de Latón　ネーバル黄銅（真鍮）棒　船用圓形黄铜棒

Used for shafting or similar parts processing. Resists corrosion from salt water.



Supplied in the following standard lengths:

Europe : 3 M
Japan : 4 M
U. S. : 12 ft.
Singapore : 4 M

Please specify if you need to have the bar cut to a required length.

How to order: CODE

Naval brass round, DIAM mm x TOTAL LENGTH mtr

Unit Per Lgh.

Diam mm	Kg Per Mtr	4 mtr (Japan & Singapore)	3 mtr (Europe)	12 feet (U.S.A.)
10	0.661	**67 25 01**	**67 25 19**	**67 25 37**
13	1.12	**02**	**20**	**38**
16	1.69	**03**	**21**	**39**
19	2.39	**04**	**22**	**40**
22	3.20	**05**	**23**	**41**
25	4.13	**67 25 06**	**67 25 24**	**67 25 42**
28	5.19	**07**	**25**	**43**
30	5.95	**08**	**26**	**44**
32	6.77	**09**	**27**	**45**
35	8.10	**10**	**28**	**46**
38	9.55	**67 25 11**	**67 25 29**	**67 25 47**
42	11.7	**12**	**30**	**48**
45	13.4	**13**	**31**	**49**
50	16.5	**14**	**32**	**50**
55	20.0	**15**	**33**	**69**
60	23.8	**67 25 16**	**67 25 34**	**67 25 70**
65	27.9	**17**	**35**	**71**
70	32.4	**18**	**36**	**72**

High-Tension Brass Rounds

Redondos Latón de Alta Tensión
高力黄銅（真鍮）棒　高拉力圓形黄铜棒

Resists corrosion by salt water. Used chiefly in the manufacture of propeller shafts, etc. Supplied in the following standard lengths:



Europe : 3 M
Japan : 4 M
U. S. : 12 ft.
Singapore : 4 M

If you require a length other than the standard mentioned, please specify when ordering.

How to order: CODE

High tension brass round, DIAM mm x TOTAL LENGTH mtr

Unit Per Lgh.

Diam mm	Kg Per Mtr	4 mtr (Japan & Singapore)	3 mtr (Europe)	12 feet (U.S.A.)
10	0.661	**67 25 51**	**67 25 73**	**67 25 91**
13	1.12	**52**	**74**	**92**
16	1.69	**53**	**75**	**93**
19	2.39	**54**	**76**	**94**
22	3.20	**55**	**77**	**95**
25	4.13	**67 25 56**	**67 25 78**	**67 25 96**
28	5.19	**57**	**79**	**97**
30	5.95	**58**	**80**	**98**
32	6.77	**59**	**81**	**99**
35	8.10	**60**	**82**	**67 26 00**
38	9.55	**67 25 61**	**67 25 83**	**67 26 01**
42	11.7	**62**	**84**	**02**
45	13.4	**63**	**85**	**03**
50	16.5	**64**	**86**	**04**
55	20.0	**65**	**87**	**05**
60	23.8	**67 25 66**	**67 25 88**	**67 26 06**
65	27.9	**67**	**89**	**07**
70	32.4	**68**	**90**	**08**

Bronze Castings

Fundiciones de Bronce, Redondos　青銅鋳物（BC）　青铜铸棒

Solid or hollow castings are available in standard lengths of 300 mm. This anticorrosive material is widely used for sleeves, rebushing, etc. Sizes other than those listed below are available upon request. When ordering, please specify whether you require solid or hollow castings. When ordering hollow castings, please specify the required inner or outer diameters.



Solid



Hollowed

How to order: CODE

Bronze casting, SOLID or HOLLOWED, DIAM mm x TOTAL LENGTH mtr

Unit Per Lgh.

Solid Length 300 mm			Hollowed Length 300 mm			
CODE	Diam. mm	Kg Per Length	CODE	Size mm O.D.	Size mm I.D.	Kg Per Length
67 27 01	20	1.0	**67 27 51**	40	20	3.0
02	25	1.5	**52**	45	20	3.9
03	30	2.1	**53**	45	25	3.4
04	35	2.9	**54**	50	20	4.9
05	40	3.7	**55**	55	25	5.6

(to be continued)

Unit Per Lgh.

Solid Length 300 mm			Hollowed Length 300 mm			
CODE	Diam. mm	Kg Per Length	CODE	Size mm O.D.	Size mm I.D.	Kg Per Length
67 27 06	45	4.6	**67 27 56**	60	30	6.4
07	50	5.7	**57**	65	30	7.7
08	55	6.8	**58**	65	35	7.1
09	60	8.1	**59**	70	35	8.5
10	65	9.5	**60**	75	35	10.1
67 27 11	70	11.0	**67 27 61**	80	40	11.0
12	75	12.5	**62**	90	45	13.9
13	80	14.2	**63**	100	50	17.0
14	85	16.0	**64**	110	60	19.3
15	90	17.9	**65**	120	60	24.8
67 27 16	95	20.0	**67 27 66**	140	90	26.0
17	100	22.7	**67**	200	100	68.0

Phosphor Bronze Wire

Alambre de Bronce Fosforado　リン青銅線　磷青铜丝

Sizes larger or smaller than those listed below are also available upon request.



How to order: CODE

Phosphor bronze wire, DIAM mm x TOTAL LENGTH mtr

Unit Per Kgs.

CODE	Diameter mm	Diameter Swg	Kg Per 1,000 m	CODE	Diameter mm	Diameter Swg	Kg Per 1,000 m
67 28 11	0.5	25	1.746	**67 28 21**	1.8	15	22.63
12	0.55	24	2.112	**22**	2.0	14	27.93
13	0.60	23	2.513	**23**	2.3	13	36.94
14	0.65	-	2.950	**24**	2.5	12	43.64
15	0.7	22	3.421	**25**	2.8	-	54.74
67 28 16	0.8	21	4.469	**67 28 26**	3.0	11	62.84
17	0.9	20	5.656	**27**	3.2	-	71.49
18	1.0	19	6.982	**28**	3.5	9	85.53
19	1.2	18	10.05	**29**	3.8	-	
20	1.4	17	13.68	**30**	4.0	8	111.7
				67 28 31	4.3	-	
				32	4.5	7	141.4

Aluminium Rounds

Redondos de Aluminio　アルミ丸棒　圆铝棒

Supplied in the following standard lengths

Europe : 6 M
Japan : 5 M
U. S. : 12 ft.
Singapore : 16 ft.



If you require a length other than the standard mentioned, please specify when ordering.

How to order : CODE

Aluminium round, DIAM mm x TOTAL LENGTH mtr

Unit Per Lgh.

Diam mm	Kg Per Mtr	5 mtr (Japan)	6 mtr (Europe)	12 feet (U.S.A.)	16 feet (Singapore)
6	0.0766	**67 30 01**	**67 30 11**	**67 30 21**	**67 30 31**
10	0.212	**02**	**12**	**22**	**32**
15	0.478	**03**	**13**	**23**	**33**
20	0.852	**04**	**14**	**24**	**34**
25	1.33	**05**	**15**	**25**	**35**
30	1.92	**67 30 06**	**67 30 16**	**67 30 26**	**67 30 36**
35	2.61	**07**	**17**	**27**	**37**
40	3.41	**08**	**18**	**28**	**38**
45	4.31	**09**	**19**	**29**	**39**
50	5.32	**10**	**20**	**30**	**40**

Aluminium Squares

Cuadrados de Aluminio　アルミ角棒　方铝棒

Sizes other than those listed below are also available upon request. Supplied in the following standard lengths:

Europe : 6 M
Japan : 5 M
U. S. : 12 ft.
Singapore : 16 ft.



If you require a length other than the standard mentioned, please specify when ordering.

How to order : CODE

Aluminium square, ACROSS FLAT mm,TOTAL LENGTH mtr

Unit Per Lgh.

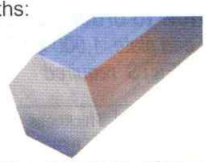
Across Flats mm	Kg Per Mtr	5 mtr (Japan)	6 mtr (Europe)	12 feet (U.S.A.)	16 feet (Singapore)
6	0.0976	**67 30 41**	**67 30 51**	**67 30 61**	**67 30 71**
8	0.173	**42**	**52**	**62**	**72**
10	0.271	**43**	**53**	**63**	**73**
12	0.390	**44**	**54**	**64**	**74**
15	0.610	**45**	**55**	**65**	**75**
20	1.08	**67 30 46**	**67 30 56**	**67 30 66**	**67 30 76**
25	1.69	**47**	**57**	**67**	**77**
30	2.44	**48**	**58**	**68**	**78**
40	4.34	**49**	**59**	**69**	**79**
50	6.78	**50**	**60**	**70**	**80**

Aluminium Hexagons

Hexagonales de Aluminio　アルミ六角棒　六角铝棒

Supplied in the following standard lengths:

Europe : 6 M
Japan : 5 M
U. S. : 12 ft.
Singapore : 12 ft.



If you require a length different from the standard, please specify when ordering.

How to order: CODE

Aluminium hexagon, ACROSS FLAT mm, TOTAL LENGTH mtr

Unit Per Lgh.

Across Flats mm	Kg Per Mtr	5 mtr (Japan)	6 mtr (Europe)	12 feet (U.S.A. & Singapore)
6	0.0845	**67 30 81**	**67 30 91**	**67 31 22**
8	0.150	**82**	**92**	**23**
10	0.235	**83**	**93**	**24**
15	0.528	**84**	**94**	**25**
20	0.939	**85**	**95**	**26**
25	1.47	**67 30 86**	**67 30 96**	**67 31 27**
30	2.11	**87**	**97**	**28**
35	2.88	**88**	**98**	**29**
40	3.76	**89**	**99**	**30**
50	5.87	**90**	**67 31 00**	**31**

Aluminium Plates or Sheets

Chapas o Láminas de Aluminio　アルミ板　铝板或铝片

Standard sheet sizes :
400 mm x 1,200 mm,
1,000 mm x 2,000 mm



How to order: CODE

Aluminium plate, WIDTH x LENGTH mm, THICKNESS mm, NUMBER of SHEETS required

Unit Per Sht.

400 mm x 1,200 mtr			1,000 mm x 2,000 mtr		
CODE	Thickness mm	Kg Per Sht	CODE	Thickness mm	Kg Per Sht
67 31 01	0.2	0.260	**67 31 51**	0.2	1.08
02	0.25	0.325	**52**	0.25	1.36
03	0.3	0.390	**53**	0.3	1.63
04	0.4	0.520	**54**	0.4	2.17
05	0.5	0.650	**55**	0.5	2.71
67 31 06	0.6	0.780	**67 31 56**	0.6	3.25
07	0.7	0.911	**57**	0.7	3.79
08	0.8	1.04	**58**	0.8	4.34
09	1.0	1.30	**59**	1.0	5.42
10	1.2	1.56	**60**	1.2	6.50
67 31 11	1.5	1.95	**67 31 61**	1.5	8.13
12	2.0	2.60	**62**	2.0	10.8
13	2.5	3.25	**63**	2.5	13.6
14	3.0	3.90	**64**	3.0	16.3
15	3.5	4.55	**65**	3.5	19.0
67 31 16	4	5.20	**67 31 66**	4	21.7
17	5	6.50	**67**	5	27.1
18	6	7.80	**68**	6	32.5
19	8	10.4	**69**	8	43.4
20	10	13.0	**70**	10	54.2
67 31 21	12	15.6	**67 31 71**	12	65.0

Lead Plates or Sheets

Chapas o Láminas de Plomo　鉛板　铅板

Standard size sheets are 1,000 x 1,000 mm or cut to a specified length up to 5 meters.



How to order: CODE

Lead plate, 1,000 x 1,000 mm, THICKNESS mm, NUMBER of SHEETS required

Unit Per Sht.

CODE	Thickness mm	Kg Per 1 m²	CODE	Thickness mm	Kg Per 1 m²
67 33 01	1.0	11.3	**67 33 04**	3.0	34.0
02	1.5	17.0	**05**	4.0	45.4
03	2.0	22.7	**06**	5.0	56.7

Lead Wire

Alambre de Plomo　鉛線　铅丝

For caulking and to bind or secure cloth hose or insulation to piping. Sold by coil.



How to order: CODE

Lead wire, DIAM mm x TOTAL LENGTH mtr

Unit Per Kgs.

CODE	Diam. mm	Standard Coil	CODE	Diam. mm	Standard Coil
67 33 21	0.5	1 kg	**67 33 28**	3.5	2.5 kg
22	0.8	1 kg	**29**	4.0	2.5 kg
23	1.0	2.5 kg	**30**	4.5	2.5 kg
24	1.5	2.5 kg	**31**	5.0	2.5 kg
25	2.0	2.5 kg	**32**	5.5	2.5 kg
67 33 26	2.5	2.5 kg	**67 33 33**	6.0	2.5 kg
27	3.0	2.5 kg	**34**	6.3	2.5 kg

Zinc Casting Rounds

Zinc Redondos Fundidos　亜鉛合金丸棒　铸锌圆棒

Standard length : 300 mm. Specify if you require a hollow or solid casting. If a hollow casting is required, please indicate the size of the inner and outer diameters of the casting. Sizes other than those listed below are available upon request.

How to order: CODE

Zinc casting round, DIAM mm x TOTAL LENGTH mtr



Unit Per Lgh.

Solid Standard Length 300 mm					
CODE	Diam. mm	Kg Per Length	CODE	Diam. mm	Kg Per Length
67 34 01	20	0.7	**67 34 11**	70	8.3
02	25	1.1	**12**	75	9.5
03	30	1.5	**13**	80	10.9
04	35	2.1	**14**	85	12.3
05	40	2.7	**15**	90	13.7
67 34 06	45	3.4	**67 34 16**	95	15.3
07	50	4.2	**17**	100	17.0
08	55	5.1	**18**	105	18.7
09	60	6.1	**19**	110	20.5
10	65	7.2	**20**	115	22.4

Zinc Plates

Chapas de Zinc　亜鉛板　锌板



These zinc plates (anodes) are specially designed for use in the cathodic protection of a ships hull, propeller, ballast tanks, cylinder liner, seawater pipes, etc. The plates are also used for the protection of equipment carrying seawater such as heat exchangers, condensers, and salt water evaporators.

How to order: CODE

Zinc plate, THICKNESS x WIDTH x LENGTH mm, NUMBER of SHEETS required

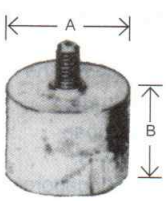
Unit Per Sht.

CODE	Sizes mm Thick x Width x Length	CODE	Sizes mm Thick x Width x Length
67 34 41	19 x 70 x 150	**67 34 44**	19 x 150 x 300
42	25 x 70 x 150	**45**	25 x 150 x 300
43	12 x 150 x 300	**46**	12 x 150 x 300

Zinc Anode Replacement Elements

Elementos de Reemplazo o Repuestos de Ánodo de Zinc
パイプ用防蝕亜鉛　可更换式阳极锌块

An easily replaceable zinc element for use in pipes which are continuously exposed to seawater. Serves to protect heat exchangers, piping, tanks, pumps, and other hydraulic equipment from corrosion. The anode supplies a continuous protective current to eliminate the corrosion current flowing from a metal surface. Has the same components as the MIL-A-18001-H U. S. A.



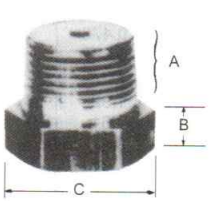
Unit Per Pc.

CODE	Type	Size A x B	Weight Grm	Retaining Plug Size
67 35 01	G - 500	12.7 x 19.1	18	NPT 3/8"
02	- 625	15.9 x 19.1	27	" 1/2"
03	- 825	21.0 x 19.1	45	" 3/4"
04	- 1050	26.7 x 19.1	66	" 1"

Zinc Anode Retaining Plugs

Tapones de Retención de Ánodo de zinc
防蝕亜鉛プラグ　锌块固定栓

A hexagon brass pipe plug containing an anode element.



Unit Per Pc.

CODE	Size NPT	Element Type	CODE	Size NPT	Element Type
67 35 11	3/8"	G-500	**67 35 13**	3/4"	G- 825
12	1/2"	G-625	**14**	1	G-1050

Adhesive Anticorrosive Zinc Tapes

Cintas Adhesivas Anti-corrosivas de Zinc
錆止め亜鉛テープ　　带粘性的防腐蚀锌带

Highly effective anticorrosive tape developed with a base film of adhesive molten galvanized zinc.



Zinc coated layer will not be infiltrated by water, gas, etc. and will not age from ultraviolet rays, so corrosion does not develop from the inner layer.

As the zinc layer of this tape is thick and uniform, it lasts longer than a molten galvanized coating. It can be easily applied and will prevent corrosion at jointed steel parts or pipes.

Unit Per Rls.

CODE	Width	Thick	Length
67 35 21	25 mm	0.1 mm	20 mtr
22	50 mm		
23	100 mm		

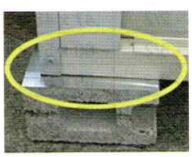
Anti-corrosive Zinc Sheets

ZAP Sheet

Hoja de zinc anticorrosivo　亜鉛防蝕材　防腐蚀的锌板

Suitable for protection against corrosion of outdoor structures. Made of rolled zinc plate with purity more than 99.99%.





Unit Per Sht.

CODE	Thick mm	Width × Length mm	CODE	Thick mm	Width × Length mm
67 35 31	1	500 × 1,000	**67 35 35**	5	600 × 1,000
32	2	500 × 1,000	**36**	6	
33	3	600 × 1,000	**37**	7	
34	4	600 × 1,000			

Name of Mfr. : Mitsui-Kinzoku Co., Ltd.

Metal Anodes

Ánodos de Metal　金属陽極　金属阳极

For protection of hulls of ships, tugs, barges, etc. against sea water corrosion. Corrosion of steel in sea water is an electro chemical process. Metals (zinc, aluminium, magnesium), when suitably connected to steel in the presence of sea water, will generate an electrical current. This current flows from the anode through the sea water to the structure to be protected. The current generated by the metal anode – steel couple is of sufficient magnitude to mitigate corrosion of the steel. Consequently, the metal anode sacrificially corrodes and the steel is protected.

Zinc Anodes

Ánodos de Zinc　防蝕亜鉛　锌阳极

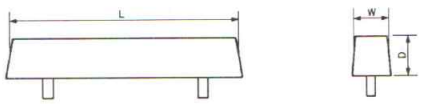
Zinc Anodes have the following characteristics :

1. No sparking problem.
2. Excellent self regulating property, low generation of hydrogen gas.
3. Zn compounds formed react as corrosion inhibitors.
4. Free from troubles caused by electrolytic products.
5. Low anodic polarization and stable protective current.
6. Highest current efficiency.

Standard Products for Ballast Tanks



With bent steel welding bar



With perpendicular steel welding bar

For Clean Ballast Tanks

Type	Size mm D x W x L	Weight kg	Core mmø	Life Year 30%	40%	45%	50%
MZS- 90P-1	51 x 53 x 1,000	20.2	13		2		
MZS-100P-1	57 x 53.5 x 1,000	22.3	16	3		2	
MZS-135P-1	63.5 x 64 x 1,000	30.0	16	4	3		
MZS-150P-1	65 x 70 x 1,000	34.0	16			3	
MZS-180P-1	72 x 80.5 x 1,000	41.7	16		4		
MZS-200P-1	80 x 81 x 1,000	47.2	16			4	
SN- 2/2	37 x 37 x 500	5.5	13				1
SN- 4/4	53 x 54 x 250	6.6	13		2		
SO- 2/2	43 x 44 x 500	7.3	13	2			
SO- 4/2	62 x 62 x 500	14.3	13	4			
SP- 2/2	48 x 49 x 500	8.9	13				2
SP- 3/2	60 x 61 x 500	13.4	13		2		
SP- 4/2	74 x 74 x 500	20.4	16		4		
SP- 4/4	74 x 74 x 250	10.3	13		3		
SR	34 x 36 x 1,200	10.8	13	2			
ST	48 x 58 x 1,200	21.7	13	4			

For Permanent Ballast Tanks

Type	Size mm D x W x L	Weight kg	Core mmø	Life Year 30%	40%	50%
SN - 2	37 x 37 x 1,000	10.4	13	2		
SN - 3	45 x 44 x 1,000	14.8	13	3		
SN - 4	54 x 53.5 x 1,000	21.5	16	4		
SO - 2	44 x 43 x 1,000	14.0	13		2	
SO - 3	54 x 53.5 x 1,000	21.5	16		3	
SO - 4	63 x 62 x 1,000	28.9	16		4	
SP - 2	49 x 48 x 1,000	17.5	13			2
SP - 3	61 x 60 x 1,000	27.2	16			3
SP - 4	74 x 74 x 1,000	40.1	16			4

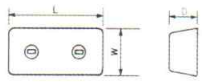
Guide of How to order

When ordering, please specify the following points :

CODE ..... ***67 - 35 - 51***
Name ..... Zinc anode
Used for ..... For clean ballast tanks
Type of Welding Bar ..... With bent steel welding bar
Type MZS-90P-1
Size ..... 51 x 53 x 1,000 mm.

Standard Products for Hulls of Ships

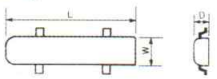
(FB)



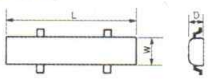
(FS)



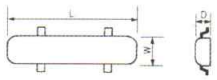
(ZHS-A)



(ZHS-B)



(ZHS-C)



Type	Size mm D x W x L	Weight Kg	Life Year	Type of Installation
3FB	20 x 100 x 200	2.4	0.6	Bolt-on
4FB	30 x100 x 200	3.5	1.0	"
6FB	20 x 150 x 300	5.8	1.3	"
8FB	20 x 150 x 300	8.5	1.7	"
11FB	35 x 150 x 300	10.0	1.9	"
14FB	35 x 200 x 300	13.6	2.5	"
15FB	40 x 200 x 300	15.8	2.7	"
21FB	57 x 100 x 600	19.3	2.4	"
3FS	20 x 100 x 200	2.9	0.6	Weld-on
4FS	30 x 100 x 200	4.2	1.1	"
5FS	40 x 100 x 200	5.2	1.3	"
10FS	30 x 150 x 300	9.5	1.7	"
11FS	35 x 150 x 300	10.7	2.0	"
15FS	35 x 200 x 300	14.8	2.3	"
10ZHS (A.C)	40 x 50 x 800	9.9 - 10.1	1.3	"
15ZHS (A.B.C)	48 x 65 x 800	14.7 - 15.5	1.9 - 2.0	"
18ZHS (A.B.C)	50 x 75 x 800	20.5 - 22.3	2.6 - 2.7	"
48ZHS (A.B.C)	85 x 120 x 800	47.2 - 59.2	5.0 - 5.2	"

Note : Other types of Zinc Anode are available on request.

Guide of How to order

When ordering, please specify the following points :

CODE..... 67 - 35 - 51
Name..... Zinc anode
Used for..... For hull of ships
Type 3FB
Size ..... 20 × 100 × 200 mm
Type of installation ..... Bolt-on

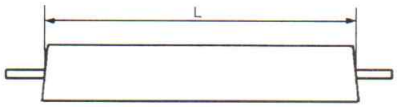
Aluminium Anodes

Ánodos de Aluminio　防蝕アルミ　铝阳极

This is a new aluminium anode, with the composition of Al-Zn-In. It has been used by ship builders and harbour constructors as the most advanced and ideal galvanic anode for corrosion prevention. It has the following characteristics:

1. Lightweight.
2. Highest current capacity.
3. Lowest cost per ampere year.
4. Extremely small anodic polarization tendency.
5. Stabilized current output throughout anode life.
6. Optimum driving voltage without over-protection.
7. Uniform anode consumption.
8. Excellent, self-regulating property.
9. Low hydrogen generation.

Standard Products for Ballast Tanks



With straight steel welding bar

Type	Size mm W x D x L	Weight Kg	Type of Installation
SA - 2	41 x 27 x 1,000	5.6	Weld-on
SA - 3	51 x 50 x 1,000	8.0	"
SA - 4	60 x 59 x 1,000	10.5	"
SB - 2	47 x 48 x 1,000	7.1	"
SB - 3	60 x 59 x 1,000	10.5	"
SB - 4	71 x 70 x 1,000	14.5	"
SC - 2	54 x 54 x 1,000	8.9	"
SC - 3	69 x 69 x 1,000	13.3	"
SC - 4	81 x 80 x 1,000	18.1	"
SD - 2	35 x 34 x 1,000	4.4	"
SD - 3	42 x 42 x 1,000	6.0	"
SD - 4	51 x 49 x 1,000	7.8	"
SA - 2L	36 x 36 x 2,000	8.8	"
SA - 3L	45 x 44 x 2,000	12.4	"
SA - 4L	53 x 52 x 2,000	16.8	"
SB - 2L	43 x 42 x 2,000	11.5	"
SB - 3L	53 x 52 x 2,000	16.6	"
SB - 4L	62 x 61 x 2,000	22.3	"
SC - 2L	48 x 47 x 2,000	14.0	"
SC - 3L	58 x 58 x 2,000	20.1	"
SC - 4L	69 x 68 x 2,000	27.0	"
SA - 3/2	51 x 50 x 500	4.4	"
SB - 2/2	47 x 48 x 500	3.8	"
SB - 3/2	60 x 59 x 500	5.6	"
SC - 3/2	69 x 68 x 500	6.9	"
SC - 4/2	81 x 80 x 500	9.3	"
SCS - 4	90 x 90 x 500	12.0	"

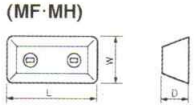
Guide of How to order

When ordering, please specify the following points :

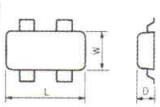
CODE ..... 67 - 36 - 01
Name ..... Aluminium anode
Used for ..... For ballast tank
Type of Welding Bar ..... With straight steel welding bar
Type..... SA-2
Size..... 4 × 27 × 1,000 mm
Type of installation..... Weld-on

Standard Products for Ship Hulls and Stern Parts

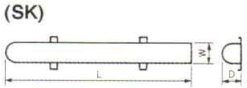
(MF·MH)



(MH)



(SK)



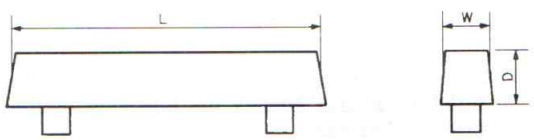
Type	Size mm D x W x L	Weight Kg	Type of Installation
MF - 10	20 x 100 x 200	1.0	Bolt-on
MF - 14	30 x 100 x 200	1.4	"
MF - 34	30 x 150 x 300	3.4	"
MF - 53	35 x 200 x 300	5.3	"
MH - 12	20 x 100 x 200	1.2	Weld-on
MH - 17	30 x 100 x 200	1.7	"
MH - 40	30 x 150 x 300	4.0	"
MH - 60	35 x 200 x 300	6.0	"
SK - 1	40 x 50 x 800	4.4	"
SK - 2	57 x 75 x 800	8.8	"

Guide of How to order

When ordering, please specify the following points :

CODE ..... 67 - 36 - 01
Name ..... Aluminium anode
Used for ..... For ships hulls and stern parts
Type MF-10
Size ..... 20 × 100 × 200 mm
Type of installation ..... Bolt-on

Standard Products for Drilling Rigs



With Perpendicular Steel Welding Bar

Type	Life Year	Size mm W x D x L	Weight Kg
54KA - 2.5	4 - 5	70 x 96 x 2,500	52.9
62KA - 0.9	4 - 6	140 x 146 x 900	62.0
73KA - 2.0	4 - 5	110 x 112 x 2,000	73.1
78KA - 2.0	9 - 11	105 x 110 x 2,000	74.0
80KA - 2.5	4 - 5	100 x 105 x 2,500	78.4
80KA - 1.0	8 - 10	160 x 170 x 1,000	80.4
110KA - 0.6	9 - 11	250 x 250 x 600	110.0
116KA - 1.8	7 - 8	140 x 146 x 1,800	116.0
120KA - 2.5	8 -10	155 x 103 x 2,500	117.3
163KA - 2.0	15 - 20	160 x 170 x 2,000	159.4
390KA - 2.0	18 - 22	260 x 260 x 2,000	409.0
415KA - 2.4	20 - 25	250 x 253 x 2,400	415.1
470KA - 2.7	20 - 25	247 x 247 x 2,700	470.0
513KA - 2.0	25 - 30	290 x 290 x 2,000	513.0
590KA - 3.0	25 - 30	270 x 275 x 2,930	595.0

Guide of How to order

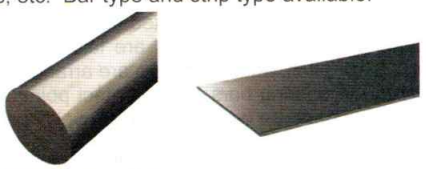
When ordering, please specify the following points :

CODE ..... 67 - 36 - 01
Name ..... Aluminium anode
Used for ..... For drilling rigs
Type of Welding Bar ..... With perpendicular steel welding bar
Type 54KA-2.5
Size ..... 70 × 96 × 1,500 mm

Soft Magnetic Irons

Hierro Sueco 電磁軟鉄 软磁铁

Also called Pure Iron or Swedish Iron. For use in cathodic protection, also for electrical application such as cores, yokes, armatures, etc. Bar type and strip type available.



1. Soft Magnetic Iron Bars

Standard Size

Diameter (mm)	Standard Length
6, 6.5, 7, 8, 9, 9.5, 10, 11.1, 12, 15, 16	3 Mtrs

Characteristics

Class	Symbol	Magnetic characteristic					Hardness	
		Magnetic flux density T				Coercive force A/m	HRB	HV
		B_2	B_3	B_5	B_{25}	H_c		
Class 0	SUYB 0	1.1 min.	1.25 min.	1.35 min.	1.55 min.	63.2 max.	60 to 90	110 to 195
Class 1	SUYB 1	1 min.	1.2 min.	1.35 min.	1.55 min.	79.1 max.		
Class 2	SUYB 2	0.75 min.	1.1 min.	1.3 min.	1.55 min.	103 max.		
Class 3	SUYB 3	0.4 min.	0.8 min.	1.1 min.	1.5 min.	142 max.		

Remarks: 1. B_2, B_3, B_5 and B_{25} mean the symbols denoting the magnetic flux densities at the magnetic field intensity of 159.2 A/m, 238.8 A/m, 398 A/m and 1,990 A/m, respectively.
2. Coercive force (Hc) shall be the values for the magnetic flux density of 1.5 T.

How to order: 67 - 37 - 01
Soft magnetic iron bar, class x diameter (kg)

2. Soft Magnetic Iron Plates

Standard Size

Thickness (mm)	Standard W x L mm Approx.
0.6, 0.8, 1, 1.2, 1.3, 1.5, 1.6, 1.75, 1.8, 2, 2.1, 2.3, 2.4, 2.8, 2.85, 3.2, 3.5, 4, 4.5	200 x 300, 400 mm

Characteristics

Class	Symbol	Magnetic characteristic						Hardness	
		Magnetic flux density T					Coercive force A/m	HRB	HV
		B_1	B_2	B_3	B_5	B_{25}	H_c		
Class 0	SUYP 0	0.8 min.	1.1 min.	1.25 min.	1.35 min.	1.55 min.	63.2 max.	45 to 75	85 to 140
Class 1	SUYP 1	0.5 min.	1 min.	1.2 min.	1.35 min.	1.55 min.	79.1 max.		
Class 2	SUYP 2	0.2 min.	0.75 min.	1.1 min.	1.3 min.	1.55 min.	103 max.		
Class 3	SUYP 3	0.1 min.	0.4 min.	0.8 min.	1.1 min.	1.5 min.	142 max.		

Remarks: 1. B_1, B_2, B_3, B_5 and B_{25} mean the symbols denoting the magnetic flux densities at the magnetic field intensity of 79.6 A/m, 159.2 A/m, 238.8 A/m, 398 A/m and 1,990 A/m, respectively.
2. Coercive force (Hc) shall be the values for the magnetic flux density of 1.5 T.

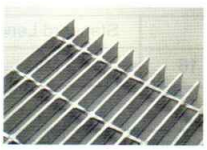
Plain Style Gratings

Rejilla Planas o Dentadas　グレーチング　普通栅格镀锌钢板

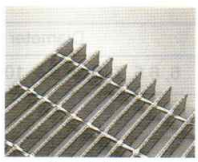
Ideal for use in ships' flooring, stair tread of gangway, catway, pump room, engine room, etc.

Plain style grating consists of twisted square cross bars and plain bearing bars. Bearing bars are laid parallel to each other at 1-3/16" pitch, and cross bars are arranged in 4" pitch vertically to the bearing bars. The contact points of bearing bars and cross bars are electro forged by welding.

Serrated style grating is a type of grating with toothed style on the surface, providing enhanced friction and anti-slip effect.



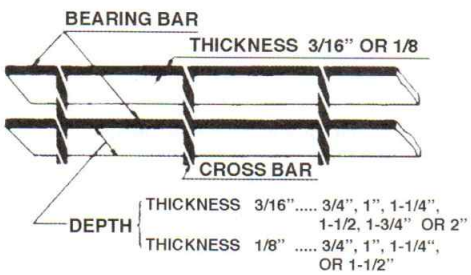
Plain Style



Serrated Style

1. Bearing Bars

Load carrying members which run between the supports and rest directly on them and which are parallel to each other.

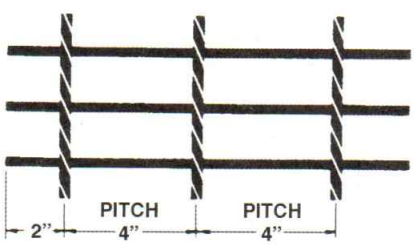


2. Cross Bars

Connecting members which run across bearing bars in a perpendicular direction. Twisted 1/4" x 1/4" square bars are used as cross bars in all types of plain style grating.

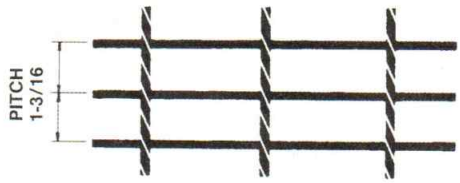
3. Pitch of Cross Bars

Pitch means the distance center to center of each cross bar. The pitch is 4" for every type. The distance from the outer end of the bearing bar to the next cross bar is 2".



4. Pitch of Bearing Bars

The pitch is the distance from center to center of each bearing bar. The pitch is 1-3/16" whether the thickness of the bearing bar is 3/16" or 1/8".



5. Width & Length of the Gratings

No matter what size of grating it may be, the direction in which the bearing bars run is referred to as the length, and direction in which the cross bars run is referred to as the width.

Most common plain style sizes are as follows and are available as ready made stock.

How to order: CODE

Grating, plain style or serrated style, galvanized iron, SIZE, PITCH of bearing bar and cross bar

Unit Per Sht.

CODE	Size	Style	Bearing Bar			Cross Bar		Finish
			Thickness	Depth	Pitch	Twist	Pitch	
67 38 01	2' × 20'	Plain	1/8"	1"	1-3/16"	1/4" × 1/4"	4"	Galvanized Iron
02	2' × 24'							
03	3' × 20'							
04	3' × 24'							
67 38 05	2' × 20'	Serrated	1/8"	1"	1-3/16"	1/4" × 1/4"	4"	
06	2' × 24'							
07	3' × 20'							
08	3' × 24'							

Besides the above sizes, a wide variety of sizes are available. **When ordering, please specify the following points to avoid errors and delays.**

1. Type of Grating
2. Size of Bearing Bar
3. Dimensions (Width x Length)
4. Number of Gratings
5. Standard Finish (unpainted, grey primary coated, black primary coated or galvanized)

Fiber Reinforced Plastic Gratings

(FRP Gratings)

Rejilla Plastica Reforzada con Fibra

ファイバーグレーチング　玻璃纤维加固栅格板

Designed to meet the standards of harsh marine environments and suitable for varied applications such as electrical control flooring, platforms, catwalks, bilges, and drain troughs.

Made of a non-wear synthetic polyester resin which is resistant to salt water corrosion and will withstand contact with acid or industrial chemicals. Although FRP grating is much lighter and easier to handle than metal gratings (18.5 kg/m²), when compared with iron and aluminium on a scale of strength, iron is about 5.4, aluminium is 7, and FRP is 15. This grating is very easy to work with and install wherever it is required, whether in the engine room, on staircases, or on walkways on deck. FRP is indispensable on tankers because it is a non spark, inflammable surface which can be used in situations where it undergoes continual friction with metal surfaces.

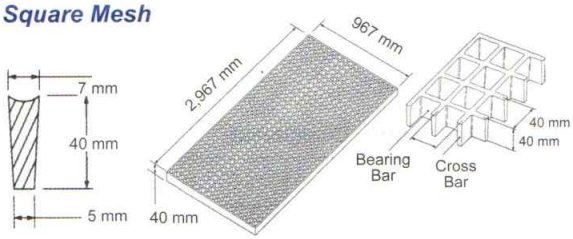
FRP has no magnetic properties and will not conduct electricity.

Will be supplied in grey unless otherwise specified.


Square Mesh


Rectangle Mesh

Square Mesh



How to order: CODE

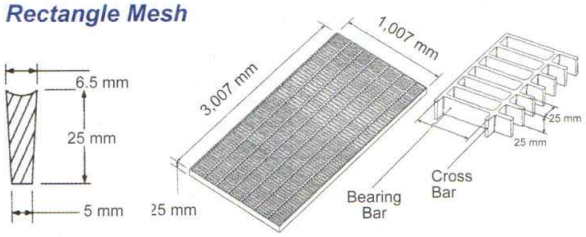
Grating, square mesh, W 2,967 x L 967 x H 40 mm, MATERIAL, FEATURE

Unit Per Sht.

CODE	Material	Features	Weight	
			kg/sht	kg/m²
67 38 11	Synthetic Polyester Resin	Fire Resistant Chemical resistant/Sparkless	53	18.5
67 38 12	Synthetic Polyester Resin	Chemical resistant/ Sparkless	53	18.5
67 38 13	Epoxy Acrylate Resin	Chemical resistant/ Sparkless/Acid, Alkali resistant	53	18.5

When ordering, please specify the material and size you require. If no specific size is necessary, it is suggested that you order the grating by sheet.

Rectangle Mesh



How to order: CODE

Grating, rectangle mesh, W 3,007 x L 1,007 x H 25 mm, MATERIAL, FEATURE

Unit Per Sht.

CODE	Material	Features	Weight	
			kg/sht	kg/m²
67 38 15	Synthetic Polyester Resin	Fire Resistant Chemical resistant/Sparkless	35	11.5
67 38 16	Synthetic Polyester Resin	Chemical resistant/ Sparkless	35	11.5
67 38 17	Epoxy Acrylate Resin	Chemical resistant/ Sparkless/Acid, Alkali resistant	35	11.5

When ordering, please specify the material and size you require. If no specific size is necessary, it is suggested that you order the grating by sheet.

Grating Clamps

Herrajes de fijación para rejilla　グレーチング固定金具　格栅固定配件

To securely fasten and holding gratings in place. Available different sizes and two kinds of materials, galvanized iron and FRP. Please specify material, cell size and depth of grating when ordering.

67 38 18	For galvanized iron gratings with bolt/nut & top/bottom plate	Set
67 38 19	For FRP (Fiber Reinforced Plastic) gratings with bolt/nut & top/bottom plate	Set

Phenolic Fiberglass Gratings

DURAGRID®

Rejilla de Fibra deVidrio Fenólica

フェノリックファイバーグラスグレティング　玻璃纤维格朗板



A high strength, light weight, and easy to install fire integrity composite grating for ships and vessels, offering a "Fit it and Forget it" solution to walkway grating.

DURAGRID® Phenolic's corrosion- and fire- resistance has made this product a champion in the Marine and Offshore Oil and Gas industries for decades.

Features :

- Higher strength than equivalent steel grating.
- No Rust – typically outlasts the ship's lifespan (can be transferred).
- Dependable anti-skid surface for safety and comfort.
- Light weight - up to 75% lighter than comparable steel grating.
- Safe and easy to install – no welding or hot works.



Regulatory Information and Approvals*:

- ASTM: First composite grating to meet ASTM F3059-15 standard, an enhancement to and expected replacement of USCG PFM2-98.
- USCG: 164.040/16/0 (38 mm and 45 mm (1-½" - 1-¾")).
- IMO: Meets requirements for Safe Access to Tanker Bows (Resolution MSC.62(67)) (SC 253 Dec 2011 Rev 1 May 2016).
- Numerous Class Approvals such as ABS, DNV, and LR.

* For a current and complete list of these approvals, please contact Strongwell directly.

Typical Ship Applications :

- Center passage walkway grating
- Oil spill tank grating
- Winch stand grating
- Manifold grating
- Various stage areas (Monkey, Wheel House, etc.)

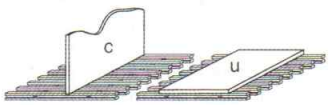
Availability* & Panel Sizes :

- Factory: I-6000 in 3' x 20', 4' x 20', 1M x 6M (38 mm (1-1/2") or 45 mm (1.75") thickness)
- Rotterdam or Factory: 1M x 6M (38 mm (1.5") thickness)
- Weight: 38 mm thickness - 16.8 kg/M² (3.4 lb/ft²)
  45 mm thickness - 19.0 kg/M² (3.9 lb/ft²)

*Strongwell can also drop ship to a specific location or port.

Performance (I-6000 38 mm) :

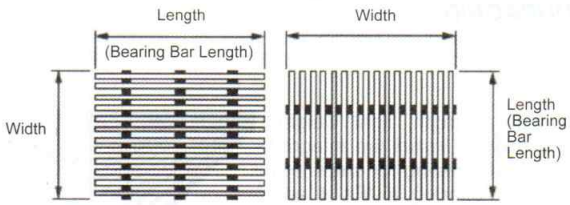
- 16.8 kN/m² (350 lb/ft²) uniform loading* (SF [Safety Factor] + 6:1)
- 11.7 kN/m (11.7 lb/ft) concentrated loading* (SF + 5:1)



* Based on a midspan deflection of 6.35 mm (.25") on qualified span of 1,120 mm (44")

Installation :

DURAGRID® Phenolic installs similar to how steel grating is installed. The bearing bar (BB) is the load carrying member which runs between supports. This is the panel length and is typically designated with a (BB) after the dimension to avoid confusion. DURAGRID® Phenolic does not require any banding after cutting. Loads are effectively transferred by a series of cross-rods spaced every 6" (150 mm) (sometimes referred to as "cross-rod pitch").



Panel Sizes are Specified: Width × Length

Installation is easy; the grating can be cut using simple hand tools such as a circular saw (diamond or masonry blades suggested) or a jig saw (carbide grit blades suggested). Panels are lightweight – single panels are typically moved by hand.

How to order : 67 - 38 - 21

Grating, Phenolic Fiberglass, DURAGRID,.....

When ordering, please specify:

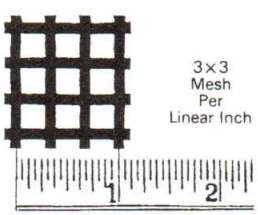
- *Square Foot (SF) or Square Meter (M²) Measurements of the areas that needs grating.*
- *Hardware (Part # 744 clip & 797 bolt set) – 4 clips per panel or 4 clips per M².*

Gauze Wire

Tela Metáloca 金網 细目丝网

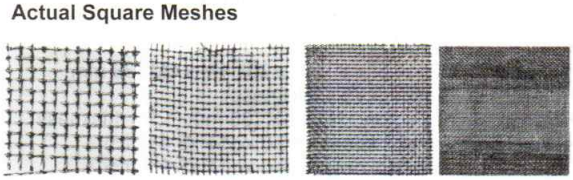
Available :

1) Galvanized Iron
2) Brass – Copper
3) Nylon
4) Plastic Coated Iron
5) Bronze
6) Stainless Steel



Mesh denotes the number of openings horizontally and vertically per linear inch. It is measured from center to center of the parallel wires, as illustrated above.

Actual Square Meshes



10 x 10 20 x 20 30 x 30 60 x 60

When in doubt about the correct wire size and mesh, the safest and surest way is to send a cut sample of the gauze cloth required and indicate its proposed use in advance. The standard width of stainless steel gauze wire is 1,000 mm and for other materials the width is 910 mm, all supplied in varying lengths.

How to order : 67 - 39 - 01

Gauze wire, for PROPOSED USE, MATERIAL – MESH – WIDTH and LENGTH

Copper Alloy Approx. Constituent

Name	Approx. main constituent		Descriptions
Brass	Copper Zinc Others	70% or 60% 30 or 40 * *	Brass is generally an alloy of copper and zinc, although some brasses may contain other elements. Most commercial brass contains about 60 - 70% copper and 40 - 30% zinc. Other alloys are frequently added so as to change its physical characteristics.
Munz Metal	Copper Zinc Others	60% 40 *	An alloy of copper zinc and lead patented by C. F. Muntze, an English-man, about 1833, when rolled and annealed it becomes strong and malleable. Used mainly for ship construction, particularly as sheathing, bolts and rivets which are exposed to sea water.
Admiralty Brass	Copper Zinc Tin	71% 28 1	An alloy resistant to corrosion from salt water. Used chiefly in the manufacture of condenser tubes.
Naval Brass	Copper Zinc Tin	60% 39 1	Brass composed usually of 60% copper, 39% zinc, 1% tin and used for bolts or other parts which are submerged under water.
Bronze	Copper Tin Zinc Phosphor Tin	99-75% 1-25 * * *	Bronze is the general name for alloys of copper and tin. Frequently, other alloys such as zinc, lead, manganese, nickel, phosphorus and aluminium, are added to create desired characteristics.
Gunmetal	Copper Tin Others Zinc	88% 10 2 *	An alloy of copper, tin and zinc, iron and lead. Used in the manufacture of sleeves for rubber stocks and propeller shafts, pump manifolds, bolts and nuts, ship's bell, gland and gland bushings and many other uses where strength is required.
Phosphor Bronze	Copper Tin Phosphor	89% 10 1	A bronze of great hardness, elasticity and toughness which superiority is due to the introduction of a small amount of phosphorus.
Monel Metal	Nickel Copper Others	67% 28 5	Trademark – used for an alloy of approximately 67% nickel, 28% copper and 5% other elements that is made by direction from ore in which the constituent metals occur in these properties.
Babbit Metal	Tin Antimony Copper	93-77% 5-15 2-8	A very soft alloy, variable in its composition of tin, copper and antimony. It is used as linings for bearings and to reduce friction.

* – denotes very little constituent.

69
Screws & Nuts

Bolts  P. 69-1 ~ 17	Nuts  P. 69-17 ~ 18
Screws  P. 69-18 ~ 22	Washers  P. 69-22 ~ 24
Circlips  P. 69-24	Keys & Pins  P. 69-24 ~ 27
Hooks/Eyes  P. 69-27	

Bolts & Nuts

Tornillos y Tuercas　ボルト・ナット　螺丝和螺母

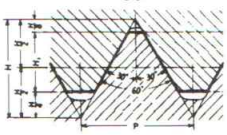
Generally speaking items such as bolts and nuts have so many types, materials, thread types, and especially sizes, it is impossible to provide order codes for them all. For this reason, the items described below are standard types and only a few of them are provided with codes.

Thread Information

As metric threads are now most common, all the items below are described by metric standards. However, Whitworth and unified threads are also available upon request. The following thread tables are illustrated for your reference. You can easily find the type of threads you require from this table.

Metric Thread

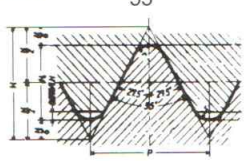
60°



Coarse		Fine		Coarse		Fine	
Screw Diam.	Pitch	Screw Diam.	Pitch	Screw Diam.	Pitch	Screw Diam.	Pitch
M 2	0.4	M 2	0.25	M20	2.5	M12	1.5
2.2	0.45	2.2	0.25	22	2.5	12	1.25
2.3	0.4	2.5	0.35	24	3	12	1
2.5	0.45	3	0.35	27	3	14	1.5
2.6	0.45	3.5	0.35	30	3.5	14	1.25
M 3	0.5	M 4	0.5	M33	3.5	M14	1
3.5	0.6	4.5	0.5	36	4	15	1.5
4	0.7	5	0.5	39	4	15	1
4.5	0.75	5.5	0.5	42	4.5	16	1.5
5	0.8	6	0.75	45	4.5	16	1
M 6	1	M 7	0.75	M48	5	M17	1.5
7	1	8	1	52	5	17	1
8	1.25	8	0.75	56	5.5	18	2
9	1.25	9	1	60	5.5	18	1.5
10	1.5	9	0.75	64	6	18	1
M11	1.5	M10	1.25				
12	1.75	10	1				
14	2	10	0.75				
16	2	11	1				
18	2.5	11	0.75				

Whitworth Thread

55°



Screw Diam.		Threads Per Inch	Screw Diam.		Threads Per Inch
Inch	Equiv. mm		Inch	Equiv. mm	
W1/8	3.175	40	W2-1/2	63.5	4
(1/4)	6.35	20	2-3/4	79.85	3-1/2
(5/16)	7.938	18	3	76.2	3-1/2
3/8	9.525	16	3-1/4	82.55	3-1/4
1/16	11.112	14	3-1/2	88.9	3-1/4
W1/2	12.7	12	W3-3/4	95.25	3
(9/16)	14.288	12	4	101.6	3
5/8	15.875	11	(4-1/4)	107.95	2-7/8
3/4	19.050	10	4-1/2	114.3	2-7/8
7/8	22.225	9	(4-3/4)	120.65	2-3/4

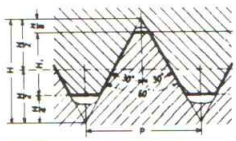
(to be continued)

W1	25.4	8	W5	127.0	2-3/4
1-1/8	28.575	7	(5-1/4)	133.35	2-5/8
1-1/4	31.75	7	5-1/2	139.7	2-5/8
1-3/8	34.925	6	(5-3/4)	146.05	2-1/2
1-1/2	38.1	6	6	152.4	2-1/2
W1-5/8	41.275	5			
1-3/4	44.45	5			
1-7/8	47.625	4-1/2			
2	50.8	4-1/2			
2-1/4	57.15	4			

* Size in bracket rarely used.

Unified Thread

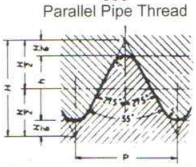
60°



UNF			UNC		
Screw No. & Diam.		Threads Per Inch	Screw No. & Diam.		Threads Per Inch
No.	0 - 80 UNF	80	No.	1 - 64 UNC	64
	1 - 72 UNF	72		2 - 56 UNC	56
	2 - 64 UNF	64		3 - 48 UNC	48
	3 - 56 UNF	56		4 - 40 UNC	40
	4 - 48 UNF	48		5 - 40 UNC	40
No.	5 - 44 UNF	44	No.	6 - 32 UNC	32
	6 - 40 UNF	40		8 - 32 UNC	32
	8 - 36 UNF	36		10 - 24 UNC	24
	10 - 32 UNF	32		12 - 24 UNC	24
	12 - 28 UNF	28		1/4 - 20 UNC	20
No.	1/4 - 28 UNF	28	No.	5/16 - 18 UNC	18
	5/16 - 24 UNF	24		3/8 - 16 UNC	16
	3/8 - 24 UNF	24		7/16 - 14 UNC	14
	7/16 - 20 UNF	20		1/2 - 13 UNC	13
	1/2 - 20 UNF	20		9/16 - 12 UNC	12
No.	9/16 - 18 UNF	18	No.	5/8 - 11 UNC	11
	5/8 - 18 UNF	18		3/4 - 10 UNC	10
	3/4 - 16 UNF	16		7/8 - 9 UNC	9
	7/8 - 14 UNF	14		1 - 8 UNC	8
	1 - 12 UNF	12		1-1/8 - 7 UNC	7
No.	1-1/8 - 12 UNF	12	No.	1-1/4 - 7 UNC	7
	1-1/4 - 12 UNF	12		1-3/8 - 6 UNC	6
	1-3/8 - 12 UNF	12		1-1/2 - 6 UNC	6
	1-1/2 - 12 UNF	12		1-3/4 - 5 UNC	5
			No.	2-4 - 1/2 UNC	4-1/2
				2-1/4 - 4-1/2 UNC	4-1/2
				2-1/2 - 4 UNC	4
				2-3/4 - 4 UNC	4
				3 - 4 UNC	4
			No.	3-1/4 - 4 UNC	4
				3-1/2 - 4 UNC	4
				3-3/4 - 4 UNC	4
				4 - 4 UNC	4

Pipe Thread

55o
Parallel Pipe Thread



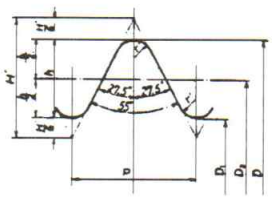
Nominal Size		Thread Per Inch	Out Diam. mm.	Nominal Size		Thread Per Inch	Out Diam. mm.
PF	3/4	14	26.44	PF	5	11	138.43
	(7/8)	14	30.20		(5-1/2)	11	151.13
	1	11	33.24		6	11	163.83
	(1-1/8)	11	37.89		7	11	189.23
	1-1/4	11	41.91		8	11	214.63

(to be continued)

Nominal Size	Thread Per Inch	Out Diam. mm.	Nominal Size	Thread Per Inch	Out Diam. mm.
PF 1-1/2	11	47.80	PF 9	11	240.03
(1-3/4)	11	53.74	10	11	265.43
2	11	59.61	12	11	316.23
(2-1/4)	11	65.71			
2-1/2	11	75.18			
PF (2-3/4)	11	81.53			
3	11	87.88			
3-1/2	11	100.33			
4	11	113.03			
(4-1/2)	11	125.73			

* Size in bracket rarely used.
Ref: PF = G (ISO)

55°
Taper Pipe Thread



Nominal Size	Thread Per Inch	Out Diam. mm.	Nominal Size	Thread Per Inch	Out Diam. mm.
PT 3/4	14	26.44	PT 4	11	113.03
1	11	33.24	5	11	138.43
1-1/4	11	41.91	6	11	163.83
1-1/2	11	47.80	7	11	189.23
2	11	59.61	8	11	214.63
PT 2-1/2	11	75.18	PT 9	11	240.03
3	11	87.88	10	11	265.43
3-1/2	11	100.33	12	11	316.23

Ref: PT = R (ISO)

Abstracted World Screw Thread Designation

	Symbol	Type of Screw Thread	Standard
ISO	M	ISO General purpose metric screw threads	ISO 261
	S	ISO Miniature screw threads	ISO 1501
	UNC	ISO Inch screw threads (coarse screw threads)	ISO 263
	UNF	ISO Inch screw threads (fine screw threads)	"
	UNEF	ISO Inch screw threads (extra-fine screw threads)	"
	UN	ISO Inch screw threads (constant-pitch series)	"
	R	Taper pipe external threads	ISO 7/1
	Rc	Taper pipe internal threads	"
	Rp	Taper pipe parallel internal threads	"
	G	Taper pipe parallel external threads and taper pipe parallel internal threads	ISO 228/1

(to be continued)

Japan	M	Metric coarse screw threads	JIS B 0205
	M	Metric fine screw threads	JIS B 0207
	S	Miniature screw threads	JIS B 0201
	UNC	Unified coarse screw threads	JIS B 0206
	UNF	Unified fine screw threads	JIS B 0208
	R	Taper pipe external threads	JIS B 0203
	Rc	Taper pipe intrenal threads	JIS B 0203
	Rp	Taper pipe parallel internal threads	JIS B 0203
	G	Parallel pipe threads	JIS B 0202
	PF	Parallel pipe threads not specified in ISO	JIS B 0202 Appendix
	PT	Taper pipe threads not specified in ISO	JIS B 0203 Appendix
	CTC	Screw threads for thin steel conduits	JIS B 0204
	CTG	Screw threads for thick steel conduits	JIS B 0204
	E	Screw threads for electric lamps	JIS C 7709
USA	UN	Unified inch screw threads	ANSI B 1.1
	UNC/ UNRC	Unified coarse thread series	ANSI B 1.1
	UNF/ UNRF	Unified fine thread series	ANSI B 1.1
	UNEF/ UNREF	Unified extra-fine-thread series	ANSI B 1.1
	UN/ UNRS	Unified threads of special diameters, pitches and lengths of engagement	ANSI B 1.1
	NR	American National thread with a 0.108p to 0.144 p controlled root radius	MIL-B-7838
	Acme	Acme screw threads	ANSI B 1.5
	Sub-Acme	Stub-Acme screw threads	ANSI B 1.8
	Butt	Buttress inch screw threads	ANSI B 1.9

(to be continued)

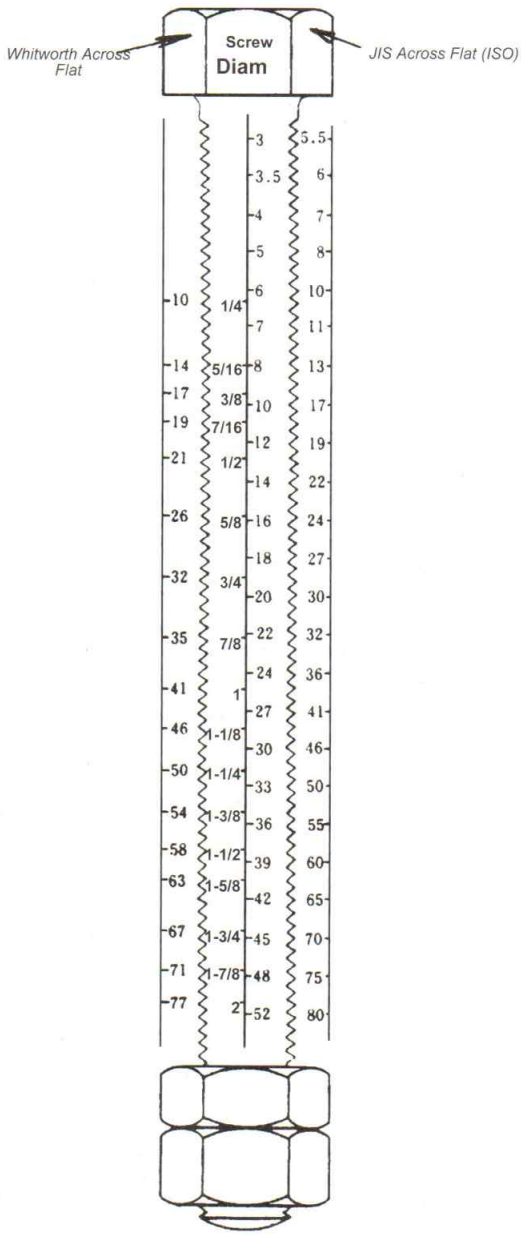
	Symbol	Type of Screw Thread	Standard
USA	UNM	Unified miniature thread series	ANSI B 1.10
	NC5	Class 5 interference-fit thread	ANSI B 1.12
	NPT	American Standard taper pipe threads for general use	ANSI/ASME B 1.20.1
	NPSC	American Standard straight pipe thread in pipe couplings	ANSI/ASME B 1.20.1
	NPSL	American Standard straight pipe threads for loose-fitting mechanical joints with locknuts	ANSI/ASME B 1.20.1
	NPSM	American Standard straight pipe threads for free-fitting mechanical joints for fixtures	ANS/ASME B 1.20.1
	NPSH	American Standard straight pipe threads for loose-fitting mechanical joints for hose couplings	ANSI/ASME B 1.20.1
	NPTF	Dryseal American Standard taper pipe threads	ANSI B 1.20.3, 1.20.4
	F-PTF	Dryseal fine taper pipe thread series	ANSI B 1.20.3, 1.20.4
	PTF-SAE SHORT	Dryseal SAE short taper threads	ANSI B 1.20.3, 1.20.4
	PTF-SPL SHORT	Dryseal special short taper pipe threads	ANSI B 1.20.3, 1.20.4
	PTF-SPL EXTRA SHORT	Dryseal special extra short taper pipe threads	ANSI B 1.20.3, 1.20.4
	SPL-PTF	Dryseal special taper pipe threads	ANSI B 1.20.3, 1.20.4
	NPSI	Dryseal American Standard intermediate internal straight pipe threads	ANSI B 1.20.3, 1.20.4
	NPSF	Dryseal American Standard fuel internal straight pipe threads	ANSI B 1.20.3, 1.20.4
	NGO	National gas outlet threads	ANSI B 57.1
	NGS	National gas straight threads	ANSI B 57.1
	NGT	National gas taper threads	ANSI B 57.1
	SGT	Special gas taper threads	ANSI B 57.1
	NH	Hose coupling and firehose coupling threads	USAS B 2.4
	NHR	Hose coupling and firehose coupling threads	USAS B 2.4
	NPSH	Hose coupling and firehose coupling threads	USAS B 2.4
United Kingdom	UNS	Unified special series	BS 1580
	B.S.W.	British Standard Whitworth coarse threads	BS 84
	BSF	British Standard fine threads	BS 84
	BSP	British Standard pipe thread	BS 21.2779
	B.A	B. A. - Screw thread	BS 93, 1929
	Acme	Acme threads, general purpose	BS 1104
	Buttress	Buttress thread	BS 1657
	E	Edison screw thread	BS 5042
Germany	GI	Rundgewinde, vorzugsweise für Glasbehältnisse	DIN 168
	S	Sägengewinde (Buttress thread)	DIN 513. 2781, 20401
	Rd	Rundgewinde (Knuckle thread)	DIN 405, 262, 264 3182, 7273, 15403, 20400
	W	Whitworth-gewinde	DIN 168, 477, 6630 4668, 49301
	KS, KT	Gewinde, vorzugsweise für Kunststoffbehältnisse	DIN 6063
	E	Elektrogewinde (Edison screw thread)	DIN 40400
	Pg	Stahlpanzerrohrgewinde (Steel conduit thread)	DIN 40430
	Glasg	Glasgewinde (Thread for cover glasses, porcelain and cast iron caps)	DIN 40450
	Gf	Kegeliges Rohrgewinde	DIN 4930
	Gg	Gestängerohrgewinde, kegelig (Threads for drill pipe)	DIN 4941, 20314
	HA	Gewinde für Knochenschraube	DIN 58810
	RMS	Gewindeanschluß für Microskopobjektive	DIN 58888

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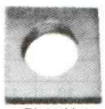
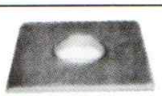
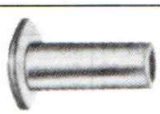
Bolt Head & Nut Across Flat Size Table

Spanner Opening mm	Applicable Bolt				
	Metric Thread (ISO)			Old Standard	
	Hex Bolt	Small Hex. Bolt	High Tension Bolt	Whitworth Bolt	Metric Bolt
5.5	M3				
6	M3.5				
7	M4				
8	M5				
9					
10	M6				
11	M7				
12		M8			
13	M8				
14		M10			M8
15					
17	M10	M12		W3/8	M10
19	M12	M14		W7/16	
21				W1/2	M12
22	M14	M16	M12		
23					M14
24	M16	M18			
26				W5/8	M16
27	M18	M20	M16		
29					M18
30	M20	M22			
32	M22	M24	M20	W3/4	M20
35				W7/8	
36	M24	M27	M22		
38					M24
41	M27	M30	M24	W1	M27
46	M30	M33		W1-1/8	M30
50	M33	M36		W1-1/4	M33
54				W1-3/8	M36
55	M36	M39			
58				W1-1/2	M39
60	M39				
63				W1-5/8	M42
65	M42				
67				W1-3/4	M45
70	M45				
71				W1-7/8	M48
75	M48				
77				W2	
80	M52				

Bolt & Spanner Reference Table



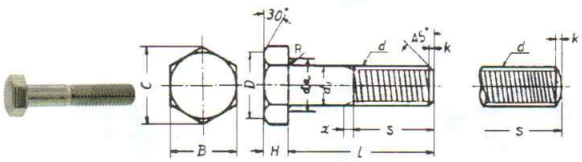
Summary Illustration of Bolts, Screws, Nuts, etc.

 Hexagon Head Bolt	 Square Head Bolt	 Hexagon Head Set Screw	 Countersunk Head Bolt	 Hexagon Socket Head Cap Screw	 Cap Head Square Neck Bolt (Carriage Bolt)
 Stud Bolt	 Continuous Thread Stud (All Thread Rod)	 Eye Bolt	 Eye Bolt	 Wing Bolt	 Knob Bolt
 Hexagon Nut	 Hexagon Slotted Nut	 Hexagon Castellated Nut	 Square Nut	 Plate Nut	 Pipe Nut
 Long Nut	 Hexagon Cap Nut	 Wing Nut	 Square Weld Nut	 Hexagon Weld Nut	 Hexagon Flange Nut
 Eye Nut	 Square Set Screw	 Slotted Set Screw	 Hexagon Socket Set Screw	 Hexagon socket Headless Tapered Pipe Plug	 Thumb Screw
 Helisert	 Slotted Round head Machine Screw	 Slotted Countersunk Machine Screw	 Slotted Flat Fillister Head Machine Screw	 Cross Recessed Pan Head Machine Screw	 Cross Recessed Countersunk Head Machine Screw
 Cross Recessed Oval Head Machine Screw	 Cross Recessed Truss Head Machine Screw	 Cross Recessed Binding Head Machine Screw	 Cross Recessed Round Head Sash Screw	 Slotted Pan Head Fuse Screw	 Cross Recessed Pan Head tapping Screw
 Cross Recessed Round head Wood Screw	 Cross Recessed Oval Head Wood Screw	 Cross Recessed Countersunk Head Wood Screw	 Plain Washer	 Spring Washer	 Flange Lock Washer
 Shake Proof Lock Washer Internal	 Shake Proof Lock Washer External	 Shake Proof Lock Washer Countersunk	 Square and Beveled Washer	 Beveled Washer	 Quanset Washer
 Single Flapped Washer	 Double Flapped Washer	 Stop Ring External	 Stop Ring Internal	Cotter Pin	 Taper Pin
 Straight Pin	 Spring Pin	 Round head Rivet	 Countersunk Head Rivet	 Thin Flat Head Rivet	 Semi Tubular Rivet
 Split Rivet	 Blind Rivet	 Screw Hook	 Cup Hook	 Screw Eye	 U Bolt

Hexagon Head Bolts, Half Threaded

(Ref. JIS B 1180 – 93)

Tornillos Cabeza Hexagonal　六角半ねじボルト　六角螺栓



d	Pitch		d1	H	B	C	L	S
	Coarse	Fine	Standard Size			Approx.	Recommended	
M 3	0.5		3	2	5.5	6.4	5- 30	12
M 4	0.7		4	2.8	7	8.1	6- 30	14
M 5	0.8		5	3.5	8	9.2	8- 50	14
M 6	1		6	4	10	11.5	8- 70	18
M 8	1.25	1	8	5.5	13	15	10-100	22
M10	1.5	1.25	10	7	17	19.6	14-100	26
M12	1.75	1.25	12	8	19	21.9	20-140	30
M14	2	1.5	14	9	22	25.4	25-150	34
M16	2	1.5	16	10	24	27.7	20-140	38
M18	2.5	1.5	18	12	27	31.2	25-200	42
M20	2.5	1.5	20	13	30	34.6	25-200	50
M22	2.5	1.5	22	14	32	37	30-200	54
M24	3	2	24	15	36	41.6	30-200	54- 60
M27	3	2	27	17	41	47.3	50-200	62
M30	3.5	2	30	19	46	53.1	40-220	66- 72
M33	3.5	2	33	21	50	57.7	70-240	74
M36	4	3	36	23	55	63.5	50-240	78- 84
M42	4.5		42	26	65	75	55-325	90- 96
M48	5		48	30	75	86.5	60-325	102-108
M56	5.5		56	35	85	98.1	130-400	124-137
M64	6		64	40	95	110	130-400	140-153
M72	6		72	45	105	121	130-400	156-169
M80	6		80	50	115	133	130-400	172-185

Material: Steel, Stainless Steel, Bronze & Brass

Steel, Ungalv.

How to order: CODE

Bolt, hex head, steel, ungalv., half threaded,
DIAM x LENGTH mm
or
Bolt with nut, hex head, steel, ungalv., half threaded,
DIAM x LENGTH mm
If you require WHOLE THREADED, please specify.

CODE	Size	Unit	CODE	Size	Unit
Steel ungalv. Bolt only			**Steel ungalv. Bolt with Nut**		
69 01 01	M3 × 5 mm	Pc.	**69 09 01**	M3 × 5 mm	Set
02	" × 6 "	"	**02**	" × 6 "	"
03	" × 8 "	"	**03**	" × 8 "	"
04	" × 10 "	"	**04**	" × 10 "	"
05	" × 12 "	"	**05**	" × 12 "	"
69 01 06	M3 × 15 mm	Pc.	**69 09 06**	M3 × 15 mm	Set
07	" × 16 "	"	**07**	" × 16 "	"
08	" × 20 "	"	**08**	" × 20 "	"
09	" × 25 "	"	**09**	" × 25 "	"
10	" × 30 "	"	**10**	" × 30 "	"
69 01 11	M3 × 40 mm	Pc.	**69 09 11**	M3 × 40 mm	Set
12	" × 50 "	"	**12**	" × 50 "	"
13	" × 60 "	"	**13**	" × 60 "	"
14	" × 70 "	"	**14**	" × 70 "	"
15	" × 80 "	"	**15**	" × 80 "	"
69 01 16	M3 × 90 mm	Pc.	**69 09 16**	M3 × 90 mm	Set
17	" ×100 "	"	**17**	" ×100 "	"
18	" ×110 "	"	**18**	" ×110 "	"
19	" ×120 "	"	**19**	" ×120 "	"
20	" ×130 "	"	**20**	" ×130 "	"
69 01 21	M3 ×140 mm	Pc.	**69 09 21**	M3 ×140 mm	Set
22	" ×150 "	"	**22**	" ×150 "	"

(to be continued)

69 01 25	M4 × 6 mm	Pc.	**69 09 25**	M4 × 6 mm	Set
26	" × 8 "	"	**26**	" × 8 "	"
27	" × 10 "	"	**27**	" × 10 "	"
28	" × 12 "	"	**28**	" × 12 "	"
29	" × 14 "	"	**29**	" × 14 "	"
69 01 30	M4 × 15 mm	Pc.	**69 09 30**	M4 × 15 mm	Set
31	" × 16 "	"	**31**	" × 16 "	"
32	" × 18 "	"	**32**	" × 18 "	"
33	" × 20 "	"	**33**	" × 20 "	"
34	" × 25 "	"	**34**	" × 25 "	"
69 01 35	M4 × 30 mm	Pc.	**69 09 35**	M4 × 30 mm	Set
36	" × 35 "	"	**36**	" × 35 "	"
37	" × 40 "	"	**37**	" × 40 "	"
38	" × 45 "	"	**38**	" × 45 "	"
39	" × 50 "	"	**39**	" × 50 "	"
69 01 40	M4 × 60 mm	Pc.	**69 09 40**	M4 × 60 mm	Set
41	" × 70 "	"	**41**	" × 70 "	"
42	" × 80 "	"	**42**	" × 80 "	"
43	" × 90 "	"	**43**	" × 90 "	"
44	" ×100 "	"	**44**	" ×100 "	"
69 01 45	M4 ×110 mm	Pc.	**69 09 45**	M4 ×110 mm	Set
46	" ×120 "	"	**46**	" ×120 "	"
47	" ×130 "	"	**47**	" ×130 "	"
48	" ×140 "	"	**48**	" ×140 "	"
49	" ×150 "	"	**49**	" ×150 "	"
69 01 51	M5 × 6 mm	Pc.	**69 09 51**	M5 × 6 mm	Set
52	" × 8 "	"	**52**	" × 8 "	"
53	" × 10 "	"	**53**	" × 10 "	"
54	" × 12 "	"	**54**	" × 12 "	"
55	" × 14 "	"	**55**	" × 14 "	"
69 01 56	M5 × 15 mm	Pc.	**69 09 56**	M5 × 15 mm	Set
57	" × 16 "	"	**57**	" × 16 "	"
58	" × 18 "	"	**58**	" × 18 "	"
59	" × 20 "	"	**59**	" × 20 "	"
60	" × 22 "	"	**60**	" × 22 "	"
69 01 61	M5 × 25 mm	Pc.	**69 09 61**	M5 × 25 mm	Set
62	" × 30 "	"	**62**	" × 30 "	"
63	" × 35 "	"	**63**	" × 35 "	"
64	" × 40 "	"	**64**	" × 40 "	"
65	" × 45 "	"	**65**	" × 45 "	"
69 01 66	M5 × 50 mm	Pc.	**69 09 66**	M5 × 50 mm	Set
67	" × 60 "	"	**67**	" × 60 "	"
68	" × 70 "	"	**68**	" × 70 "	"
69	" × 80 "	"	**69**	" × 80 "	"
70	" × 90 "	"	**70**	" × 90 "	"
69 01 71	M5 ×100 mm	Pc.	**69 09 71**	M5 ×100 mm	Set
72	" ×110 "	"	**72**	" ×110 "	"
73	" ×120 "	"	**73**	" ×120 "	"
74	" ×130 "	"	**74**	" ×130 "	"
75	" ×140 "	"	**75**	" ×140 "	"
69 01 76	M5 ×150 mm	Pc.	**69 09 76**	M5 ×150 mm	Set
69 01 81	M6 × 8 mm	Pc.	**69 11 01**	M6 × 8 mm	Set
82	" × 10 "	"	**02**	" × 10 "	"
83	" × 12 "	"	**03**	" × 12 "	"
84	" × 14 "	"	**04**	" × 14 "	"
85	" × 15 "	"	**05**	" × 15 "	"
69 01 86	M6 × 16 mm	Pc.	**69 11 06**	M6 × 16 mm	Set
87	" × 18 "	"	**07**	" × 18 "	"
88	" × 20 "	"	**08**	" × 20 "	"
89	" × 22 "	"	**09**	" × 22 "	"
90	" × 25 "	"	**10**	" × 25 "	"
69 01 91	M6 × 30 mm	Pc.	**69 11 11**	M6 × 30 mm	Set
92	" × 35 "	"	**12**	" × 35 "	"
93	" × 40 "	"	**13**	" × 40 "	"
94	" × 45 "	"	**14**	" × 45 "	"
95	" × 50 "	"	**15**	" × 50 "	"
69 01 96	M6 × 55 mm	Pc.	**69 11 16**	M6 × 55 mm	Set
97	" × 60 "	"	**17**	" × 60 "	"
98	" × 65 "	"	**18**	" × 65 "	"
99	" × 70 "	"	**19**	" × 70 "	"
69 02 00	" × 75 "	"	**20**	" × 75 "	"
69 02 01	M6 × 80 mm	Pc.	**69 11 21**	M6 × 80 mm	Set
02	" × 85 "	"	**22**	" × 85 "	"
03	" × 90 "	"	**23**	" × 90 "	"
04	" × 95 "	"	**24**	" × 95 "	"
05	" ×100 "	"	**25**	" ×100 "	"

(to be continued)

CODE	Size	Unit	CODE	Size	Unit
Steel ungalv. Bolt only			**Steel ungalv. Bolt with Nut**		
69 02 06	M6 ×110 mm	Pc.	**69 11 26**	M6 ×110 mm	Set
07	" ×120 "	"	**27**	" ×120 "	"
08	" ×130 "	"	**28**	" ×130 "	"
09	" ×140 "	"	**29**	" ×140 "	"
10	" ×150 "	"	**30**	" ×150 "	"
69 02 11	M8 × 10 mm	Pc.	**69 11 31**	M8 × 10 mm	Set
12	" × 12 "	"	**32**	" × 12 "	"
13	" × 14 "	"	**33**	" × 14 "	"
14	" × 15 "	"	**34**	" × 15 "	"
15	" × 16 "	"	**35**	" × 16 "	"
69 02 16	M8 × 18 mm	Pc.	**69 11 36**	M8 × 18 mm	Set
17	" × 20 "	"	**37**	" × 20 "	"
18	" × 22 "	"	**38**	" × 22 "	"
19	" × 25 "	"	**39**	" × 25 "	"
20	" × 28 "	"	**40**	" × 28 "	"
69 02 21	M8 × 30 mm	Pc.	**69 11 41**	M8 × 30 mm	Set
22	" × 35 "	"	**42**	" × 35 "	"
23	" × 40 "	"	**43**	" × 40 "	"
24	" × 45 "	"	**44**	" × 45 "	"
25	" × 50 "	"	**45**	" × 50 "	"
69 02 26	M8 × 55 mm	Pc.	**69 11 46**	M8 × 55 mm	Set
27	" × 60 "	"	**47**	" × 60 "	"
28	" × 65 "	"	**48**	" × 65 "	"
29	" × 70 "	"	**49**	" × 70 "	"
30	" × 75 "	"	**50**	" × 75 "	"
69 02 31	M8 × 80 mm	Pc.	**69 11 51**	M8 × 80 mm	Set
32	" × 85 "	"	**52**	" × 85 "	"
33	" × 90 "	"	**53**	" × 90 "	"
34	" × 95 "	"	**54**	" × 95 "	"
35	" ×100 "	"	**55**	" ×100 "	"
69 02 36	M8 ×110 mm	Pc.	**69 11 56**	M8 ×110 mm	Set
37	" ×120 "	"	**57**	" ×120 "	"
38	" ×130 "	"	**58**	" ×130 "	"
39	" ×140 "	"	**59**	" ×140 "	"
40	" ×150 "	"	**60**	" ×150 "	"
69 02 41	M8 ×160 mm	Pc.	**69 11 61**	M8 ×160 mm	Set
42	" ×170 "	"	**62**	" ×170 "	"
43	" ×180 "	"	**63**	" ×180 "	"
44	" ×190 "	"	**64**	" ×190 "	"
45	" ×200 "	"	**65**	" ×200 "	"
69 02 51	M10 × 10 mm	Pc.	**69 11 71**	M10 × 10 mm	Set
52	" × 12 "	"	**72**	" × 12 "	"
53	" × 14 "	"	**73**	" × 14 "	"
54	" × 15 "	"	**74**	" × 15 "	"
55	" × 16 "	"	**75**	" × 16 "	"
69 02 56	M10× 18 mm	Pc.	**69 11 76**	M10 × 18 mm	Set
57	" × 20 "	"	**77**	" × 20 "	"
58	" × 25 "	"	**78**	" × 25 "	"
59	" × 30 "	"	**79**	" × 30 "	"
60	" × 35 "	"	**80**	" × 35 "	"
69 02 61	M10 × 40 mm	Pc.	**69 11 81**	M10 × 40 mm	Set
62	" × 45 "	"	**82**	" × 45 "	"
63	" × 50 "	"	**83**	" × 50 "	"
64	" × 55 "	"	**84**	" × 55 "	"
65	" × 60 "	"	**85**	" × 60 "	"
69 02 66	M10 × 65 mm	Pc.	**69 11 86**	M10× 65 mm	Set
67	" × 70 "	"	**87**	" × 70 "	"
68	" × 75 "	"	**88**	" × 75 "	"
69	" × 80 "	"	**89**	" × 80 "	"
70	" × 85 "	"	**90**	" × 85 "	"
69 02 71	M10 × 90 mm	Pc.	**69 11 91**	M10 × 90 mm	Set
72	" × 95 "	"	**92**	" × 95 "	"
73	" ×100 "	"	**93**	" ×100 "	"
74	" ×105 "	"	**94**	" ×105 "	"
75	" ×110 "	"	**95**	" ×110 "	"
69 02 76	M10× 115 mm	Pc.	**69 11 96**	M10× 115 mm	Set
77	" ×120 "	"	**97**	" ×120 "	"
78	" ×125 "	"	**98**	" ×125 "	"
79	" ×130 "	"	**99**	" ×130 "	"
80	" ×140 "	"	**69 12 00**	" ×140 "	"

(to be continued)

69 02 81	M10 ×150 mm	Pc.	**69 12 01**	M10 ×150 mm	Set
82	" ×160 "	"	**02**	" ×160 "	"
83	" ×170 "	"	**03**	" ×170 "	"
84	" ×180 "	"	**04**	" ×180 "	"
85	" ×190 "	"	**05**	" ×190 "	"
69 02 86	M10 ×200 mm	Pc.	**69 12 06**	M10 ×200 mm	Set
87	" ×210 "	"	**07**	" ×210 "	"
88	" ×220 "	"	**08**	" ×220 "	"
89	" ×230 "	"	**09**	" ×230 "	"
90	" ×240 "	"	**10**	" ×240 "	"
69 02 91	M10 ×250 mm	Pc.	**69 12 11**	M10 ×250 mm	Set
92	" ×300 "	"	**12**	" ×300 "	"
69 02 95	M12 × 10 mm	Pc.	**69 12 15**	M12× 10 mm	Set
96	" × 20 "	"	**16**	" × 20 "	"
97	" × 25 "	"	**17**	" × 25 "	"
98	" × 30 "	"	**18**	" × 30 "	"
99	" × 35 "	"	**19**	" × 35 "	"
69 03 00	M12 × 40 mm	Pc.	**69 12 20**	M12 × 40 mm	Set
01	" × 45 "	"	**21**	" × 45 "	"
02	" × 50 "	"	**22**	" × 50 "	"
03	" × 55 "	"	**23**	" × 55 "	"
04	" × 60 "	"	**24**	" × 60 "	"
69 03 05	M12 × 65 mm	Pc.	**69 12 25**	M12 × 65 mm	Set
06	" × 70 "	"	**26**	" × 70 "	"
07	" × 75 "	"	**27**	" × 75 "	"
08	" × 80 "	"	**28**	" × 80 "	"
09	" × 85 "	"	**29**	" × 85 "	"
69 03 10	M12 × 90 mm	Pc.	**69 12 30**	M12 × 90 mm	Set
11	" × 95 "	"	**31**	" × 95 "	"
12	" ×100 "	"	**32**	" ×100 "	"
13	" ×105 "	"	**33**	" ×105 "	"
14	" ×110 "	"	**34**	" ×110 "	"
69 03 15	M12 ×115 mm	Pc.	**69 12 35**	M12 ×115 mm	Set
16	" ×120 "	"	**36**	" ×120 "	"
17	" ×125 "	"	**37**	" ×125 "	"
18	" ×130 "	"	**38**	" ×130 "	"
19	" ×140 "	"	**39**	" ×140 "	"
69 03 20	M12× 150 mm	Pc.	**69 12 40**	M12 ×150 mm	Set
21	" ×160 "	"	**41**	" ×160 "	"
22	" ×170 "	"	**42**	" ×170 "	"
23	" ×180 "	"	**43**	" ×180 "	"
24	" ×190 "	"	**44**	" ×190 "	"
69 03 25	M12×200 mm	Pc.	**69 12 45**	M12 ×200 mm	Set
26	" ×210 "	"	**46**	" ×210 "	"
27	" ×220 "	"	**47**	" ×220 "	"
28	" ×230 "	"	**48**	" ×230 "	"
29	" ×240 "	"	**49**	" ×240 "	"
69 03 30	M12 ×250 mm	Pc.	**69 12 50**	M12 ×250 mm	Set
31	" ×260 "	"	**51**	" ×260 "	"
32	" ×270 "	"	**52**	" ×270 "	"
33	" ×280 "	"	**53**	" ×280 "	"
34	" ×290 "	"	**54**	" ×290 "	"
69 03 35	M12 ×300 mm	Pc.	**69 12 55**	M12 ×300 mm	Set
36	" ×310 "	"	**56**	" ×310 "	"
37	" ×320 "	"	**57**	" ×320 "	"
38	" ×330 "	"	**58**	" ×330 "	"
39	" ×340 "	"	**59**	" ×340 "	"
69 03 40	M12 ×350 mm	Pc.	**69 12 60**	M12 ×350 mm	Set
69 03 41	M14 × 25 mm	Pc.	**69 12 61**	M14 × 25 mm	Set
42	" × 30 "	"	**62**	" × 30 "	"
43	" × 40 "	"	**63**	" × 40 "	"
44	" × 45 "	"	**64**	" × 45 "	"
45	" × 50 "	"	**65**	" × 50 "	"
69 03 46	M14 × 55 mm	Pc.	**69 12 66**	M14 × 55 mm	Set
47	" × 60 "	"	**67**	" × 60 "	"
48	" × 65 "	"	**68**	" × 65 "	"
49	" × 70 "	"	**69**	" × 70 "	"
50	" × 75 "	"	**70**	" × 75 "	"
69 03 51	M14 × 80 mm	Pc.	**69 12 71**	M14 × 80 mm	Set
52	" × 90 "	"	**72**	" × 90 "	"
53	" ×100 "	"	**73**	" ×100 "	"
69 03 55	M16× 10 mm	Pc.	**69 12 75**	M16 × 10 mm	Set
56	" × 20 "	"	**76**	" × 20 "	"
57	" × 25 "	"	**77**	" × 25 "	"
58	" × 30 "	"	**78**	" × 30 "	"
59	" × 40 "	"	**79**	" × 40 "	"

(to be continued)

CODE	Size	Unit	CODE	Size	Unit
Steel ungalv. Bolt only			Steel ungalv. Bolt with Nut		
69 03 60	M16 × 45 mm	Pc.	69 12 80	M16 × 45 mm	Set
61	" × 50 "	"	81	" × 50 "	"
62	" × 55 "	"	82	" × 55 "	"
63	" × 60 "	"	83	" × 60 "	"
64	" × 65 "	"	84	" × 65 "	"
69 03 65	M16 × 70 mm	Pc.	69 12 85	M16 × 70 mm	Set
66	" × 75 "	"	86	" × 75 "	"
67	" × 80 "	"	87	" × 80 "	"
68	" × 85 "	"	88	" × 85 "	"
69	" × 90 "	"	89	" × 90 "	"
69 03 70	M16 × 95 mm	Pc.	69 12 90	M16 × 95 mm	Set
71	" ×100 "	"	91	" ×100 "	"
72	" ×105 "	"	92	" ×105 "	"
73	" ×110 "	"	93	" ×110 "	"
74	" ×115 "	"	94	" ×115 "	"
69 03 75	M16 ×120 mm	Pc.	69 12 95	M16 ×120 mm	Set
76	" ×125 "	"	96	" ×125 "	"
77	" ×130 "	"	97	" ×130 "	"
78	" ×140 "	"	98	" ×140 "	"
79	" ×150 "	"	99	" ×150 "	"
69 03 80	M16 ×160 mm	Pc.	69 13 00	M16 ×160 mm	Set
81	" ×170 "	"	01	" ×170 "	"
82	" ×180 "	"	02	" ×180 "	"
83	" ×190 "	"	03	" ×190 "	"
84	" ×200 "	"	04	" ×200 "	"
69 03 85	M16× 210 mm	Pc.	69 13 05	M16 ×210 mm	Set
86	" ×220 "	"	06	" ×220 "	"
87	" ×230 "	"	07	" ×230 "	"
88	" ×240 "	"	08	" ×240 "	"
89	" ×250 "	"	09	" ×250 "	"
69 03 91	M18 × 30 mm	Pc.	69 13 11	M18 × 30 mm	Set
92	" × 60 "	"	12	" × 60 "	"
93	" × 65 "	"	13	" × 65 "	"
94	" × 70 "	"	14	" × 70 "	"
95	" × 75 "	"	15	" × 75 "	"
69 03 96	M18 × 80 mm	Pc.	69 13 16	M18 × 80 mm	Set
97	" × 85 "	"	17	" × 85 "	"
98	" × 90 "	"	18	" × 90 "	"
99	" ×100 "	"	19	" ×100 "	"
69 04 00	" ×120 "	"	20	" ×120 "	"
69 04 01	M20 × 10 mm	Pc.	69 13 21	M20 × 10 mm	Set
02	" × 20 "	"	22	" × 20 "	"
03	" × 30 "	"	23	" × 30 "	"
04	" × 40 "	"	24	" × 40 "	"
05	" × 50 "	"	25	" × 50 "	"
69 04 06	M20 × 55 mm	Pc.	69 13 26	M20 × 55 mm	Set
07	" × 60 "	"	27	" × 60 "	"
08	" × 65 "	"	28	" × 65 "	"
09	" × 70 "	"	29	" × 70 "	"
10	" × 75 "	"	30	" × 75 "	"
69 04 11	M20 × 80 mm	Pc.	69 13 31	M20 × 80 mm	Set
12	" × 85 "	"	32	" × 85 "	"
13	" × 90 "	"	33	" × 90 "	"
14	" × 95 "	"	34	" × 95 "	"
15	" ×100 "	"	35	" ×100 "	"
69 04 16	M20 ×105 mm	Pc.	69 13 36	M20 ×105 mm	Set
17	" ×110 "	"	37	" ×110 "	"
18	" ×115 "	"	38	" ×115 "	"
19	" ×120 "	"	39	" ×120 "	"
20	" ×125 "	"	40	" ×125 "	"
69 04 21	M20 ×130 mm	Pc.	69 13 41	M20 ×130 mm	Set
22	" ×140 "	"	42	" ×140 "	"
23	" ×150 "	"	43	" ×150 "	"
24	" ×160 "	"	44	" ×160 "	"
25	" ×170 "	"	45	" ×170 "	"
69 04 26	M20 ×180 mm	Pc.	69 13 46	M20 ×180 mm	Set
27	" ×190 "	"	47	" ×190 "	"
28	" ×200 "	"	48	" ×200 "	"
29	" ×210 "	"	49	" ×210 "	"
30	" ×230 "	"	50	" ×230 "	"
69 04 31	M20 ×260 mm	Pc.	69 13 51	M20 ×260 mm	Set

(to be continued)

69 04 35	M22 × 40 mm	Pc.	69 13 55	M22 × 40 mm	Set
36	" × 45 "	"	56	" × 45 "	"
37	" × 50 "	"	57	" × 50 "	"
38	" × 55 "	"	58	" × 55 "	"
39	" × 60 "	"	59	" × 60 "	"
69 04 40	M22 × 65 mm	Pc.	69 13 60	M22× 65 mm	Set
41	" × 70 "	"	61	" × 70 "	"
42	" × 75 "	"	62	" × 75 "	"
43	" × 80 "	"	63	" × 80 "	"
44	" × 85 "	"	64	" × 85 "	"
69 04 45	M22 × 90 mm	Pc.	69 13 65	M22 × 90 mm	Set
46	" × 95 "	"	66	" × 95 "	"
47	" ×100 "	"	67	" ×100 "	"
48	" ×105 "	"	68	" ×105 "	"
49	" ×110 "	"	69	" ×110 "	"
69 04 50	M22 ×115 mm	Pc.	69 13 70	M22 ×115 mm	Set
51	" ×120 "	"	71	" ×120 "	"
52	" ×125 "	"	72	" ×125 "	"
53	" ×130 "	"	73	" ×130 "	"
54	" ×140 "	"	74	" ×140 "	"
69 04 55	M22 ×150 mm	Pc.	69 13 75	M22 ×150 mm	Set
56	" ×160 "	"	76	" ×160 "	"
57	" ×170 "	"	77	" ×170 "	"
58	" ×200 "	"	78	" ×200 "	"
59	" ×220 "	"	79	" ×220 "	"
69 04 60	M22 ×230 mm	Pc.	69 13 80	M22 ×230 mm	Set
61	" ×260 "	"	81	" ×260 "	"
69 04 65	M24 × 10 mm	Pc.	69 13 85	M24 × 10 mm	Set
66	" × 20 "	"	86	" × 20 "	"
67	" × 30 "	"	87	" × 30 "	"
68	" × 40 "	"	88	" × 40 "	"
69	" × 45 "	"	89	" × 45 "	"
69 04 70	M24 × 50 mm	Pc.	69 13 90	M24 × 50 mm	Set
71	" × 55 "	"	91	" × 55 "	"
72	" × 60 "	"	92	" × 60 "	"
73	" × 65 "	"	93	" × 65 "	"
74	" × 70 "	"	94	" × 70 "	"
69 04 75	M24 × 75 mm	Pc.	69 13 95	M24 × 75 mm	Set
76	" × 80 "	"	96	" × 80 "	"
77	" × 85 "	"	97	" × 85 "	"
78	" × 90 "	"	98	" × 90 "	"
79	" × 95 "	"	99	" × 95 "	"
69 04 80	M24 ×100 mm	Pc.	69 14 00	M24 ×100 mm	Set
81	" ×105 "	"	01	" ×105 "	"
82	" ×110 "	"	02	" ×110 "	"
83	" ×115 "	"	03	" ×115 "	"
84	" ×120 "	"	04	" ×120 "	"
69 04 85	M24 ×125 mm	Pc.	69 14 05	M24 ×125 mm	Set
86	" ×130 "	"	06	" ×130 "	"
87	" ×140 "	"	07	" ×140 "	"
88	" ×150 "	"	08	" ×150 "	"
89	" ×170 "	"	09	" ×170 "	"
69 04 90	M24 ×220 mm	Pc.	69 14 10	M24 ×220 mm	Set
91	" ×250 "	"	11	" ×250 "	"
92	" ×260 "	"	12	" ×260 "	"
69 08 01	M27 × 90 mm	Pc.	69 14 15	M27 × 90 mm	Set
02	" ×100 "	"	16	" ×100 "	"
03	" ×110 "	"	17	" ×110 "	"
04	" ×120 "	"	18	" ×120 "	"
05	" ×130 "	"	19	" ×130 "	"
69 08 06	M27 ×180 mm	Pc.	69 14 20	M27 ×180 mm	Set
69 08 11	M30 × 75 mm	Pc.	69 14 21	M30 × 75 mm	Set
12	" × 80 "	"	22	" × 80 "	"
13	" × 85 "	"	23	" × 85 "	"
14	" ×100 "	"	24	" ×100 "	"
15	" ×110 "	"	25	" ×110 "	"
69 08 16	M30 ×120 mm	Pc.	69 14 26	M30 ×120 mm	Set
17	" ×130 "	"	27	" ×130 "	"
18	" ×140 "	"	28	" ×140 "	"
19	" ×150 "	"	29	" ×150 "	"
20	" ×200 "	"	30	" ×200 "	"
69 08 21	M30 ×250 mm	Pc.	69 14 31	M30 ×250 mm	Set
69 08 25	M36 ×100 mm	Pc.	69 14 35	M36 ×100 mm	Set
26	" ×140 "	"	36	" ×140 "	"
27	" ×150 "	"	37	" ×150 "	"
28	" ×180 "	"	38	" ×180 "	"

Stainless Steel

How to order: CODE

Bolt, hex head, stainless steel, half threaded,
DIAM x LENGTH mm
or
Bolt with nut, hex head, stainless steel, half threaded,
DIAM x LENGTH mm
If you require WHOLE THREADED, please specify.

CODE	Size	Unit	CODE	Size	Unit
Stainless Steel Bolt only			**Stainless Steel Bolt with Nut**		
69 16 01	M3 × 5 mm	Pc.	**69 23 01**	M3 × 5 mm	Set
02	" × 6 "	"	**02**	" × 6 "	"
03	" × 8 "	"	**03**	" × 8 "	"
04	" × 10 "	"	**04**	" × 10 "	"
05	" × 12 "	"	**05**	" × 12 "	"
69 16 06	M3 × 15 mm	Pc.	**69 23 06**	M3 × 15 mm	Set
07	" × 16 "	"	**07**	" × 16 "	"
08	" × 20 "	"	**08**	" × 20 "	"
09	" × 25 "	"	**09**	" × 25 "	"
10	" × 30 "	"	**10**	" × 30 "	"
69 16 11	M3 × 40 mm	Pc.	**69 23 11**	M3 × 40 mm	Set
12	" × 50 "	"	**12**	" × 50 "	"
13	" × 60 "	"	**13**	" × 60 "	"
14	" × 70 "	"	**14**	" × 70 "	"
15	" × 80 "	"	**15**	" × 80 "	"
69 16 16	M3 × 90 mm	Pc.	**69 23 16**	M3 × 90 mm	Set
17	" ×100 "	"	**17**	" ×100 "	"
18	" ×110 "	"	**18**	" ×110 "	"
19	" ×120 "	"	**19**	" ×120 "	"
20	" ×130 "	"	**20**	" ×130 "	"
69 16 21	M3 ×140 mm	Pc.	**69 23 21**	M3 ×140 mm	Set
22	" ×150 "	"	**22**	" ×150 "	"
69 16 25	M4 × 6 mm	Pc.	**69 23 25**	M4 × 6 mm	Set
26	" × 8 "	"	**26**	" × 8 "	"
27	" × 10 "	"	**27**	" × 10 "	"
28	" × 12 "	"	**28**	" × 12 "	"
29	" × 14 "	"	**29**	" × 14 "	"
69 16 30	M4 × 15 mm	Pc.	**69 23 30**	M4 × 15 mm	Set
31	" × 16 "	"	**31**	" × 16 "	"
32	" × 18 "	"	**32**	" × 18 "	"
33	" × 20 "	"	**33**	" × 20 "	"
34	" × 25 "	"	**34**	" × 25 "	"
69 16 35	M4 × 30 mm	Pc.	**69 23 35**	M4 × 30 mm	Set
36	" × 35 "	"	**36**	" × 35 "	"
37	" × 40 "	"	**37**	" × 40 "	"
38	" × 45 "	"	**38**	" × 45 "	"
39	" × 50 "	"	**39**	" × 50 "	"
69 16 40	M4 × 60 mm	Pc.	**69 23 40**	M4 × 60 mm	Set
41	" × 70 "	"	**41**	" × 70 "	"
42	" × 80 "	"	**42**	" × 80 "	"
43	" × 90 "	"	**43**	" × 90 "	"
44	" ×100 "	"	**44**	" ×100 "	"
69 16 45	M4 ×110 mm	Pc.	**69 23 45**	M4 ×110 mm	Set
46	" ×120 "	"	**46**	" ×120 "	"
47	" ×130 "	"	**47**	" ×130 "	"
48	" ×140 "	"	**48**	" ×140 "	"
49	" ×150 "	"	**49**	" ×150 "	"
69 16 51	M5 × 6 mm	Pc.	**69 23 51**	M5 × 6 mm	Set
52	" × 8 "	"	**52**	" × 8 "	"
53	" × 10 "	"	**53**	" × 10 "	"
54	" × 12 "	"	**54**	" × 12 "	"
55	" × 14 "	"	**55**	" × 14 "	"
69 16 56	M5 × 15 mm	Pc.	**69 23 56**	M5 × 15 mm	Set
57	" × 16 "	"	**57**	" × 16 "	"
58	" × 18 "	"	**58**	" × 18 "	"
59	" × 20 "	"	**59**	" × 20 "	"
60	" × 22 "	"	**60**	" × 22 "	"
69 16 61	M5 × 25 mm	Pc.	**69 23 61**	M5 × 25 mm	Set
62	" × 30 "	"	**62**	" × 30 "	"
63	" × 35 "	"	**63**	" × 35 "	"
64	" × 40 "	"	**64**	" × 40 "	"
65	" × 45 "	"	**65**	" × 45 "	"
69 16 66	M5 × 50 mm	Pc.	**69 23 66**	M5 × 50 mm	Set
67	" × 60 "	"	**67**	" × 60 "	"
68	" × 70 "	"	**68**	" × 70 "	"
69	" × 80 "	"	**69**	" × 80 "	"
70	" × 90 "	"	**70**	" × 90 "	"
69 16 71	M5 ×100 mm	Pc.	**69 23 71**	M5 ×100 mm	Set
72	" ×110 "	"	**72**	" ×110 "	"
73	" ×120 "	"	**73**	" ×120 "	"
74	" ×130 "	"	**74**	" ×130 "	"
75	" ×140 "	"	**75**	" ×140 "	"
69 16 76	M5 ×150 mm	Pc.	**69 23 76**	M5 ×150 mm	Set
69 16 81	M6 × 8 mm	Pc.	**69 25 01**	M6 × 8 mm	Set
82	" × 10 "	"	**02**	" × 10 "	"
83	" × 12 "	"	**03**	" × 12 "	"
84	" × 14 "	"	**04**	" × 14 "	"
85	" × 15 "	"	**05**	" × 15 "	"
69 16 86	M6 × 16 mm	Pc.	**69 25 06**	M6 × 16 mm	Set
87	" × 18 "	"	**07**	" × 18 "	"
88	" × 20 "	"	**08**	" × 20 "	"
89	" × 22 "	"	**09**	" × 22 "	"
90	" × 25 "	"	**10**	" × 25 "	"
69 16 91	M6 × 30 mm	Pc.	**69 25 11**	M6 × 30 mm	Set
92	" × 35 "	"	**12**	" × 35 "	"
93	" × 40 "	"	**13**	" × 40 "	"
94	" × 45 "	"	**14**	" × 45 "	"
95	" × 50 "	"	**15**	" × 50 "	"
69 16 96	M6 × 55 mm	Pc.	**69 25 16**	M6 × 55 mm	Set
97	" × 60 "	"	**17**	" × 60 "	"
98	" × 65 "	"	**18**	" × 65 "	"
99	" × 70 "	"	**19**	" × 70 "	"
69 17 00	" × 75 "	"	**20**	" × 75 "	"
69 17 01	M6 × 80 mm	Pc.	**69 25 21**	M6 × 80 mm	Set
02	" × 85 "	"	**22**	" × 85 "	"
03	" × 90 "	"	**23**	" × 90 "	"
04	" × 95 "	"	**24**	" × 95 "	"
05	" ×100 "	"	**25**	" ×100 "	"
69 17 06	M6 ×110 mm	Pc.	**69 25 26**	M6 ×110 mm	Set
07	" ×120 "	"	**27**	" ×120 "	"
08	" ×130 "	"	**28**	" ×130 "	"
09	" ×140 "	"	**29**	" ×140 "	"
10	" ×150 "	"	**30**	" ×150 "	"
69 17 11	M8 × 10 mm	Pc.	**69 25 31**	M8 × 10 mm	Set
12	" × 12 "	"	**32**	" × 12 "	"
13	" × 14 "	"	**33**	" × 14 "	"
14	" × 15 "	"	**34**	" × 15 "	"
15	" × 16 "	"	**35**	" × 16 "	"
69 17 16	M8 × 18 mm	Pc.	**69 25 36**	M8 × 18 mm	Set
17	" × 20 "	"	**37**	" × 20 "	"
18	" × 22 "	"	**38**	" × 22 "	"
19	" × 25 "	"	**39**	" × 25 "	"
20	" × 28 "	"	**40**	" × 28 "	"
69 17 21	M8 × 30 mm	Pc.	**69 25 41**	M8 × 30 mm	Set
22	" × 35 "	"	**42**	" × 35 "	"
23	" × 40 "	"	**43**	" × 40 "	"
24	" × 45 "	"	**44**	" × 45 "	"
25	" × 50 "	"	**45**	" × 50 "	"
69 17 26	M8 × 55 mm	Pc.	**69 25 46**	M8 × 55 mm	Set
27	" × 60 "	"	**47**	" × 60 "	"
28	" × 65 "	"	**48**	" × 65 "	"
29	" × 70 "	"	**49**	" × 70 "	"
30	" × 75 "	"	**50**	" × 75 "	"
69 17 31	M8 × 80 mm	Pc.	**69 25 51**	M8 × 80 mm	Set
32	" × 85 "	"	**52**	" × 85 "	"
33	" × 90 "	"	**53**	" × 90 "	"
34	" × 95 "	"	**54**	" × 95 "	"
35	" ×100 "	"	**55**	" ×100 "	"
69 17 36	M8 ×110 mm	Pc.	**69 25 56**	M8 ×110 mm	Set
37	" ×120 "	"	**57**	" ×120 "	"
38	" ×130 "	"	**58**	" ×130 "	"
39	" ×140 "	"	**59**	" ×140 "	"
40	" ×150 "	"	**60**	" ×150 "	"

(to be continued)

(to be continued)

CODE	Size	Unit	CODE	Size	Unit
Stainless Steel Bolt only			Stainless Steel Bolt with Nut		
69 17 41	M8 ×160 mm	Pc.	69 25 61	M8 ×160 mm	Set
42	" ×170 "	"	62	" ×170 "	"
43	" ×180 "	"	63	" ×180 "	"
44	" ×190 "	"	64	" ×190 "	"
45	" ×200 "	"	65	" ×200 "	"
69 17 51	M10 × 10 mm	Pc.	69 27 01	M10 × 10 mm	Set
52	" × 12 "	"	02	" × 12 "	"
53	" × 14 "	"	03	" × 14 "	"
54	" × 15 "	"	04	" × 15 "	"
55	" × 16 "	"	05	" × 16 "	"
69 17 56	M10 × 18 mm	Pc.	69 27 06	M10 × 18 mm	Set
57	" × 20 "	"	07	" × 20 "	"
58	" × 25 "	"	08	" × 25 "	"
59	" × 30 "	"	09	" × 30 "	"
60	" × 35 "	"	10	" × 35 "	"
69 17 61	M10 × 40 mm	Pc.	69 27 11	M10 × 40 mm	Set
62	" × 45 "	"	12	" × 45 "	"
63	" × 50 "	"	13	" × 50 "	"
64	" × 55 "	"	14	" × 55 "	"
65	" × 60 "	"	15	" × 60 "	"
69 17 66	M10 × 65 mm	Pc.	69 27 16	M10 × 65 mm	Set
67	" × 70 "	"	17	" × 70 "	"
68	" × 75 "	"	18	" × 75 "	"
69	" × 80 "	"	19	" × 80 "	"
70	" × 85 "	"	20	" × 85 "	"
69 17 71	M10× 90 mm	Pc.	69 27 21	M10 × 90 mm	Set
72	" × 95 "	"	22	" × 95 "	"
73	" ×100 "	"	23	" ×100 "	"
74	" ×105 "	"	24	" ×105 "	"
75	" ×110 "	"	25	" ×110 "	"
69 17 76	M10 ×115 mm	Pc.	69 27 26	M10 ×115 mm	Set
77	" ×120 "	"	27	" ×120 "	"
78	" ×125 "	"	28	" ×125 "	"
79	" ×130 "	"	29	" ×130 "	"
80	" ×140 "	"	30	" ×140 "	"
69 17 81	M10 ×150 mm	Pc.	69 27 31	M10 ×150 mm	Set
82	" ×160 "	"	32	" ×160 "	"
83	" ×170 "	"	33	" ×170 "	"
84	" ×180 "	"	34	" ×180 "	"
85	" ×190 "	"	35	" ×190 "	"
69 17 86	M10 ×200 mm	Pc.	69 27 36	M10 ×200 mm	Set
87	" ×210 "	"	37	" ×210 "	"
88	" ×220 "	"	38	" ×220 "	"
89	" ×230 "	"	39	" ×230 "	"
90	" ×240 "	"	40	" ×240 "	"
69 17 91	M10 ×250 mm	Pc.	69 27 41	M10 ×250 mm	Set
92	" ×300 "	"	42	" ×300 "	"
69 17 95	M12 × 10 mm	Pc.	69 27 45	M12 × 10 mm	Set
96	" × 20 "	"	46	" × 20 "	"
97	" × 25 "	"	47	" × 25 "	"
98	" × 30 "	"	48	" × 30 "	"
99	" × 35 "	"	49	" × 35 "	"
69 18 00	M12 × 40 mm	Pc.	69 27 50	M12 × 40 mm	Set
01	" × 45 "	"	51	" × 45 "	"
02	" × 50 "	"	52	" × 50 "	"
03	" × 55 "	"	53	" × 55 "	"
04	" × 60 "	"	54	" × 60 "	"
69 18 05	M12 × 65 mm	Pc.	69 27 55	M12 × 65 mm	Set
06	" × 70 "	"	56	" × 70 "	"
07	" × 75 "	"	57	" × 75 "	"
08	" × 80 "	"	58	" × 80 "	"
09	" × 85 "	"	59	" × 85 "	"
69 18 10	M12 × 90 mm	Pc.	69 27 60	M12 × 90 mm	Set
11	" × 95 "	"	61	" × 95 "	"
12	" ×100 "	"	62	" ×100 "	"
13	" ×105 "	"	63	" ×105 "	"
14	" ×110 "	"	64	" ×110 "	"
69 18 15	M12 ×115 mm	Pc.	69 27 65	M12 ×115 mm	Set
16	" ×120 "	"	66	" ×120 "	"
17	" ×125 "	"	67	" ×125 "	"
18	" ×130 "	"	68	" ×130 "	"
19	" ×140 "	"	69	" ×140 "	"

(to be continued)

69 18 20	M12 ×150 mm	Pc.	69 27 70	M12 ×150 mm	Set
21	" ×160 "	"	71	" ×160 "	"
22	" ×170 "	"	72	" ×170 "	"
23	" ×180 "	"	73	" ×180 "	"
24	" ×190 "	"	74	" ×190 "	"
69 18 25	M12 ×200 mm	Pc.	69 27 75	M12 ×200 mm	Set
26	" ×210 "	"	76	" ×210 "	"
27	" ×220 "	"	77	" ×220 "	"
28	" ×230 "	"	78	" ×230 "	"
29	" ×240 "	"	79	" ×240 "	"
69 18 30	M12 ×250 mm	Pc.	69 27 80	M12 ×250 mm	Set
31	" ×260 "	"	81	" ×260 "	"
32	" ×270 "	"	82	" ×270 "	"
33	" ×280 "	"	83	" ×280 "	"
34	" ×290 "	"	84	" ×290 "	"
69 18 35	M12 ×300 mm	Pc.	69 27 85	M12 ×300 mm	Set
36	" ×310 "	"	86	" ×310 "	"
37	" ×320 "	"	87	" ×320 "	"
38	" ×330 "	"	88	" ×330 "	"
39	" ×340 "	"	89	" ×340 "	"
69 18 40	M12 ×350 mm	Pc.	69 27 90	M12 ×350 mm	Set
69 18 41	M14 × 25 mm	Pc.	69 29 01	M14 × 25 mm	Set
42	" × 30 "	"	02	" × 30 "	"
43	" × 40 "	"	03	" × 40 "	"
44	" × 45 "	"	04	" × 45 "	"
45	" × 50 "	"	05	" × 50 "	"
69 18 46	M14 × 55 mm	Pc.	69 29 06	M14 × 55 mm	Set
47	" × 60 "	"	07	" × 60 "	"
48	" × 65 "	"	08	" × 65 "	"
49	" × 70 "	"	09	" × 70 "	"
50	" × 75 "	"	10	" × 75 "	"
69 18 51	M14 × 80 mm	Pc.	69 29 11	M14 × 80 mm	Set
52	" × 90 "	"	12	" × 90 "	"
53	" ×100 "	"	13	" ×100 "	"
69 18 55	M16 × 10 mm	Pc.	69 29 15	M16 × 10 mm	Set
56	" × 20 "	"	16	" × 20 "	"
57	" × 25 "	"	17	" × 25 "	"
58	" × 30 "	"	18	" × 30 "	"
59	" × 40 "	"	19	" × 40 "	"
69 18 60	M16 × 45 mm	Pc.	69 29 20	M16 × 45 mm	Set
61	" × 50 "	"	21	" × 50 "	"
62	" × 55 "	"	22	" × 55 "	"
63	" × 60 "	"	23	" × 60 "	"
64	" × 65 "	"	24	" × 65 "	"
69 18 65	M16 × 70 mm	Pc.	69 29 25	M16 × 70 mm	Set
66	" × 75 "	"	26	" × 75 "	"
67	" × 80 "	"	27	" × 80 "	"
68	" × 85 "	"	28	" × 85 "	"
69	" × 90 "	"	29	" × 90 "	"
69 18 70	M16 × 95 mm	Pc.	69 29 30	M16 × 95 mm	Set
71	" ×100 "	"	31	" ×100 "	"
72	" ×105 "	"	32	" ×105 "	"
73	" ×110 "	"	33	" ×110 "	"
74	" ×115 "	"	34	" ×115 "	"
69 18 75	M16 ×120 mm	Pc.	69 29 35	M16 ×120 mm	Set
76	" ×125 "	"	36	" ×125 "	"
77	" ×130 "	"	37	" ×130 "	"
78	" ×140 "	"	38	" ×140 "	"
79	" ×150 "	"	39	" ×150 "	"
69 18 80	M16 ×160 mm	Pc.	69 29 40	M16 ×160 mm	Set
81	" ×170 "	"	41	" ×170 "	"
82	" ×180 "	"	42	" ×180 "	"
83	" ×190 "	"	43	" ×190 "	"
84	" ×200 "	"	44	" ×200 "	"
69 18 85	M16 ×210 mm	Pc.	69 29 45	M16 ×210 mm	Set
86	" ×220 "	"	46	" ×220 "	"
87	" ×230 "	"	47	" ×230 "	"
88	" ×240 "	"	48	" ×240 "	"
89	" ×250 "	"	49	" ×250 "	"
69 18 91	M18 × 30 mm	Pc.	69 29 51	M18 × 30 mm	Set
92	" × 60 "	"	52	" × 60 "	"
93	" × 65 "	"	53	" × 65 "	"
94	" × 70 "	"	54	" × 70 "	"
95	" × 75 "	"	55	" × 75 "	"

(to be continued)

CODE	Size	Unit	CODE	Size	Unit
Stainless Steel Bolt only			Stainless Steel Bolt with Nut		
69 18 96	M18 × 80 mm	Pc.	69 29 56	M18 × 80 mm	Set
97	" × 85 "	"	57	" × 85 "	"
98	" × 90 "	"	58	" × 90 "	"
99	" ×100 "	"	59	" ×100 "	"
69 19 00	" ×120 "	"	60	" ×120 "	"
69 19 01	M20 × 10 mm	Pc.	69 29 61	M20 × 10 mm	Set
02	" × 20 "	"	62	" × 20 "	"
03	" × 30 "	"	63	" × 30 "	"
04	" × 40 "	"	64	" × 40 "	"
05	" × 50 "	"	65	" × 50 "	"
69 19 06	M20 × 55 mm	Pc.	69 29 66	M20 × 55 mm	Set
07	" × 60 "	"	67	" × 60 "	"
08	" × 65 "	"	68	" × 65 "	"
09	" × 70 "	"	69	" × 70 "	"
10	" × 75 "	"	70	" × 75 "	"
69 19 11	M20 × 80 mm	Pc.	69 29 71	M20 × 80 mm	Set
12	" × 85 "	"	72	" × 85 "	"
13	" × 90 "	"	73	" × 90 "	"
14	" × 95 "	"	74	" × 95 "	"
15	" ×100 "	"	75	" ×100 "	"
69 19 16	M20 ×105 mm	Pc.	69 29 76	M20 ×105 mm	Set
17	" ×110 "	"	77	" ×110 "	"
18	" ×115 "	"	78	" ×115 "	"
19	" ×120 "	"	79	" ×120 "	"
20	" ×125 "	"	80	" ×125 "	"
69 19 21	M20 ×130 mm	Pc.	69 29 81	M20 ×130 mm	Set
22	" ×140 "	"	82	" ×140 "	"
23	" ×150 "	"	83	" ×150 "	"
24	" ×160 "	"	84	" ×160 "	"
25	" ×170 "	"	85	" ×170 "	"
69 19 26	M20 ×180 mm	Pc.	69 29 86	M20 ×180 mm	Set
27	" ×190 "	"	87	" ×190 "	"
28	" ×200 "	"	88	" ×200 "	"
29	" ×210 "	"	89	" ×210 "	"
30	" ×230 "	"	90	" ×230 "	"
69 19 31	M20 ×260 mm	Pc.	69 29 91	M20 ×260 mm	Set
69 19 35	M22 × 40 mm	Pc.	69 31 01	M22 × 40 mm	Set
36	" × 45 "	"	02	" × 45 "	"
37	" × 50 "	"	03	" × 50 "	"
38	" × 55 "	"	04	" × 55 "	"
39	" × 60 "	"	05	" × 60 "	"
69 19 40	M22 × 65 mm	Pc.	69 31 06	M22 × 65 mm	Set
41	" × 70 "	"	07	" × 70 "	"
42	" × 75 "	"	08	" × 75 "	"
43	" × 80 "	"	09	" × 80 "	"
44	" × 85 "	"	10	" × 85 "	"
69 19 45	M22 × 90 mm	Pc.	69 31 11	M22× 90 mm	Set
46	" × 95 "	"	12	" × 95 "	"
47	" ×100 "	"	13	" ×100 "	"
48	" ×105 "	"	14	" ×105 "	"
49	" ×110 "	"	15	" ×110 "	"
69 19 50	M22 ×115 mm	Pc.	69 31 16	M22× 115 mm	Set
51	" ×120 "	"	17	" ×120 "	"
52	" ×125 "	"	18	" ×125 "	"
53	" ×130 "	"	19	" ×130 "	"
54	" ×140 "	"	20	" ×140 "	"
69 19 55	M22 ×150 mm	Pc.	69 31 21	M22 × 50 mm	Set
56	" ×160 "	"	22	" ×160 "	"
57	" ×170 "	"	23	" ×170 "	"
58	" ×200 "	"	24	" ×200 "	"
59	" ×220 "	"	25	" ×220 "	"
69 19 60	M22 ×230 mm	Pc.	69 31 26	M22 ×230 mm	Set
61	" ×260 "	"	27	" ×260 "	"
69 19 65	M24 × 10 mm	Pc.	69 31 31	M24 × 10 mm	Set
66	" × 20 "	"	32	" × 20 "	"
67	" × 30 "	"	33	" × 30 "	"
68	" × 40 "	"	34	" × 40 "	"
69	" × 45 "	"	35	" × 45 "	"

(to be continued)

69 19 70	M24 × 50 mm	Pc.	69 31 36	M24 × 50 mm	Set
71	" × 55 "	"	37	" × 55 "	"
72	" × 60 "	"	38	" × 60 "	"
73	" × 65 "	"	39	" × 65 "	"
74	" × 70 "	"	40	" × 70 "	"
69 19 75	M24 × 75 mm	Pc.	69 31 41	M24 × 75 mm	Set
76	" × 80 "	"	42	" × 80 "	"
77	" × 85 "	"	43	" × 85 "	"
78	" × 90 "	"	44	" × 90 "	"
79	" × 95 "	"	45	" × 95 "	"
69 19 80	M24 ×100 mm	Pc.	69 31 46	M24 ×100 mm	Set
81	" ×105 "	"	47	" ×105 "	"
82	" ×110 "	"	48	" ×110 "	"
83	" ×115 "	"	49	" ×115 "	"
84	" ×120 "	"	50	" ×120 "	"
69 19 85	M24×125mm	Pc.	69 31 51	M24 ×125 mm	Set
86	" ×130 "	"	52	" ×130 "	"
87	" ×140 "	"	53	" ×140 "	"
88	" ×150 "	"	54	" ×150 "	"
89	" ×170 "	"	55	" ×170 "	"
69 19 90	M24 ×220 mm	Pc.	69 31 56	M24 ×220 mm	Set
91	" ×250 "	"	57	" ×250 "	"
92	" ×260 "	"	58	" ×260 "	"
69 21 01	M27 × 90 mm	Pc.	69 31 61	M27 × 90 mm	Set
02	" ×100 "	"	62	" ×100 "	"
03	" ×110 "	"	63	" ×110 "	"
04	" ×120 "	"	64	" ×120 "	"
05	" ×130 "	"	65	" ×130 "	"
69 21 06	M27 ×180 mm	Pc.	69 31 66	M27 ×180 mm	Set
69 21 11	M30 × 75 mm	Pc.	69 31 71	M30 × 75 mm	Set
12	" × 80 "	"	72	" × 80 "	"
13	" × 85 "	"	73	" × 85 "	"
14	" ×100 "	"	74	" ×100 "	"
15	" ×110 "	"	75	" ×110 "	"
69 21 16	M30 ×120 mm	Pc.	69 31 76	M30 ×120 mm	Set
17	" ×130 "	"	77	" ×130 "	"
18	" ×140 "	"	78	" ×140 "	"
19	" ×150 "	"	79	" ×150 "	"
20	" ×200 "	"	80	" ×200 "	"
69 21 21	M30 ×250 mm	Pc.	69 31 81	M30 ×250 mm	Set
69 21 25	M36 ×100 mm	Pc.	69 31 85	M36 ×100 mm	Set
26	" ×140 "	"	86	" ×140 "	"
27	" ×150 "	"	87	" ×150 "	"
28	" ×180 "	"	88	" ×180 "	"

Brass

How to order: CODE

Bolt, hex head, brass, half threaded,
DIAM x LENGTH mm
or
Bolt with nut, hex head, brass, half threaded,
DIAM x LENGTH mm
If you require WHOLE THREADED, please specify.

CODE	Size	Unit	CODE	Size	Unit
Brass Bolt only			Brass Bolt with Nut		
69 32 01	M3 × 5 mm	Pc.	69 41 01	M3 × 5 mm	Set
02	" × 6 "	"	02	" × 6 "	"
03	" × 8 "	"	03	" × 8 "	"
04	" × 10 "	"	04	" × 10 "	"
05	" × 12 "	"	05	" × 12 "	"
69 32 06	M3 × 15 mm	Pc.	69 41 06	M3 × 15 mm	Set
07	" × 16 "	"	07	" × 16 "	"
08	" × 20 "	"	08	" × 20 "	"
09	" × 25 "	"	09	" × 25 "	"
10	" × 30 "	"	10	" × 30 "	"
69 32 11	M3 × 40 mm	Pc.	69 41 11	M3 × 40 mm	Set
12	" × 50 "	"	12	" × 50 "	"
13	" × 60 "	"	13	" × 60 "	"
14	" × 70 "	"	14	" × 70 "	"
15	" × 80 "	"	15	" × 80 "	"

(to be continued)

CODE	Size	Unit	CODE	Size	Unit
Brass Bolt only			**Brass Bolt with Nut**		
69 32 16	M3 × 90 mm	Pc.	**69 41 16**	M3 × 90 mm	Set
17	" ×100 "	"	**17**	" ×100 "	"
18	" ×110 "	"	**18**	" ×110 "	"
19	" ×120 "	"	**19**	" ×120 "	"
20	" ×130 "	"	**20**	" ×130 "	"
69 32 21	M3 ×140 mm	Pc.	**69 41 21**	M3 ×140 mm	Set
22	" ×150 "	"	**22**	" ×150 "	"
69 32 25	M4 × 6 mm	Pc.	**69 41 25**	M4 × 6 mm	Set
26	" × 8 "	"	**26**	" × 8 "	"
27	" × 10 "	"	**27**	" × 10 "	"
28	" × 12 "	"	**28**	" × 12 "	"
29	" × 14 "	"	**29**	" × 14 "	"
69 32 30	M4 × 15 mm	Pc.	**69 41 30**	M4 × 15 mm	Set
31	" × 16 "	"	**31**	" × 16 "	"
32	" × 18 "	"	**32**	" × 18 "	"
33	" × 20 "	"	**33**	" × 20 "	"
34	" × 25 "	"	**34**	" × 25 "	"
69 32 35	M4 × 30 mm	Pc.	**69 41 35**	M4 × 30 mm	Set
36	" × 35 "	"	**36**	" × 35 "	"
37	" × 40 "	"	**37**	" × 40 "	"
38	" × 45 "	"	**38**	" × 45 "	"
39	" × 50 "	"	**39**	" × 50 "	"
69 32 40	M4 × 60 mm	Pc.	**69 41 40**	M4 × 60 mm	Set
41	" × 70 "	"	**41**	" × 70 "	"
42	" × 80 "	"	**42**	" × 80 "	"
43	" × 90 "	"	**43**	" × 90 "	"
44	" ×100 "	"	**44**	" ×100 "	"
69 32 45	M4 ×110 mm	Pc.	**69 41 45**	M4 ×110 mm	Set
46	" ×120 "	"	**46**	" ×120 "	"
47	" ×130 "	"	**47**	" ×130 "	"
48	" ×140 "	"	**48**	" ×140 "	"
49	" ×150 "	"	**49**	" ×150 "	"
69 32 51	M5 × 6 mm	Pc.	**69 41 51**	M5 × 6 mm	Set
52	" × 8 "	"	**52**	" × 8 "	"
53	" × 10 "	"	**53**	" × 10 "	"
54	" × 12 "	"	**54**	" × 12 "	"
55	" × 14 "	"	**55**	" × 14 "	"
69 32 56	M5 × 15 mm	Pc.	**69 41 56**	M5 × 15 mm	Set
57	" × 16 "	"	**57**	" × 16 "	"
58	" × 18 "	"	**58**	" × 18 "	"
59	" × 20 "	"	**59**	" × 20 "	"
60	" × 22 "	"	**60**	" × 22 "	"
69 32 61	M5 × 25 mm	Pc.	**69 41 61**	M5 × 25 mm	Set
62	" × 30 "	"	**62**	" × 30 "	"
63	" × 35 "	"	**63**	" × 35 "	"
64	" × 40 "	"	**64**	" × 40 "	"
65	" × 45 "	"	**65**	" × 45 "	"
69 32 66	M5 × 50 mm	Pc.	**69 41 66**	M5 × 50 mm	Set
67	" × 60 "	"	**67**	" × 60 "	"
68	" × 70 "	"	**68**	" × 70 "	"
69	" × 80 "	"	**69**	" × 80 "	"
70	" × 90 "	"	**70**	" × 90 "	"
69 32 71	M5 ×100 mm	Pc.	**69 41 71**	M5 ×100 mm	Set
72	" ×110 "	"	**72**	" ×110 "	"
73	" ×120 "	"	**73**	" ×120 "	"
74	" ×130 "	"	**74**	" ×130 "	"
75	" ×140 "	"	**75**	" ×140 "	"
69 32 76	M5 ×150 mm	Pc.	**69 41 76**	M5 ×150 mm	Set
69 32 81	M6 × 8 mm	Pc.	**69 43 01**	M6 × 8 mm	Set
82	" × 10 "	"	**02**	" × 10 "	"
83	" × 12 "	"	**03**	" × 12 "	"
84	" × 14 "	"	**04**	" × 14 "	"
85	" × 15 "	"	**05**	" × 15 "	"
69 32 86	M6 × 16 mm	Pc.	**69 43 06**	M6 × 16 mm	Set
87	" × 18 "	"	**07**	" × 18 "	"
88	" × 20 "	"	**08**	" × 20 "	"
89	" × 22 "	"	**09**	" × 22 "	"
90	" × 25 "	"	**10**	" × 25 "	"

(to be continued)

69 32 91	M6 × 30 mm	Pc.	**69 43 11**	M6 × 30 mm	Set
92	" × 35 "	"	**12**	" × 35 "	"
93	" × 40 "	"	**13**	" × 40 "	"
94	" × 45 "	"	**14**	" × 45 "	"
95	" × 50 "	"	**15**	" × 50 "	"
69 32 96	M6 × 55 mm	Pc.	**69 43 16**	M6 × 55 mm	Set
97	" × 60 "	"	**17**	" × 60 "	"
98	" × 65 "	"	**18**	" × 65 "	"
99	" × 70 "	"	**19**	" × 70 "	"
69 33 00	" × 75 "	"	**20**	" × 75 "	"
69 33 01	M6 × 80 mm	Pc.	**69 43 21**	M6 × 80 mm	Set
02	" × 85 "	"	**22**	" × 85 "	"
03	" × 90 "	"	**23**	" × 90 "	"
04	" × 95 "	"	**24**	" × 95 "	"
05	" ×100 "	"	**25**	" ×100 "	"
69 33 06	M6 ×110 mm	Pc.	**69 43 26**	M6 ×110 mm	Set
07	" ×120 "	"	**27**	" ×120 "	"
08	" ×130 "	"	**28**	" ×130 "	"
09	" ×140 "	"	**29**	" ×140 "	"
10	" ×150 "	"	**30**	" ×150 "	"
69 33 11	M8 × 10 mm	Pc.	**69 43 31**	M8 × 10 mm	Set
12	" × 12 "	"	**32**	" × 12 "	"
13	" × 14 "	"	**33**	" × 14 "	"
14	" × 15 "	"	**34**	" × 15 "	"
15	" × 16 "	"	**35**	" × 16 "	"
69 33 16	M8 × 18 mm	Pc.	**69 43 36**	M8 × 18 mm	Set
17	" × 20 "	"	**37**	" × 20 "	"
18	" × 22 "	"	**38**	" × 22 "	"
19	" × 25 "	"	**39**	" × 25 "	"
20	" × 28 "	"	**40**	" × 28 "	"
69 33 21	M8 × 30 mm	Pc.	**69 43 41**	M8 × 30 mm	Set
22	" × 35 "	"	**42**	" × 35 "	"
23	" × 40 "	"	**43**	" × 40 "	"
24	" × 45 "	"	**44**	" × 45 "	"
25	" × 50 "	"	**45**	" × 50 "	"
69 33 26	M8 × 55 mm	Pc.	**69 43 46**	M8 × 55 mm	Set
27	" × 60 "	"	**47**	" × 60 "	"
28	" × 65 "	"	**48**	" × 65 "	"
29	" × 70 "	"	**49**	" × 70 "	"
30	" × 75 "	"	**50**	" × 75 "	"
69 33 31	M8 × 80 mm	Pc.	**69 43 51**	M8 × 80 mm	Set
32	" × 85 "	"	**52**	" × 85 "	"
33	" × 90 "	"	**53**	" × 90 "	"
34	" × 95 "	"	**54**	" × 95 "	"
35	" ×100 "	"	**55**	" ×100 "	"
69 33 36	M8 ×110 mm	Pc.	**69 43 56**	M8 ×110 mm	Set
37	" ×120 "	"	**57**	" ×120 "	"
38	" ×130 "	"	**58**	" ×130 "	"
39	" ×140 "	"	**59**	" ×140 "	"
40	" ×150 "	"	**60**	" ×150 "	"
69 33 41	M8 ×160 mm	Pc.	**69 43 61**	M8 ×160 mm	Set
42	" ×170 "	"	**62**	" ×170 "	"
43	" ×180 "	"	**63**	" ×180 "	"
44	" ×190 "	"	**64**	" ×190 "	"
45	" ×200 "	"	**65**	" ×200 "	"
69 33 51	M10 × 10 mm	Pc.	**69 45 01**	M10 × 10 mm	Set
52	" × 12 "	"	**02**	" × 12 "	"
53	" × 14 "	"	**03**	" × 14 "	"
54	" × 15 "	"	**04**	" × 15 "	"
55	" × 16 "	"	**05**	" × 16 "	"
69 33 56	M10 × 18 mm	Pc.	**69 45 06**	M10 × 18 mm	Set
57	" × 20 "	"	**07**	" × 20 "	"
58	" × 25 "	"	**08**	" × 25 "	"
59	" × 30 "	"	**09**	" × 30 "	"
60	" × 35 "	"	**10**	" × 35 "	"
69 33 61	M10 × 40 mm	Pc.	**69 45 11**	M10 × 40 mm	Set
62	" × 45 "	"	**12**	" × 45 "	"
63	" × 50 "	"	**13**	" × 50 "	"
64	" × 55 "	"	**14**	" × 55 "	"
65	" × 60 "	"	**15**	" × 60 "	"
69 33 66	M10 × 65 mm	Pc.	**69 45 16**	M10 × 65 mm	Set
67	" × 70 "	"	**17**	" × 70 "	"
68	" × 75 "	"	**18**	" × 75 "	"
69	" × 80 "	"	**19**	" × 80 "	"
70	" × 85 "	"	**20**	" × 85 "	"

(to be continued)

CODE	Size	Unit	CODE	Size	Unit
Brass Bolt only			**Brass Bolt with Nut**		
69 33 71	M10 × 90 mm	Pc.	69 45 21	M10 × 90 mm	Set
72	" × 95 "	"	22	" × 95 "	"
73	" ×100 "	"	23	" ×100 "	"
74	" ×105 "	"	24	" ×105 "	"
75	" ×110 "	"	25	" ×110 "	"
69 33 76	M10 ×115 mm	Pc.	69 45 26	M10× 115 mm	Set
77	" ×120 "	"	27	" ×120 "	"
78	" ×125 "	"	28	" ×125 "	"
79	" ×130 "	"	29	" ×130 "	"
80	" ×140 "	"	30	" ×140 "	"
69 33 81	M10 ×150 mm	Pc.	69 45 31	M10 ×150 mm	Set
82	" ×160 "	"	32	" ×160 "	"
83	" ×170 "	"	33	" ×170 "	"
84	" ×180 "	"	34	" ×180 "	"
85	" ×190 "	"	35	" ×190 "	"
69 33 86	M10× 200 mm	Pc.	69 45 36	M10 ×200 mm	Set
87	" ×210 "	"	37	" ×210 "	"
88	" ×220 "	"	38	" ×220 "	"
89	" ×230 "	"	39	" ×230 "	"
90	" ×240 "	"	40	" ×240 "	"
69 33 91	M10 ×250 mm	Pc.	69 45 41	M10 ×250 mm	Set
92	" ×300 "	"	42	" ×300 "	"
69 36 01	M12 × 10 mm	Pc.	69 45 45	M12 × 10 mm	Set
02	" × 20 "	"	46	" × 20 "	"
03	" × 25 "	"	47	" × 25 "	"
04	" × 30 "	"	48	" × 30 "	"
05	" × 35 "	"	49	" × 35 "	"
69 36 06	M12 × 40 mm	Pc.	69 45 50	M12× 40 mm	Set
07	" × 45 "	"	51	" × 45 "	"
08	" × 50 "	"	52	" × 50 "	"
09	" × 55 "	"	53	" × 55 "	"
10	" × 60 "	"	54	" × 60 "	"
69 36 11	M12× 65 mm	Pc.	69 45 55	M12× 65 mm	Set
12	" × 70 "	"	56	" × 70 "	"
13	" × 75 "	"	57	" × 75 "	"
14	" × 80 "	"	58	" × 80 "	"
15	" × 85 "	"	59	" × 85 "	"
69 36 16	M12 × 90 mm	Pc.	69 45 60	M12 × 90 mm	Set
17	" × 95 "	"	61	" × 95 "	"
18	" ×100 "	"	62	" ×100 "	"
19	" ×105 "	"	63	" ×105 "	"
20	" ×110 "	"	64	" ×110 "	"
69 36 21	M12 ×115 mm	Pc.	69 45 65	M12 ×115 mm	Set
22	" ×120 "	"	66	" ×120 "	"
23	" ×125 "	"	67	" ×125 "	"
24	" ×130 "	"	68	" ×130 "	"
25	" ×140 "	"	69	" ×140 "	"
69 36 26	M12 ×150 mm	Pc.	69 45 70	M12 ×150 mm	Set
27	" ×160 "	"	71	" ×160 "	"
28	" ×170 "	"	72	" ×170 "	"
29	" ×180 "	"	73	" ×180 "	"
30	" ×190 "	"	74	" ×190 "	"
69 36 31	M12 ×200 mm	Pc.	69 45 75	M12 ×200 mm	Set
32	" ×210 "	"	76	" ×210 "	"
33	" ×220 "	"	77	" ×220 "	"
34	" ×230 "	"	78	" ×230 "	"
35	" ×240 "	"	79	" ×240 "	"
69 36 36	M12 ×250 mm	Pc.	69 45 80	M12 ×250 mm	Set
37	" ×260 "	"	81	" ×260 "	"
38	" ×270 "	"	82	" ×270 "	"
39	" ×280 "	"	83	" ×280 "	"
40	" ×290 "	"	84	" ×290 "	"
69 36 41	M12 ×300 mm	Pc.	69 45 85	M12 ×300 mm	Set
42	" ×310 "	"	86	" ×310 "	"
43	" ×320 "	"	87	" ×320 "	"
44	" ×330 "	"	88	" ×330 "	"
45	" ×340 "	"	89	" ×340 "	"
69 36 46	M12 ×350 mm	Pc.	69 45 90	M12 ×350 mm	Set

(to be continued)

69 36 51	M14 × 25 mm	Pc.	69 47 01	M14 × 25 mm	Set
52	" × 30 "	"	02	" × 30 "	"
53	" × 40 "	"	03	" × 40 "	"
54	" × 45 "	"	04	" × 45 "	"
55	" × 50 "	"	05	" × 50 "	"
69 36 56	M14 × 55 mm	Pc.	69 47 06	M14 × 55 mm	Set
57	" × 60 "	"	07	" × 60 "	"
58	" × 65 "	"	08	" × 65 "	"
59	" × 70 "	"	09	" × 70 "	"
60	" × 75 "	"	10	" × 75 "	"
69 36 61	M14 × 80 mm	Pc.	69 47 11	M14 × 80 mm	Set
62	" × 90 "	"	12	" × 90 "	"
63	" ×100 "	"	13	" × 100 "	"
69 36 65	M16 × 10 mm	Pc.	69 47 15	M16 × 10 mm	Set
66	" × 20 "	"	16	" × 20 "	"
67	" × 25 "	"	17	" × 25 "	"
68	" × 30 "	"	18	" × 30 "	"
69	" × 40 "	"	19	" × 40 "	"
69 36 70	M16 × 45 mm	Pc.	69 47 20	M16 × 45 mm	Set
71	" × 50 "	"	21	" × 50 "	"
72	" × 55 "	"	22	" × 55 "	"
73	" × 60 "	"	23	" × 60 "	"
74	" × 65 "	"	24	" × 65 "	"
69 36 75	M16 × 70 mm	Pc.	69 47 25	M16 × 70 mm	Set
76	" × 75 "	"	26	" × 75 "	"
77	" × 80 "	"	27	" × 80 "	"
78	" × 85 "	"	28	" × 85 "	"
79	" × 90 "	"	29	" × 90 "	"
69 36 80	M16 × 95 mm	Pc.	69 47 30	M16 × 95 mm	Set
81	" ×100 "	"	31	" × 100 "	"
82	" ×105 "	"	32	" × 105 "	"
83	" ×110 "	"	33	" × 110 "	"
84	" ×115 "	"	34	" × 115 "	"
69 36 85	M16 ×120 mm	Pc.	69 47 35	M16 × 120 mm	Set
86	" ×125 "	"	36	" × 125 "	"
87	" ×130 "	"	37	" × 130 "	"
88	" ×140 "	"	38	" × 140 "	"
89	" ×150 "	"	39	" × 150 "	"
69 36 90	M16 ×160 mm	Pc.	69 47 40	M16 × 160 mm	Set
91	" ×170 "	"	41	" × 170 "	"
92	" ×180 "	"	42	" × 180 "	"
93	" ×190 "	"	43	" × 190 "	"
94	" ×200 "	"	44	" × 200 "	"
69 36 95	M16 ×210 mm	Pc.	69 47 45	M16 × 210 mm	Set
96	" ×220 "	"	46	" × 220 "	"
97	" ×230 "	"	47	" × 230 "	"
98	" ×240 "	"	48	" × 240 "	"
99	" ×250 "	"	49	" × 250 "	"
69 37 01	M18 × 30 mm	Pc.	69 47 51	M18 × 30 mm	Set
02	" × 60 "	"	52	" × 60 "	"
03	" × 65 "	"	53	" × 65 "	"
04	" × 70 "	"	54	" × 70 "	"
05	" × 75 "	"	55	" × 75 "	"
69 37 06	M18 × 80 mm	Pc.	69 47 56	M18 × 80 mm	Set
07	" × 85 "	"	57	" × 85 "	"
08	" × 90 "	"	58	" × 90 "	"
09	" ×100 "	"	59	" × 100 "	"
10	" ×120 "	"	60	" × 120 "	"
69 37 11	M20 × 10 mm	Pc.	69 47 61	M20 × 10 mm	Set
12	" × 20 "	"	62	" × 20 "	"
13	" × 30 "	"	63	" × 30 "	"
14	" × 40 "	"	64	" × 40 "	"
15	" × 50 "	"	65	" × 50 "	"
69 37 16	M20 × 55 mm	Pc.	69 47 66	M20 × 55 mm	Set
17	" × 60 "	"	67	" × 60 "	"
18	" × 65 "	"	68	" × 65 "	"
19	" × 70 "	"	69	" × 70 "	"
20	" × 75 "	"	70	" × 75 "	"
69 37 21	M20 × 80 mm	Pc.	69 47 71	M20 × 80 mm	Set
22	" × 85 "	"	72	" × 85 "	"
23	" × 90 "	"	73	" × 90 "	"
24	" × 95 "	"	74	" × 95 "	"
25	" ×100 "	"	75	" × 100 "	"

(to be continued)

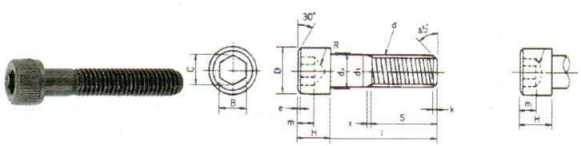
CODE	Size	Unit	CODE	Size	Unit
	Brass Bolt only			**Brass Bolt with Nut**	
69 37 26	M20 ×105 mm	Pc.	**69 47 76**	M20 ×105 mm	Set
27	" ×110 "	"	**77**	" ×110 "	"
28	" ×115 "	"	**78**	" ×115 "	"
29	" ×120 "	"	**79**	" ×120 "	"
30	" ×125 "	"	**80**	" ×125 "	"
69 37 31	M20 ×130 mm	Pc.	**69 47 81**	M20 ×130 mm	Set
32	" ×140 "	"	**82**	" ×140 "	"
33	" ×150 "	"	**83**	" ×150 "	"
34	" ×160 "	"	**84**	" ×160 "	"
35	" ×170 "	"	**85**	" ×170 "	"
69 37 36	M20× 180 mm	Pc.	**69 47 86**	M20 ×180 mm	Set
37	" ×190 "	"	**87**	" ×190 "	"
38	" ×200 "	"	**88**	" ×200 "	"
39	" ×210 "	"	**89**	" ×210 "	"
40	" ×230 "	"	**90**	" ×230 "	"
69 37 41	M20 ×260 mm	Pc.	**69 47 91**	M20 ×260 mm	Set
69 37 45	M22 × 40 mm	Pc.	**69 51 01**	M22 × 40 mm	Set
46	" × 45 "	"	**02**	" × 45 "	"
47	" × 50 "	"	**03**	" × 50 "	"
48	" × 55 "	"	**04**	" × 55 "	"
49	" × 60 "	"	**05**	" × 60 "	"
69 37 50	M22 × 65 mm	Pc.	**69 51 06**	M22 × 65 mm	Set
51	" × 70 "	"	**07**	" × 70 "	"
52	" × 75 "	"	**08**	" × 75 "	"
53	" × 80 "	"	**09**	" × 80 "	"
54	" × 85 "	"	**10**	" × 85 "	"
69 37 55	M22 × 90 mm	Pc.	**69 51 11**	M22 × 90 mm	Set
56	" × 95 "	"	**12**	" × 95 "	"
57	" ×100 "	"	**13**	" ×100 "	"
58	" ×105 "	"	**14**	" ×105 "	"
59	" ×110 "	"	**15**	" ×110 "	"
69 37 60	M22 ×115 mm	Pc.	**69 51 16**	M22 ×115 mm	Set
61	" ×120 "	"	**17**	" ×120 "	"
62	" ×125 "	"	**18**	" ×125 "	"
63	" ×130 "	"	**19**	" ×130 "	"
64	" ×140 "	"	**20**	" ×140 "	"
69 37 65	M22 ×150 mm	Pc.	**69 51 21**	M22 ×150 mm	Set
66	" ×160 "	"	**22**	" ×160 "	"
67	" ×170 "	"	**23**	" ×170 "	"
68	" ×200 "	"	**24**	" ×200 "	"
69	" ×220 "	"	**25**	" ×220 "	"
69 37 70	M22 ×230 mm	Pc.	**69 51 26**	M22 ×230 mm	Set
71	" ×260 "	"	**27**	" ×260 "	"
69 39 01	M24 × 10 mm	Pc.	**69 51 31**	M24 × 10 mm	Set
02	" × 20 "	"	**32**	" × 20 "	"
03	" × 30 "	"	**33**	" × 30 "	"
04	" × 40 "	"	**34**	" × 40 "	"
05	" × 45 "	"	**35**	" × 45 "	"
69 39 06	M24 × 50 mm	Pc.	**69 51 36**	M24 × 50 mm	Set
07	" × 55 "	"	**37**	" × 55 "	"
08	" × 60 "	"	**38**	" × 60 "	"
09	" × 65 "	"	**39**	" × 65 "	"
10	" × 70 "	"	**40**	" × 70 "	"
69 39 11	M24 × 75 mm	Pc.	**69 51 41**	M24 × 75 mm	Set
12	" × 80 "	"	**42**	" × 80 "	"
13	" × 85 "	"	**43**	" × 85 "	"
14	" × 90 "	"	**44**	" × 90 "	"
15	" × 95 "	"	**45**	" × 95 "	"
69 39 16	M24 ×100 mm	Pc.	**69 51 46**	M24 ×100 mm	Set
17	" ×105 "	"	**47**	" ×105 "	"
18	" ×110 "	"	**48**	" ×110 "	"
19	" ×115 "	"	**49**	" ×115 "	"
20	" ×120 "	"	**50**	" ×120 "	"
69 39 21	M24 ×125 mm	Pc.	**69 51 51**	M24 ×125 mm	Set
22	" ×130 "	"	**52**	" ×130 "	"
23	" ×140 "	"	**53**	" ×140 "	"
24	" ×150 "	"	**54**	" ×150 "	"
25	" ×170 "	"	**55**	" ×170 "	"
69 39 26	M24 ×220 mm	Pc.	**69 51 56**	M24 ×220 mm	Set
27	" ×250 "	"	**57**	" ×250 "	"
28	" ×260 "	"	**58**	" ×260 "	"
69 39 31	M27 × 90 mm	Pc.	**69 51 61**	M27 × 90 mm	Set
32	" ×100 "	"	**62**	" ×100 "	"
33	" ×110 "	"	**63**	" ×110 "	"
34	" ×120 "	"	**64**	" ×120 "	"
35	" ×130 "	"	**65**	" ×130 "	"
69 39 36	M27 ×180 mm	Pc.	**69 51 66**	M27 ×180 mm	Set
69 39 41	M30 × 75 mm	Pc.	**69 51 71**	M30 × 75 mm	Set
42	" × 80 "	"	**72**	" × 80 "	"
43	" × 85 "	"	**73**	" × 85 "	"
44	" ×100 "	"	**74**	" ×100 "	"
45	" ×110 "	"	**75**	" ×110 "	"
69 39 46	M30 ×120 mm	Pc.	**69 51 76**	M30 ×120 mm	Set
47	" ×130 "	"	**77**	" ×130 "	"
48	" ×140 "	"	**78**	" ×140 "	"
49	" ×150 "	"	**79**	" ×150 "	"
50	" ×200 "	"	**80**	" ×200 "	"
69 39 51	M30 ×250 mm	Pc.	**69 51 81**	M30 ×250 mm	Set
69 39 55	M36 ×100 mm	Pc.	**69 51 85**	M36 ×100 mm	Set
56	" ×140 "	"	**86**	" ×140 "	"
57	" ×150 "	"	**87**	" ×150 "	"
58	" ×180 "	"	**88**	" ×180 "	"

(to be continued)

Hexagon Socket Head Cap Screws

(Ref. JIS B 1176 – 88)

Tornillo Allen　六角穴付きボルト　六角插座头帽螺钉



Size mm

Nominal Size Coarse Thread	Pitch	d_1	D	H	B	C Approx.	L	S
		Standard Size					Recommended	
M3x0.5	0.5	3	5.5	3	2.5	0.2	4- 20	12
M4x0.7	0.7	4	7	4	3	0.3	4- 25	14
M5x0.8	0.8	5	8.5	5	4	0.3	8- 30	16
M 6	1	6	10	6	5	0.4	10 - 50	18
M 8	1.25	8	13	8	6	0.5	12-100	22
M10	1.5	10	16	10	8	0.6	14-120	26
M12	1.75	12	18	12	10	0.7	20-120	30
M16	2	16	24	16	14	1	25-160	38- 44
M20	2.5	20	30	20	17	1	35-180	46- 52
M24	3	24	36	24	19	1	45-300	54- 60- 73
M30	3.5	30	45	30	22	1.5	50-300	66- 72- 85
M36	4	36	54	36	27	1.5	70-300	78- 84- 97
M42	4.5	42	63	42	32	2	80-300	90- 96-109
M48	5	48	72	48	36	2	90-300	102-108-121

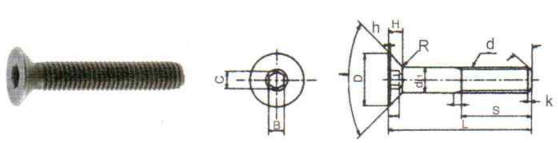
Material: Steel and Stainless Steel

Guide of How to Order

CODE **69 05 01**
Name ..... Hexagon socket head cap screw
Material ..... Steel
Nominal Size & Thread ..... M3 × 0.5 Coarse
Length ..... 12 mm

Flat Head Socket Screws

Tornillo Allen Cabeza Plana　六角穴付き皿ボルト　扁平头凹头螺钉



Size mm

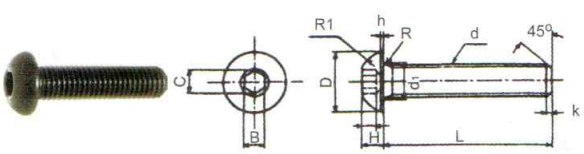
Nominal Size	Pitch	d1	D	H	B	C	Recommended	
		Standard Size				App-rox.	L	s
M3	0.5	3	6	1.7	2	2.3	6 - 20	12
M4	0.7	4	8	2.3	2.5	2.9	6 - 50	14
M5	0.8	5	10	2.8	3	3.6	8 - 50	16
M6	1	6	12	3.3	4	4.7	8 - 50	18
M8	1.25	8	16	4.4	5	5.9	12 - 70	22
M10	1.5	10	20	5.5	6	7.0	15 - 70	26
M12	1.75	12	24	6.5	8	9.4	20 - 50	30
M16	2	16	30	7.5	10	11.7	25 - 60	38

Guide of How to Order

CODE **69 06 01**
Name ..... Flat head socket screw
Material ..... Steel
Nominal Size & Thread ..... M3 × 0.5
Length ..... 6 mm

Button Head Socket Screws

Tornillo Allen Cabeza Botón　六角穴付きボタンボルト　圆头凹头螺钉



Size mm

Nominal Size	Pitch	d1	D	H	B	C	Recommended
		Standard Size				App-rox.	L
M3	0.5	3	5.5	2	2	2.3	5 - 20
M4	0.7	4	7.5	2.6	2.5	2.9	6 - 50
M5	0.8	5	9.5	3.4	3	3.6	6 - 50
M6	1	6	10.5	4	4	4.7	8 - 50
M8	1.25	8	14	5	5	5.9	10 - 50
M10	1.5	10	18	6	6	7.0	15 - 50
M12	1.75	12	21	7	8	9.4	20 - 50
M16	2	16	28	8.5	10	11.7	25 - 60

Guide of How to Order

CODE **69 07 01**
Name ..... Button head socket screw
Material ..... Steel
Nominal Size & Thread ..... M3 × 0.5
Length ..... 5 mm

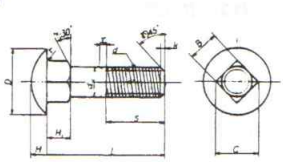
Cap Head Square Neck Bolts

(Carriage Bolts)

Tornillo Cabeza Abombada y Cuello Cuadrado
角根丸頭ボルト　方颈螺栓

(Ref. JIS B 1171–91)





Size mm

Nominal Size Coarse Thread	d_1	D	H	B	L
M 5x0.8	5	11.5 -17	2.5 - 5.5	6	25- 50
M 6	6	14 - 20	3 - 6	5	30- 75
M 8	8	18 - 26	4 - 7	8	35-100
M10	10	22 - 32	5 - 8	10	40-100
M12	12	26 - 38	6 - 9	12	45-130
M16	16	32	10	16	55-140

Material: Steel and Stainless Steel

Guide of How to Order

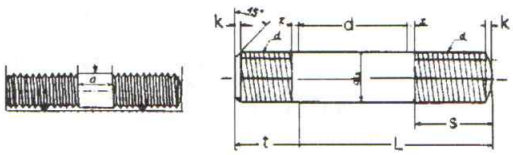
CODE **69 10 01**
Name ..... Cap head square neck bolt
Material ..... Steel
Nominal Size & Thread ..... M5 × 0.8 Coarse
Length ..... 25 mm

Stud Bolts

Espárrago　植込みボルト　双头螺栓

(Ref. JIS B 1173 – 87)





Size mm

Nominal Size (d)			M4	M5	M6	M8	M10	M12	M16	M20
Pitch	Coarse		0.7	0.8	1	1.25	1.5	1.75	2	2.5
	Fine						1.25	1.75	1.5	1.5
d		Standard Size	4	5	6	8	10	12	16	20
s			10	12	14	18	20	22	28	32
t	No.1						12	15	20	25
	No.2		6	7	8	11	15	18	24	30
	No.3		8	10	12	16	20	24	32	40
K Approx.			0.8	0.8	1	1.2	1.5	2	2	2.5
L			12-40	12-45	12-50	12-55	16-100	20-100	32-100	32-160

Material: Steel

Guide of How to Order

CODE **69 15 01**
Name ..... Stud bolt
Material ..... Steel
Nominal Size & Thread ..... M4 × 0.7
Length ..... 12 mm

Studs, Whole Threaded

Espárrago Largos　長ねじ、寸切り　全身螺纹的双头螺栓



Size mm

Nominal Size(d)		Length		Nominal Size(d)		Length	
Coarse	Fine			Coarse	Fine		
M3x0.5 M4x0.7 M5x0.8 M6 M8	M8x1	300	1,000	M10 M12 M16 M20 M24	M10x1.25 M12x1.25 M16x1.5 M20x1.5 M24x2	300	1,000

Material: Steel, Stainless Steel, Bronze, Brass or any other metals

Guide of How to Order

CODE	**69 20 01**
Name	Stud whole thread
Material	Steel
Nominal Size & Thread	M____ × ____ Coarse
Length	____ mm

Most common steel & brass studs are coded below.

Metric Coarse Threaded

How to order: CODE

Stud, whole threaded, MATERIAL, THREAD DIAM x PITCH mm, LENGTH

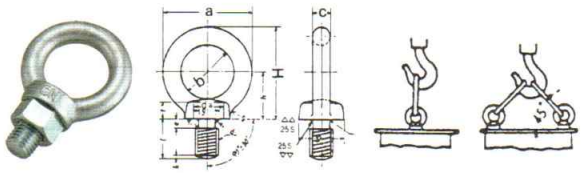
Unit Per Pc.

Thread Diam.	Pitch of Thread	Steel Length 300 mm	Steel Length 1,000 mm	Brass Length 300 mm	Brass Length 1,000 mm
M 3	0.5	-	-	**69 20 51**	-
M 4	0.7	**69 20 02**	-	**52**	-
M 5	0.8	**03**	-	**53**	-
M 6	1.0	**04**	**69 20 24**	**54**	**69 20 74**
M 8	1.25	**05**	**25**	**55**	**75**
M10	1.5	**69 20 06**	**69 20 26**	**69 20 56**	**69 20 76**
M12	1.75	**07**	**27**	**57**	**77**
M14	2.0	**08**	**28**	**58**	-
M16	2.0	**09**	**29**	**59**	**69 20 79**
M18	2.5	**10**	**30**	**60**	-
M20	2.5	**69 20 11**	**69 20 31**	**69 20 61**	**69 20 81**
M22	2.5	**12**	**32**	**62**	-
M24	3.0	**13**	**33**	**63**	-

Eye Bolts, Steel

Tornillo de Cáncamo, Acero　アイボルト　钢制孔螺栓

(Ref. JIS B 1168 – 75)



How to order: CODE

Eye bolt, MATERIAL, SIZE

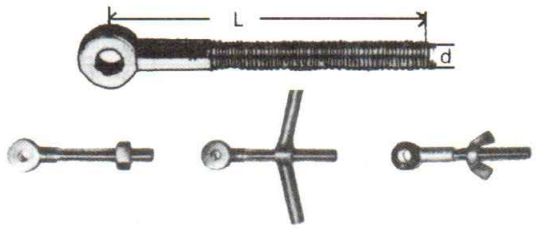
Unit Per Pc.

CODE	Nominal Size(d)	Size mm a	Size mm b	Size mm c	Size mm H	S.W.L. kg Vertical	S.W.L. kg 45°x2Pcs
69 22 01	M 8	32.6	20	6.3	39.3	80	80
02	M10	41	25	8	48.5	150	150
03	M12	50	30	10	61	220	220
04	M16	60	35	12.5	72	450	450
05	M20	72	40	16	86	630	630
69 22 06	M24	90	50	20	111	950	950
07	M30	110	60	25	135	1,500	1,500
08	M36	133	70	31.5	161.5	2,300	2,300
09	M48	170	90	40	208	4,500	4,500
10	M64	210	110	50	256	9,000	9,000

Material: Steel but stainless steel made also available on application.

Dog Bolts

Tornillo de Perro　ドッグボルト　活节螺栓



With Hex Nut　With Wing Nut　With Butterfly Nut

Diameter (d) Metric Coarse Thread	L mm	Diameter (d) Whitworth Thread	L mm
M 8	60	3/8"	60
M10	60	3/8"	80
M12	80	3/8"	100
M16	100	1/2"	80
M20	120	1/2"	100
M22	140	1/2"	120
M22	200	5/8"	100
M24	160	5/8"	120
M24	200	5/8"	150
		3/4"	120
		3/4"	150
		3/4"	180
		7/8"	140
		7/8"	160
		1"	180

Material: Bronze, Steel, Stainless Steel

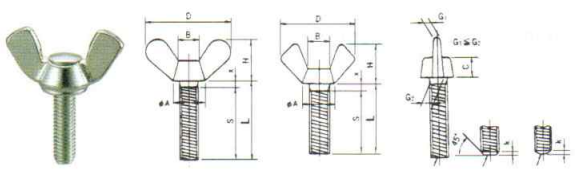
Guide of How to Order

CODE	**69 24 01**
Name	Dog bolt
Material	Bronze
Nominal Size & Thread	M8 Metric Coarse
Length	60 mm
Type of Nut	with hex nut

Wing Bolts

Tornillo de Mariposa　ちょうボルト　碟形螺栓

(Ref. JIS B 1184 – 87)



Type		No. 1 or No. 2
Material		Steel, Cast Iron, Bronze, Brass etc.
Nominal Size		M2 - M24
Thread		Metric Coarse Thread
Size mm	D	12 - 112
	H	6 - 56
	L	5 - 150

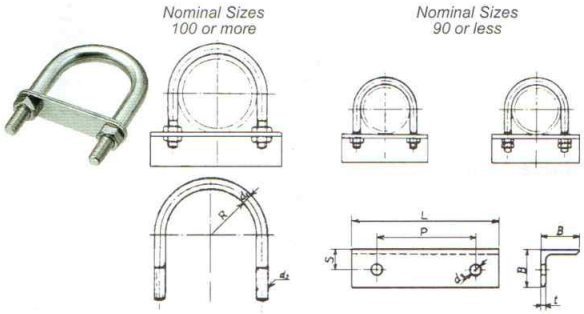
Guide of How to Order

CODE	**69 26 01**
Name	Wing bolt
Type	No. 1
Material	Steel
Nominal Size & Thread	M2
Length	10 mm

Ship's Steel Pipe U-Bolts

Pernos-U para Tubería de Acero de Barco

船用鋼管取付け U ボルト　船用钢管 U 形螺栓



Remark: The seat made from steel angle bar is shown.

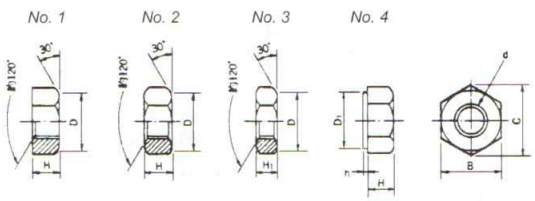
Unit Per Pc./Set

CODE		Nominal Size A	Outside Dia. of Pipe mm	Nominal Size of Thread
Without Seat & Nut (Pc)	With Seat & Nut (Set)			
69 67 01	**69 67 31**	15A	21.7	M10
02	**32**	20A	27.2	M10
03	**33**	25A	34.0	M10
04	**34**	32A	42.7	M10
05	**35**	40A	48.6	M10
69 67 06	**69 67 36**	50A	60.5	M10
07	**37**	65A	76.3	M12
08	**38**	80A	89.1	M12
09	**39**	90A	101.6	M12
10	**40**	100A	114.3	M16
69 67 11	**69 67 41**	125A	139.8	M16
12	**42**	150A	165.2	M16
69 67 13	**69 67 43**	175A	190.7	M16
14	**44**	200A	216.3	M20
15	**45**	225A	241.8	M20
16	**46**	250A	267.4	M20
17	**47**	300A	318.5	M24
69 67 18	**69 67 48**	350A	355.6	M24
19	**49**	400A	406.4	M24
20	**50**	450A	457.2	M30
21	**51**	500A	508.0	M30
22	**52**	550A	558.8	M30
69 67 23	**69 67 53**	600A	609.6	M36
24	**54**	650A	660.4	M36

Hexagon Nuts

Tuerca Hexagonal　六角ナット　六角螺母

(Ref. JIS B 1181 – 93)



Size mm

Nominal Size		H	H_1	B	C	D	D_1
Coarse	Fine	Standard Size			Approx.		Minimum
M 2		1.6	1.2	4	4.6	3.8	
M 2.3		1.8	1.4	4.5	5.2	4.3	
M 2.5		2	1.6	5	5.8	4.7	
M 3x0.5		2.4	1.8	5.5	6.4	5.3	
M 4x0.7		3.2	2.4	7	8.1	6.8	
M 5x0.8		4	3.2	8	9.2	7.8	7.2
M 6		5	3.6	10	11.5	9.8	9
M 8	M 8x1	6.5	5	13	15	12.5	11.7
M10	M10x1.25	8	6	17	19.6	16.5	15.8
M12	M12x1.25	10	7	19	21.9	18	17.6
M16	M16x1.5	13	10	24	27.7	23	22.3
M20	M20x1.5	16	12	30	34.6	29	25.6
M24	M24x2	19	14	36	41.6	34	28.5
M30	M30x2	24	18	46	53.1	44	34.2
M36	M36x3	29	21	55	63.5	53	
M42		34	25	65	75	62	
M48		38	29	75	86.5	72	
M56		45	34	85	98.1	82	
M64		51	38	95	110	92	

(to be continued)

Material: Steel, Stainless Steel, Bronze or Brass, etc.

How to Order: CODE

Nut, hex head, MATERIAL, SIZE

Unit Per Pc.

Nominal Size	CODE		
	Steel Ungalv.	Stainless Steel	Brass
M 3	**69 28 01**	**69 28 21**	**69 28 41**
4	**02**	**22**	**42**
5	**03**	**23**	**43**
6	**04**	**24**	**44**
8	**05**	**25**	**45**
M10	**69 28 06**	**69 28 26**	**69 28 46**
12	**07**	**27**	**47**
14	**08**	**28**	**48**
16	**09**	**29**	**49**
18	**10**	**30**	**50**
M20	**69 28 11**	**69 28 31**	**69 28 51**
22	**12**	**32**	**52**
24	**13**	**33**	**53**
27	**14**	**34**	**54**
30	**15**	**35**	**55**
M36	**69 28 16**	**69 28 36**	**69 28 56**

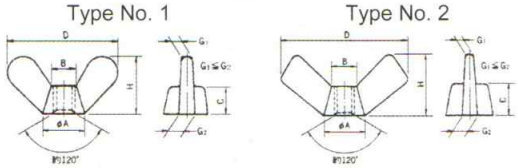
Wing Nuts

Tuerca de Mariposa　ちょうナット　碟形螺栓

(Ref. JIS B 1185 – 87)



Type No. 1　　Type No. 2



Type		No. 1 or No. 2
Material		Steel, Cast Iron, Bronze, Brass etc.
Nominal Size		M2 - M24
Thread		Metric Coarse Thread
Size mm	D	12 - 112
	H	6 - 56

Guide of How to Order

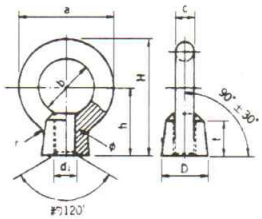
CODE **69 30 01**
Name ..... Wing nut
Type ..... No. 1
Material ..... Steel
Nominal Size & Thread M2

Eye Nuts

Tuerca de Cáncamo　アイナット　吊环螺帽

(Ref. JIS B 1169 – 75)





Unit Per Pc.

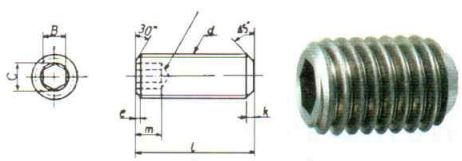
CODE	Nominal Size(d)	Size mm				S.W.L. kg	
		a	b	c	H	Vertical	45°x2
69 34 01	M 8	32.6	20	6.3	39.3	80	80
02	M10	41	25	8	48.5	150	150
03	M12	50	30	10	61	220	220
04	M16	60	35	12.5	72	450	450
05	M20	72	40	16	86	630	630
69 34 06	M24	90	50	20	111	950	950
07	M30	110	60	25	135	1,500	1,500
08	M36	133	70	31.5	161.5	2,300	2,300
09	M42	151	80	35.5	184.5	2,400	3,400
10	M48	170	90	40	208	4,500	4,500
69 34 11	M64	210	110	50	256	9,000	9,000

Thread : Metric Coarse Thread
Material : Steel but stainless steel made also available on application.

Hexagon Socket Set Screws

Tornillo sin Cabeza allen Extremo Biselado
六角穴付止めねじ　内六角固定螺钉

(Ref. JIS B 1177 – 88)



Material Nominal Size Thread		Steel M3 × 05 - M20 Metric Coarse Thread
Size mm	B	1.5 - 10
	C	1.7 - 11.7
	L	3 - 50

Guide of How to Order

CODE **69 35 01**
Name ..... Hexagon socket set screw
Material ..... Steel
Nominal Size & Thread ..... M3 × 0.5
Length ..... 6 mm

Heli-Serts

Resortes de Cpmprensión Helizoides　ヘリサート　螺纹衬套

Made of stainless steel or bronze.



Instead of building up a thread hole by welding worn out threads or using bushes for rethreading, you just have to clean the hole with a tap and insert these heli-serts.

Tightening procedure is the same as with the original thread. The proper length of the heli-sert should usually be 1 – 2 times the length of the standard bolts being used.

Kind of Thread		Nominal Size
Metric	Coarse	M2.2 - M36
	Fine	M8 - M30
Whitworth Coarse		W1/4 - W1-1/2
Unity	Coarse	U No. 2 - U1-1/2
	Fine	U No. 6 - U1-1/2
Parallel Pipe Thread		3/8, 3/4



Guide of How to Order

CODE **69 38 01**
Name ..... Heli-Sert
Material ..... Stainless Steel
Nominal Size M10
Thread ..... Metric coarse thread 1.5
Length ..... 32 mm

Material: Stainless Steel
Metric Coarse Thread

Unit Per Pc.

CODE	Size mm Diam. × Pitch × L	CODE	Size mm Diam. × Pitch × L
69 38 11	M2 × 0.4 × 2	**69 38 56**	M10 × 1.5 × 10
12	M2 × 0.4 × 3	**57**	M10 × 1.5 × 15
13	M2 × 0.4 × 4	**58**	M10 × 1.5 × 20
14	M2 × 0.4 × 5	**59**	M10 × 1.5 × 25
15	M2 × 0.4 × 6	**60**	M10 × 1.5 × 30
69 38 16	M2.5 × 0.45 × 2.5	**69 38 61**	M12 × 1.75 × 12
17	M2.5 × 0.45 × 4	**62**	M12 × 1.75 × 18
18	M2.5 × 0.45 × 5	**63**	M12 × 1.75 × 24
19	M2.5 × 0.45 × 6	**64**	M12 × 1.75 × 30
20	M2.5 × 0.45 × 7.5	**65**	M12 × 1.75 × 36
69 38 21	M3 × 0.5 × 3	**69 38 66**	M14 × 2.0 × 14
22	M3 × 0.5 × 4.5	**67**	M14 × 2.0 × 21
23	M3 × 0.5 × 6	**68**	M14 × 2.0 × 28
24	M3 × 0.5 × 7.5	**69**	M14 × 2.0 × 35
25	M3 × 0.5 × 9	**70**	M14 × 2.0 × 42
69 38 26	M3.5 × 0.6 × 3.5	**69 38 71**	M16 × 2.0 × 16
27	M3.5 × 0.6 × 5	**72**	M16 × 2.0 × 24
28	M3.5 × 0.6 × 7	**73**	M16 × 2.0 × 32
29	M3.5 × 0.6 × 9	**74**	M16 × 2.0 × 40
30	M3.5 × 0.6 × 10.5	**75**	M16 × 2.0 × 48
69 38 31	M4 × 0.7 × 4	**69 38 76**	M18 × 2.5 × 18
32	M4 × 0.7 × 6	**77**	M18 × 2.5 × 27
33	M4 × 0.7 × 8	**78**	M18 × 2.5 × 36
34	M4 × 0.7 × 10	**79**	M18 × 2.5 × 45
35	M4 × 0.7 × 12	**80**	M18 × 2.5 × 54
69 38 36	M5 × 0.8 × 5	**69 38 81**	M20 × 2.5 × 20
37	M5 × 0.8 × 7.5	**82**	M20 × 2.5 × 30
38	M5 × 0.8 × 10	**83**	M20 × 2.5 × 40
39	M5 × 0.8 × 12.5	**84**	M20 × 2.5 × 50
40	M5 × 0.8 × 15	**85**	M20 × 2.5 × 60
69 38 41	M6 × 1.0 × 6	**69 38 86**	M22 × 2.5 × 22
42	M6 × 1.0 × 9	**87**	M22 × 2.5 × 33
43	M6 × 1.0 × 12	**88**	M22 × 2.5 × 44
44	M6 × 1.0 × 15	**89**	M22 × 2.5 × 55
45	M6 × 1.0 × 18	**90**	M22 × 2.5 × 66
69 38 46	M7 × 1.0 × 7	**69 38 91**	M24 × 3.0 × 24
47	M7 × 1.0 × 10.5	**92**	M24 × 3.0 × 36
48	M7 × 1.0 × 14	**93**	M24 × 3.0 × 48
49	M7 × 1.0 × 17.5	**94**	M24 × 3.0 × 60
50	M7 × 1.0 × 21	**95**	M24 × 3.0 × 72
69 38 51	M8 × 1.25 × 8	**69 38 96**	M27 × 3.0 × 40
52	M8 × 1.25 × 12	**97**	M30 × 3.5 × 45
53	M8 × 1.25 × 16	**98**	M33 × 3.5 × 49
54	M8 × 1.25 × 20	**99**	M36 × 4.0 × 54
55	M8 × 1.25 × 24		

Material : Stainless Steel
Metric Fine Thread

Unit Per Pc.

CODE	Size mm Diam. × Pitch × L	CODE	Size mm Diam. × Pitch × L
69 53 11	M8 x 1.0 x 8	**69 53 51**	M18 x 1.5 x 18
12	M8 x 1.0 x 12	**52**	M18 x 1.5 x 27
13	M8 x 1.0 x 16	**53**	M18 x 1.5 x 36
14	M8 x 1.0 x 20	**54**	M18 x 1.5 x 45
15	M8 x 1.0 x 24	**55**	M18 x 1.5 x 54
69 53 16	M10 x 1.0 x 10	**69 53 56**	M20 x 1.5 x 20
17	M10 x 1.0 x 15	**57**	M20 x 1.5 x 30
18	M10 x 1.0 x 20	**58**	M20 x 1.5 x 40
19	M10 x 1.0 x 25	**59**	M20 x 1.5 x 50
20	M10 x 1.0 x 30	**60**	M20 x 1.5 x 60
69 53 21	M10 x 1.25 x 10	**69 53 61**	M20 x 2.0 x 20
22	M10 x 1.25 x 15	**62**	M20 x 2.0 x 30
23	M10 x 1.25 x 20	**63**	M20 x 2.0 x 40
24	M10 x 1.25 x 25	**64**	M20 x 2.0 x 50
25	M10 x 1.25 x 30	**65**	M20 x 2.0 x 60
69 53 26	M12 x 1.0 x 12	**69 53 66**	M22 x 1.5 x 22
27	M12 x 1.0 x 18	**67**	M22 x 1.5 x 33
28	M12 x 1.0 x 24	**68**	M22 x 1.5 x 44
29	M12 x 1.0 x 30	**69**	M22 x 1.5 x 55
30	M12 x 1.0 x 36	**70**	M22 x 1.5 x 66
69 53 31	M12 x 1.25 x 12	**69 53 71**	M24 x 1.5 x 24
32	M12 x 1.25 x 18	**72**	M24 x 1.5 x 36
33	M12 x 1.25 x 24	**73**	M24 x 1.5 x 48
34	M12 x 1.25 x 30	**74**	M24 x 1.5 x 60
35	M12 x 1.25 x 36	**75**	M24 x 1.5 x 72
69 53 36	M12 x 1.5 x 12	**69 53 76**	M24 x 2.0 x 24
37	M12 x 1.5 x 18	**77**	M24 x 2.0 x 36
38	M12 x 1.5 x 24	**78**	M24 x 2.0 x 48
39	M12 x 1.5 x 30	**79**	M24 x 2.0 x 60
40	M12 x 1.5 x 36	**80**	M24 x 2.0 x 72
69 53 41	M14 x 1.5 x 14	**69 53 81**	M27 x 2.0 x 40
42	M14 x 1.5 x 21	**82**	M28 x 1.5 x 42
43	M14 x 1.5 x 28	**83**	M30 x 1.5 x 45
44	M14 x 1.5 x 35	**84**	M30 x 2.0 x 45
45	M14 x 1.5 x 42	**85**	M33 x 2.0 x 49
69 53 46	M16 x 1.5 x 16	**69 53 86**	M36 x 1.5 x 54
47	M16 x 1.5 x 24	**87**	M36 x 2.0 x 54
48	M16 x 1.5 x 32	**88**	M36 x 3.0 x 54
49	M16 x 1.5 x 40		
50	M16 x 1.5 x 48		

Material: Stainless Steel
BSW

Unit Per Pc.

CODE	Size mm Diam. × L mm	CODE	Size mm Diam. × L mm
69 57 11	BSW 1/8" × 5	**69 57 17**	BSW 1/2" × 19
12	BSW 3/16" × 7	**18**	BSW 9/16" × 21
13	BSW 1/4" × 9	**19**	BSW 5/8" × 24
14	BSW 5/16" × 12	**20**	BSW 3/4" × 29
15	BSW 3/8" × 14	**21**	BSW 7/8" × 33
69 57 16	BSW 7/16" × 17	**69 57 22**	BSW 1" × 38

Material: Stainless Steel
BSF

Unit Per Pc.

CODE	Size mm Diam. × L mm	CODE	Size mm Diam. × L mm
69 57 26	BSF 3/16" × 7	**69 57 32**	BSF 9/16" × 21
27	BSF 1/4" × 9	**33**	BSF 5/8" × 24
28	BSF 5/16" × 12	**34**	BSF 3/4" × 29
29	BSF 3/8" × 14	**35**	BSF 7/8" × 33
30	BSF 7/16" × 17	**36**	BSF 1" × 38
69 57 31	BSF 1/2" × 19		

Material: Stainless Steel
UNC

Unit Per Pc.

CODE	Size mm Diam. × L mm	CODE	Size mm Diam. × L mm
69 57 41	UNC 1/4" × 9	**69 57 48**	UNC 3/4" × 29
42	UNC 5/16" × 12	**49**	UNC 7/8" × 33
43	UNC 3/8" × 14	**50**	UNC 1" × 38
44	UNC 7/16" × 17	**51**	UNC 1-1/8" × 43
45	UNC 1/2" × 19	**52**	UNC 1-1/4" × 48
69 57 46	UNC 9/16" × 21	**69 57 53**	UNC 1-3/8" × 52
47	UNC 5/8" × 24	**54**	UNC 1-1/2" × 57

Material: Stainless Steel
UNF

Unit Per Pc.

CODE	Size mm Diam. × L mm	CODE	Size mm Diam. × L mm
69 57 56	UNF 1/4" × 9	**69 57 63**	UNF 3/4" × 29
57	UNF 5/16" × 12	**64**	UNF 7/8" × 33
58	UNF 3/8" × 14	**65**	UNF 1" × 38
59	UNF 7/16" × 17	**66**	UNF 1-1/8" × 43
60	UNF 1/2" × 19	**67**	UNF 1-1/4" × 48
69 57 61	UNF 9/16" × 21	**69 57 68**	UNF 1-3/8" × 52
62	UNF 5/8" × 24	**69**	UNF 1-1/2" × 57

Material: Stainless Steel
BSP

Unit Per Pc.

CODE	Size mm Diam. × L mm	CODE	Size mm Diam. × L mm
69 57 71	BSP 1/8" × 15	**69 57 75**	BSP 5/8" × 34
72	BSP 1/4" × 19	**76**	BSP 3/4" × 40
73	BSP 3/8" × 25	**77**	BSP 7/8" × 45
74	BSP 1/2" × 31	**78**	BSP 1" × 49

Manual Inserting Tool

Metric Size

Unit Per Pc.

CODE	For Heli-sert	CODE	For Heli-sert
Coarse Thread		Fine Thread	
69 59 11	M2 × 0.4	**69 59 31**	M8 × 1.0
12	M2.5 × 0.45	**32**	M10 × 1.0
13	M3 × 0.5	**33**	M10 × 1.25
14	M3.5 × 0.6	**34**	M12 × 1.0
15	M4 × 0.7	**35**	M12 × 1.25
69 59 16	M5 × 1.0	**69 59 36**	M12 × 1.5
17	M6 × 1.0	**37**	M14 × 1.5
18	M7 × 1.0	**38**	M16 × 1.5
19	M8 × 1.25	**39**	M18 × 1.5
20	M10 × 1.5	**40**	M20 × 1.5
69 59 21	M12 × 1.75	**69 59 41**	M20 × 2.0
22	M14 × 2.0	**42**	M22 × 1.5
23	M16 × 2.0	**43**	M24 × 1.5
24	M18 × 2.5	**44**	M24 × 2.0
25	M20 × 2.5		
69 59 26	M22 × 2.5		
27	M24 × 3.0		

BSW

Unit Per Pc.

CODE	For Heli-sert	CODE	For Heli-sert
69 59 51	BSW 1/8"	**69 59 57**	BSW 1/2"
52	BSW 3/16"	**58**	BSW 9/16"
53	BSW 1/4"	**59**	BSW 5/8"
54	BSW 5/16"	**60**	BSW 3/4"
55	BSW 3/8"	**61**	BSW 7/8"
69 59 56	BSW 7/16"	**69 59 62**	BSW 1"

BSF

Unit Per Pc.

CODE	For Heli-sert	CODE	For Heli-sert
69 59 66	BSF 3/16"	**69 59 72**	BSF 9/16"
67	BSF 1/4"	**73**	BSF 5/8"
68	BSF 5/16"	**74**	BSF 3/4"
69	BSF 3/8"	**75**	BSF 7/8"
70	BSF 7/16"	**76**	BSF 1"
69 59 71	BSF 1/2"		

UNC

Unit Per Pc.

CODE	For Heli-sert	CODE	For Heli-sert
69 59 81	UNC 1/4"	**69 59 86**	UNC 9/16"
82	UNC 5/16"	**87**	UNC 5/8"
83	UNC 3/8"	**88**	UNC 3/4"
84	UNC 7/16"	**89**	UNC 7/8"
85	UNC 1/2"	**90**	UNC 1"

UNF

Unit Per Pc.

CODE	For Heli-sert	CODE	For Heli-sert
69 61 11	UNF 1/4"	**69 61 16**	UNF 9/16"
12	UNF 5/16"	**17**	UNF 5/8"
13	UNF 3/8"	**18**	UNF 3/4"
14	UNF 7/16"	**19**	UNF 7/8"
15	UNF 1/2"	**20**	UNF 1"

Inserting Tool 1/2"

Metric Size

Unit Per Pc.

CODE	For Heli-sert	CODE	For Heli-sert
Coarse Thread		Fine Thread	
69 61 21	M27 x 3.0	**69 61 26**	M27 x 2.0
22	M30 x 3.5	**27**	M28 x 1.5
23	M33 x 3.5	**28**	M30 x 1.5
24	M36 x 4.0	**29**	M30 x 2.0
		30	M33 x 2.0
		69 61 31	M36 x 3.0
		32	M36 x 2.0
		33	M36 x 1.5

UNC / UNF / BSP

Unit Per Pc.

CODE	For Heli-sert	CODE	For Heli-sert
Inserting Tool 1/2" - UNC		Inserting Tool 1/4" - BSP	
69 61 36	UNC 1-1/8"	**69 61 46**	BSP 1/8"
37	UNC 1-1/4"	**47**	BSP 1/4"
38	UNC 1-3/8"	**48**	BSP 3/8"
39	UNC 1-1/2"	**49**	BSP 1/2"
Inserting Tool 1/2" - UNF		Inserting Tool 1/2" - BSP	
69 61 41	UNF 1-1/8"	**69 61 51**	BSP 5/8"
42	UNF 1-1/4"	**52**	BSP 3/4"
43	UNF 1-3/8"	**53**	BSP 7/8"
44	UNF 1-1/2"	**54**	BSP 1"

Manual Removal Tool

Unit Per Pc.

CODE	For Heli-sert	CODE	For Heli-sert
69 61 56	M3 – M10	**69 61 58**	3/16" – 3/8"
57	M11 – M24	**59**	3/8" – 1"

Various Tools for Heli-Sert

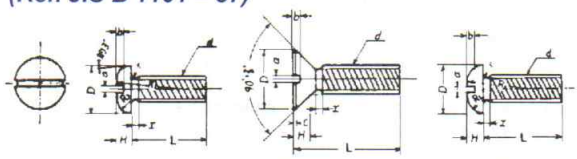


P-Type Inserting Tool | S-Type Inserting Tool | Tongue Removal Tool | T-Type Removal Tool | Powered Inserting Tool

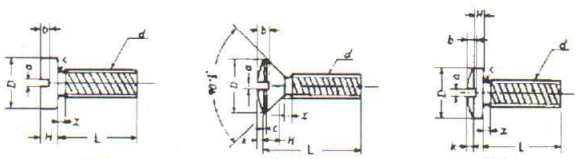
Slotted Head Machine Screws

Tornillos Ranurado para Máquina　すりわり付小ねじ　一字槽机制螺钉

(Ref. JIS B 1101 – 87)



Pan　*Countersunk Flat*　*Round*



Flat　*Oval*　*Fillister*

Size mm

d Nominal Size	Pitch	D Pan, Round Court. Flat, Fillister	D Flat, Oval	D Truss	D Binding	L
M1.0	0.25	2.0	2.0			3-10
M1.2	0.25	2.3	2.4			3-12
M1.6	0.35	3.0	3.2			3-16
M1.7	0.35	3.2	3.4			4-20
M2.0	0.40	3.5	4.0	4.5	4.3	4-20
M2.3	0.40	4.0	4.6	5.2	4.9	5-30
M2.5	0.45	4.5	5.0	5.7	5.3	5-30
M2.6	0.45	4.5	5.2	5.9	5.5	5-30
M3x0.5	0.50	5.5	6.0	6.9	6.3	5-40
M4x0.7	0.70	7.0	6.0	9.4	6.3	6-50
M5x0.8	0.80	9.0	10.0	11.8	10.3	8-50
M6.0	1.00	10.5	12.0	14.0	12.4	8-60
M8.0	1.25	14.0	16.0	17.8	16.4	10-60

Material: Steel, Stainless Steel, Brass
Thread : Metric Coarse Thread

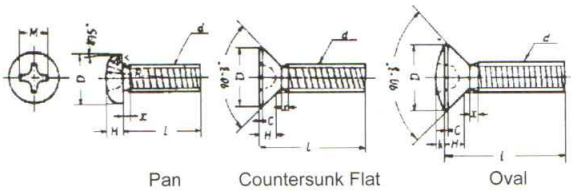
Guide of How to Order

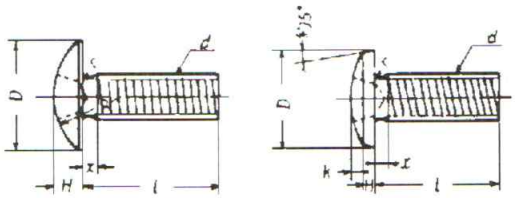
CODE	**69 40 01**
Name	Machine screw
Material	Steel
Shape	Slotted round head
Nominal Size & Thread	M1.6
Length	8 mm

Cross-Recessed Head Machine Screws

Tornillos Cabeza de Cruz　十字穴付き小ねじ　十字槽机制螺钉

(Ref. JIS B 1111 – 87)





Size mm

Nominal Size d	Pitch	Cross No.	D				L
			Pan	Count. Oval	Truss	Binding	
M2	0.4	1	3.5	4	4.5	4.3	4-20
M2.3	0.4		4	4.6	5.2	4.9	5-30
M2.5	0.45		4.5	5	5.7	5.3	5-30
M2.6	0.45	2	4.5	5.2	5.9	5.5	5-30
M3 x0.5	0.5		5.5	6	6.9	6.3	5-40
M4 x0.7	0.7		7	8	9.4	8.3	6-50
M4.5	0.75		8	9	10.6	9.3	6-50
M5 x0.8	0.8		9	10	11.8	10.3	8-50
M6	1.0	3	10.5	12	14	12.4	8-60
M8	1.25		14	16	17.8	16.4	10-60

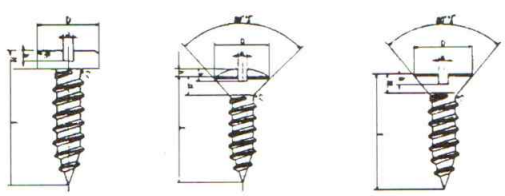
Material: Steel, Stainless Steel, Brass
Thread : Metric Coarse Thread

Guide of How to Order

CODE	**69 42 01**
Name	Machine screw
Material	Brass
Shape	Cross recessed oval head
Nominal Size & Thread	M3 × 0.5
Length	20 mm

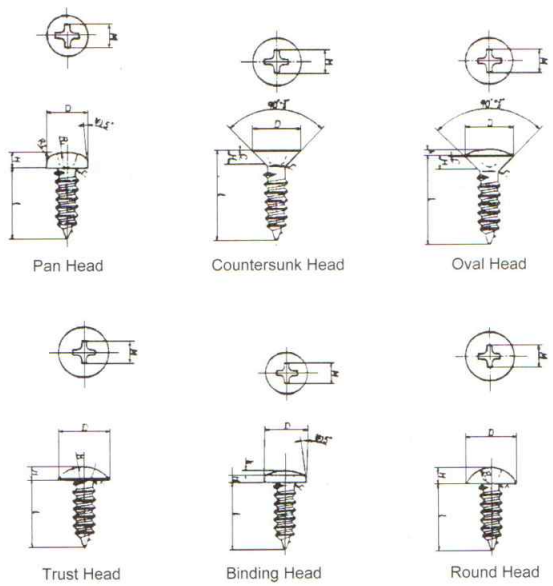
Tapping Screws
(Sheet Metal Screws)

Slotted Head
(Ref. JIS B 1115 – 88)



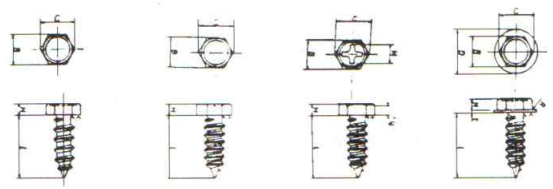
Nominal Size	2 - 6
Material	Steel, Stainless Steel
Length mm	2 - 50

Cross-Recessed Head
(Ref. JIS B 1122 – 88)



Nominal Size	2 - 6
Material	Steel, Stainless Steel
Length mm	2 - 50

Hexagon Head
(Ref. JIS B 1123 – 88)



Nominal Size	22 - 8
Material	Steel, Stainless Steel
Length mm	5 - 60

Guide of How to Order

CODE	**69 44 01**
Name	Tapping screw
Material	Steel
Shape	Cross recessed oval head
Nominal Size	2.2 mm
Length	5 mm

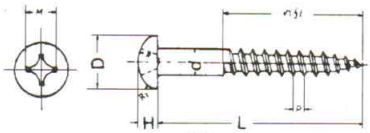
Please confirm Thread Type when ordering.

Slotted Head Wood Screws
Tornillos de madera con cabeza ranurada
すりわり付木ねじ　开槽头木螺钉

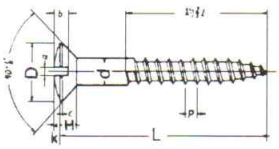
(Ref. JIS B 1135 – 74)

Cross-Recessed Head Wood Screws
Tornillo Rosca Madera Cabeza de Cruz
十字穴付き木ねじ　十字头木螺丝

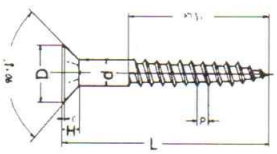
(Ref. JIS B 1112 – 74)



Round Head



Oval Head



Countersunk Flat

Size mm

Nominal Size d	Cross Recessed No.	D		H (H+K)			L
		Head		Head			
		Round	Oval	Round	Count.	(H+K) Oval	
1.6	1	3	3.2	1.3	0.95	1.35	6.3- 13
1.8		3.3	3.6	1.4	1.05	1.45	
2.1		3.9	4.2	1.6	1.25	1.75	
2.4		4.4	4.8	1.8	1.4	2	6.3- 20
2.7		5	5.4	2	1.55	2.25	10 - 20
3.1	2	5.7	6.2	2.3	1.8	2.6	10 - 25
3.5		6.5	7	2.5	2	2.8	13 - 40
3.8		7	7.6	2.7	2.15	3.05	13 - 40
4.1		7.6	8.2	2.9	2.35	3.35	16 - 50
4.5		8.3	9	3.1	2.55	3.65	16 - 63
4.8		8.9	9.6	3.3	2.7	3.8	20 - 70
5.1	3	9.4	10.2	3.5	2.85	4.05	20 - 70
5.5		10.2	11	3.8	3.05	4.35	20 - 80
5.8		10.7	11.6	4	3.2	4.6	22 - 80
6.2		11.5	12.4	4.2	3.5	4.9	25 - 80
6.8		12.6	13.6	4.6	3.8	5.4	25 -100
7.5	4	13.9	15	5	4.15	5.95	25 -100
8		14.8	16	5.3	4.4	6.2	32 -100
9.5		17.6	19	6.3	5.15	7.45	32 -100

Material: Steel, Stainless Steel, and Brass

Guide of How to Order

CODE	**69 46 01**
Name	Wood screw
Material	Brass
Head Type	Slotted round head
Nominal Size & Thread	2.4 mm
Length	10 mm

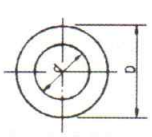
Plain Washers

Arandela Plana　平座金　平垫圈

(Ref. JIS B 1256 – 78)







Type	Small Size, Polished, Normal
Material	Steel, Stainless Steel, Brass
Nominal Size	1 - 82 mm

Guide of How to Order

CODE	**69 48 01**
Name	Round washer
Material	Steel, Stainless steel or Brass
Nominal Size	Specify necessary SIZE

Steel

Unit Per Pc.

CODE	Size mm			CODE	Size mm		
	I.D.	O.D.	Thick		I.D.	O.D.	Thick
69 48 11	M2.0	6	0.4	**69 48 19**	M14.0	30	2.6
12	M3.0	8	0.5	**20**	M16.0	32	2.6
13	M4.0	10	0.8	**21**	M18.0	36	2.6
14	M5.0	12	0.8	**22**	M20.0	40	3.2
15	M6.0	13	1.0	**23**	M22.0	44	3.2
69 48 16	M8.0	18	1.6	**69 48 24**	M24.0	48	4.0
17	M10.0	22	1.6	**25**	M27.0	52	4.0
18	M12.0	26	2.3	**26**	M30.0	58	4.5

Stainless Steel

Unit Per Pc.

CODE	Size mm			CODE	Size mm		
	I.D.	O.D.	Thick		I.D.	O.D.	Thick
69 48 31	M2.0	6	0.4	**69 48 39**	M14.0	30	2.6
32	M3.0	8	0.5	**40**	M16.0	32	2.5
33	M4.0	10	0.8	**41**	M18.0	36	2.5
34	M5.0	12	0.8	**42**	M20.0	40	3.0
35	M6.0	13	1.0	**43**	M22.0	44	3.0
69 48 36	M8.0	18	1.6	**69 48 44**	M24.0	48	3.0
37	M10.0	22	1.6	**45**	M27.0	52	3.0
38	M12.0	26	2.3	**46**	M30.0	58	4.0

Brass

Unit Per Pc.

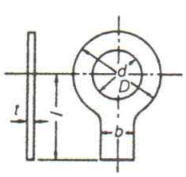
CODE	Size mm			CODE	Size mm		
	I.D.	O.D.	Thick		I.D.	O.D.	Thick
69 48 51	M2.0	6	0.4	**69 48 59**	M14.0	30	2.6
52	M3.0	8	0.5	**60**	M16.0	32	2.6
53	M4.0	10	0.8	**61**	M18.0	36	2.6
54	M5.0	12	0.8	**62**	M20.0	40	3.2
55	M6.0	13	1.0	**63**	M22.0	44	3.2
69 48 56	M8.0	18	1.6	**69 48 64**	M24.0	48	4.0
57	M10.0	22	1.6	**65**	M30.0	58	4.5
58	M12.0	26	2.3				

Single Flapped Washers

Arandelas de Seguridad con Una sóla Solapa

片舌付き座金　単翼型垫圈





Nominal Size		Size mm				
Whitworth	Metric	d	D	t	l	b
-	3	3.2	12	0.29	13	4
-	4	4.3	14	0.29	14	5
-	5	5.3	17	0.5	15	6
-	6	6.5	18	0.5	15	6
-	8	8.5	22	0.5	20	7
3/8	-	10	26	0.8	22	9
-	10	10.5	26	0.8	22	9
7/16	11	11.5	28	0.8	24	9
-	12	12.5	30	0.8	27	10
1/2	13	13.5	30	0.8	27	10
9/16	14	15	32	0.8	30	10
5/8	16	17	38	1.2	32	12
11/16	17	18	42	1.2	34	14
-	18	19	42	1.2	34	14
3/4	19	20	45	1.2	36	15
-	20	21	45	1.2	36	15
13/16	-	22	45	1.2	36	15
7/8	22	23	48	1.2	40	16
15/16	24	25	52	1.2	44	17
1	-	27	58	1.6	48	20

(to be continued)

Nominal Size		Size mm				
Whitworth	Metric	d	D	t	l	b
-	27	28	58	1.6	48	20
1-1/8	-	30	62	1.6	52	21
-	30	31	62	1.6	52	21
1-1/4	-	33	68	1.6	55	23
-	33	34	68	1.6	55	23
1-3/8	-	35	75	1.6	60	25
-	36	37	75	1.6	60	25
1-1/2	-	39	80	1.8	65	26
-	39	40	80	1.8	65	26
1-5/8	-	43	85	1.8	70	28
-	42	44	85	1.8	70	28
1-3/4	-	46	90	1.8	75	30
-	45	47	90	1.8	75	30
1-7/8	48	50	95	1.8	85	32
2	-	53	100	1.8	85	34
-	52	54	100	1.8	85	34

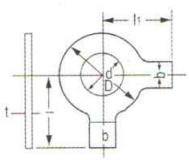
Guide of How to Order

CODE **69 49 01**
Name ..... Single flapped washer
Material ..... Steel
Nominal Size ..... 3 mm

Double Flapped Washers

Arandelas de Seguridad con Doble Solapa
両舌付き座金　双翼型垫圈





Nominal Size		Size mm					
Whitworth	Metric	d	D	t	l	l_1	b
-	3	3.2	7	0.29	13	5	4
-	4	4.3	9	0.29	14	7	5
-	5	5.3	10	0.5	15	8	6
-	6	6.5	13	0.5	15	9	6
-	8	8.5	16	0.5	20	13	7
3/8	-	10	20	0.8	22	14	9
-	10	10.5	20	0.8	22	14	9
7/16	11	11.5	22	0.8	24	17	9
-	12	12.5	24	0.8	27	19	10
1/2	13	13.5	24	0.8	27	19	10
9/16	14	15	26	0.8	30	21	10
5/8	16	17	30	1.2	32	24	12
11/16	17	18	34	1.2	34	26	14
-	18	19	34	1.2	34	26	14
3/4	19	20	38	1.2	36	28	15
-	20	21	38	1.2	36	28	15
13/16	-	22	38	1.2	36	28	15
7/8	22	23	40	1.2	40	32	16
15/16	24	25	44	1.2	44	35	17
1	-	27	48	1.6	48	38	20
-	27	28	48	1.6	48	38	20
1-1/8	-	30	52	1.6	52	42	21
-	30	31	52	1.6	52	42	21
1-1/4	-	33	58	1.6	55	46	23
-	33	34	58	1.6	55	46	23
1-3/8	-	36	62	1.6	60	50	25
-	36	37	62	1.6	60	50	25
1-1/2	-	39	68	1.8	65	55	26
-	39	40	68	1.8	65	55	26
1-5/8	-	43	72	1.8	70	62	28
-	42	44	72	1.8	70	62	28
1-3/4	-	46	78	1.8	75	65	30
-	45	47	78	1.8	75	65	30
1-7/8	48	50	82	1.8	80	70	32
2	-	53	88	1.8	85	75	34
-	52	54	88	1.8	85	75	34

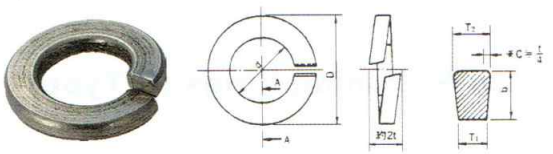
Guide of How to Order

CODE **69 50 01**
Name ..... Double flapped washer
Material ..... Steel
Nominal Size ..... 3 mm

Spring Lock Washers

Arandelas de Presión　ばね座金　弹簧垫圈

(Ref. JIS B 1251 – 84)



Type	No. 2, For General Use	
	No. 3, For Heavy-duty Use	
Material	Steel Stainless Steel, Phosphor Bronze	
Nominal Size	Metric	2 - 136 mm
	Whitworth	5/16 - 1-3/8"

Guide of How to Order

CODE **69 52 01**
Name ..... Spring lock washer
Type ..... For general use
Material ..... Steel, or Stainless steel
Nominal Size ..... Specify necessary SIZE

Steel

Unit Per Pc.

CODE	Size I.D.	CODE	Size I.D.
69 52 11	M2.0	**69 52 19**	M14.0
12	M3.0	**20**	M16.0
13	M4.0	**21**	M18.0
14	M5.0	**22**	M20.0
15	M6.0	**23**	M22.0
69 52 16	M8.0	**69 52 24**	M24.0
17	M10.0	**25**	M27.0
18	M12.0	**26**	M30.0

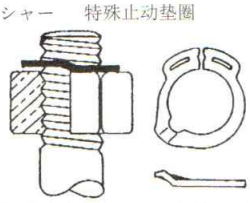
Stainless Steel

Unit Per Pc.

CODE	Size I.D.	CODE	Size I.D.
69 52 31	M2.0	**69 52 39**	M14.0
32	M3.0	**40**	M16.0
33	M4.0	**41**	M18.0
34	M5.0	**42**	M20.0
35	M6.0	**43**	M22.0
69 52 36	M8.0	**69 52 44**	M24.0
37	M10.0	**45**	M27.0
38	M12.0	**46**	M30.0

"Super Lock" Washers

Arandelas de "Super Presión"
スーパーロックワッシャー　特殊止动垫圈



An ideal locking device for use on bolts, studs and nuts in service where vibration and loosening are a problem.

Uses: Rail maintenance, mining, construction machinery, automotive, general industry.

Manufactured in metrics standard & suit ISO metric, UNC, BS, Whitworth thread forms.

Made of steel.

Unit Per Minimum 100 Pcs.

CODE	Size	CODE	Size	CODE	Size
69 54 01	M 4	**69 54 06**	M 12	**69 54 11**	M 24
02	M 5	**07**	M 16	**12**	M 25
03	M 6	**08**	M 19	**13**	M 30
04	M 8	**09**	M 20	**14**	M 33
05	M 10	**10**	M 22	**15**	M 36

Steel Retaining Rings (C Type)

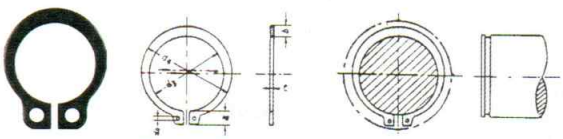
(Circlip)

Anillos Retenedores de Acero (Tipo C)　止め輪　固定圏

(Ref. JIS B 2804 – 78)

External

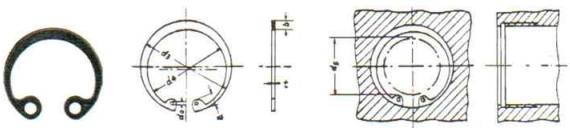
Externo　C 形止め輪（軸用）　C 型固定圏（軸用）



Nominal Size 10 mm through 125 mm

Internal

Interno　C 形止め輪（穴用）　C 型固定圏（内孔用）



Nominal Size 10 mm through 125 mm

Guide of How to Order

CODE **69 55 02**
Name ..... Steel retaining ring
Type ..... C type, external
Nominal Size ..... 10 mm

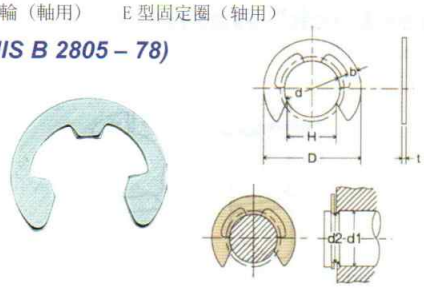
CODE **69 55 03**
Name ..... Steel retaining ring
Type ..... C type, internal
Nominal Size ..... 10 mm

Steel Retaining Rings (E Type)

(Circlip)

Anillos Retenedores de Acero (Tipo E)
E 形止め輪（軸用）　E 型固定圏（軸用）

(Ref. JIS B 2805 – 78)



Nominal Size 0.8 mm through 12 mm

Guide of How to Order

CODE **69 55 01**
Name ..... Steel retaining ring
Type ..... E type, external
Nominal Size ..... 10 mm

Circlip Kits

Kit de Anillo de Retención
サークリップキット　弾性檔圏組



Assorted with 3 types of steel circlips, External, Internal and E type, in a compartmented plastic box.

Contents of Kits

Kit 1

External		Internal		'E' Type	
Nom. Size	Q'ty Pc.	Nom. Size	Q'ty Pc.	Nom. Size	Q'ty Pc.
3	75	8	40	1.4	75
4	70	10	30	2	70
5	65	12	30	3	65
6	60			4	60
8	50			5	50
10	30			6	30
12	30			8	30
				10	30

Kit 2

External		Internal		'E' Type	
Nom. Size	Q'ty Pc.	Nom. Size	Q'ty Pc.	Nom. Size	Q'ty Pc.
14	25	14	25	11	25
16	25	15	25	13	25
18	25	16	25	16	25
19	25	18	25		
20	25	19	25		
22	25	20	25		
25	25	22	25		
		25	25		

Unit Per Set

CODE	Kit No.	Total Numbers of Circlips
69 55 11	1	890
12	2	450

Machine Keys

Llave de Máquina　マシンキー　機器鑰匙

Made of Steel or Stainless Steel bars with double square ends to make your own machine keys.



Steel (S-45C)

Unit Per Pc.

CODE	Size mm		CODE	Size mm	
	b × h	Length		b × h	Length
69 56 01	3 x 3		**69 56 16**	25 x 14	
02	4 x 4		**17**	28 x 16	
03	5 x 5	300	**18**	32 x 18	300
04	6 x 6		**19**	35 x 22	
05	7 x 7		**20**	36 x 20	
69 56 06	8 x 7		**69 56 21**	38 x 24	
07	10 x 8		**22**	40 x 22	
08	12 x 8	300	**23**	42 x 26	300
09	14 x 9		**24**	45 x 25	
10	15 x 10		**25**	50 x 28	
69 56 11	16 x 10				
12	18 x 11				
13	20 x 12	300			
14	22 x 14				
15	24 x 16				

Stainless Steel (SUS-304)

Unit Per Pc.

CODE	Size mm		CODE	Size mm	
	b × h	Length		b × h	Length
69 56 31	3 x 3		**69 56 41**	12 x 12	
32	4 x 4		**42**	15 x 10	
33	5 x 5	300	**43**	15 x 15	300
34	6 x 6		**44**	18 x 12	
35	7 x 7		**45**	20 x 13	
69 56 36	8 x 8		**69 56 46**	24 x 16	
37	10 x 8		**47**	28 x 18	
38	10 x 10	300	**48**	32 x 20	300
39	12 x 8		**49**	35 x 22	
40	12 x 10				

Dowel Pin Kits

Kit de Pin Dowel　ダウェルピンキット　定位梢組

Hardened mild steel dowel pin kits of assorted sizes as shown in the table below. Available three patterns of kit for your option, and supplied in a compartmented plastic box.



Diam × Length mm	Q'ty Pcs	Diam × Length mm	Q'ty Pcs
Metric Parallel Pins Containg 315 Pins			
2.5 x 10	25	6 x 24	12
2.5 x 12	25	6 x 32	12
2.5 x 20	20	6 x 40	10
3 x 12	25	8 x 24	10
3 x 20	20	8 x 40	10
3 x 24	15	8 x 50	8
4 x 20	20	10 x 24	10
4 x 24	20	10 x 40	8
4 x 32	15	10 x 50	8
5 x 20	15		
5 x 28	15		
5 x 36	12		
Metric Tapered Pins Containing 345 Pins			
2 x 12	30	4 x 20	20
2 x 16	30	4 x 25	15
2 x 20	30	4 x 30	15
2.5 x 16	25	5 x 25	15
2.5 x 20	25	5 x 30	15
2.5 x 25	20	5 x 40	10
3 x 20	25	6 x 30	10
3 x 25	20	6 x 35	10
3 x 30	20	6 x 40	10
Imperial Parallel Pins Containing 350 Pins			
3/32 x 3/8	30	1/4 x 3/4	12
3/32 x 1/2	30	1/4 x 1	12
3/32 x 3/4	30	1/4 x 1-1/2	10
1/8 x 1/2	25	5/16 x 1	10
1/8 x 3/4	25	5/16 x 1-1/2	10
1/8 x 1	20	5/16 x 2	8
5/32 x 1/2	25	3/8 x 1	10
5/32 x 3/4	20	3/8 x 1-1/2	8
5/32 x 1	15	3/8 x 2	8
3/16 x 3/4	15		
3/16 x 1	15		
3/16 x 1-1/4	12		

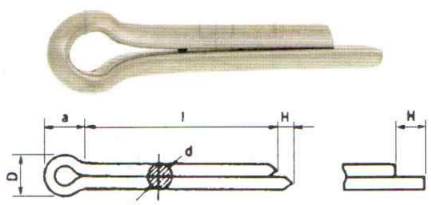
Unit Per Set

CODE	Type	Total Q'ty
69 56 51	Metric parallel	315
52	Metric tapered	345
53	Imperial parallel	350

Split Pins

Pasador Aleta　割りピン　开口销

(Ref. JIS B 1351 – 87)



Material	Steel, Stainless Steel, Brass, Copper
Nominal Size	0.6 - 20 mm
Length	4 - 280 mm

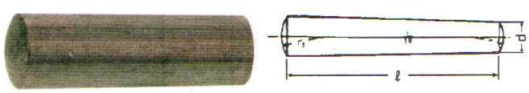
Guide of How to Order

CODE **69 58 01**
Name ..... Spring pin (Cotter pin)
Material ..... Steel
Nominal Size ..... 4 mm
Length ..... 10 mm

Taper Pins

Pasadores Cónicos　テーパピン　圆锥销

(Ref. JIS B 1352 – 88)



Size mm

Nominal Size	d Standard	L	Nominal Size	d Standard	L
0.6	0.6	4-10	6	6	28- 80
0.8	0.8	5-14	8	8	36-125
1	1	6-16	10	10	45-140
1.2	1.2	8-18	13	13	56-160
1.6	1.6	10-25	16	16	70-200
2	2	12-28	20	20	80-225
2.5	2.5	14-36	25	25	100-250
3	3	16-50	30	30	100-280
4	4	18-63	40	40	100-280
5	5	25-70	50	50	100-280

Material: Steel, Stainless Steel

Guide of How to Order

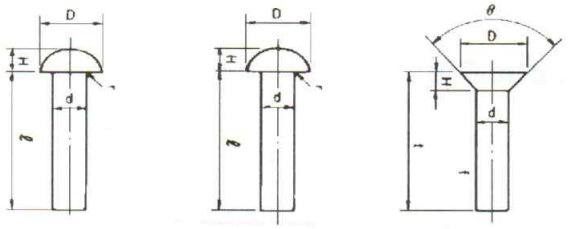
CODE **69 60 01**
Name ..... Taper pin
Material ..... Steel
Nominal Size ..... 1.2 mm
Length ..... 14 mm

Cold Headed Rivets

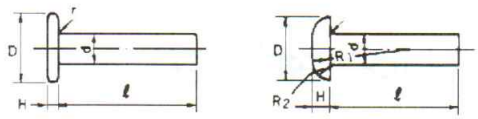
Remaches Cabeza Fría　冷間成形リベット　冷鍛铆钉

(Ref. JIS B 1213 – 78)

Round　Small Round　Countersunk



Thin Flat　Pan



Size mm

Nominal Size(d)	Standard Size D					L
	Round	S.Round	Count.	T.Flat	Pan	
1		1.8	2			
1.2		2.2	2.4			Round 3 -70
1.4		2.5	2.8			
1.6		3.0	3.2			
1.7		3.0	3.4			Small Round 1 -30
2		3.5	4.0	4.0		
2.3		4.0	4.6	4.6		
2.5		4.5	5.0	5.0		
2.6		4.5	5.2	5.2		Counter Sunk 1.5-70
3	5.7	5.2	6.0	6.0	6.0	
3.5	6.7	6.2	7.0	7.0	7.0	
4	7.2	7.0	8.0	8.0	8.0	
4.5	8.1	-	9.0	9.0	-	Thin Flat 2 -36
5	9.0	8.8	10.0	10.0	9.5	
6	10.0		12.0	12.0	10.8	
8	13.3		16.0			Pan 3 -36
10	16.0		16.0			
12	19.3		19.0			
13	21.0		21.0			
14	22.0		22.0			

Material: Cold Drawn Steel, Brass, Copper, Aluminium

Guide of How to Order

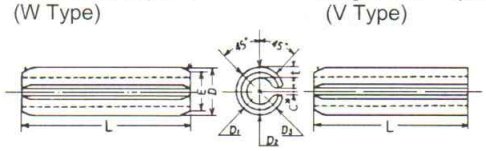
CODE	**69 62 01**
Name	Cold headed rivet
Material	Steel
Head Type	Round
Nominal Size	5 mm
Length	20 mm

Spring Pins

Pasadpres Elástocps　スプリングピン　弹簧销

(Ref. JIS B 2808 – 78)

Both Sides Tapered (W Type)　Single Side Tapered (V Type)



Size mm

Nominal Size	D		t	Applicable	L
	Max.	Mini		Hole Dia	
1	1.2	1.1	0.2	1	4- 10
1.2	1.4	1.3	0.25	1.2	4- 12
1.4	1.6	1.5	0.28	1.4	4- 14
1.5	1.7	1.6	0.3	1.5	4- 14
1.6	1.8	1.7	0.3	1.6	4- 16
2	2.25	2.15	0.4	2	5- 20
2.5	2.75	2.65	0.5	2.5	5- 25
3	3.25	3.15	0.6	3	6- 32
4	4.4	4.2	0.8	4	8- 40
5	5.4	5.2	1	5	10- 50
6	6.4	6.2	1.2	6	12- 63
8	8.6	8.3	1.6	8	16- 80
10	10.6	10.3	2	10	18-100
13	13.7	13.4	2.5	13	22-140

Material: Steel

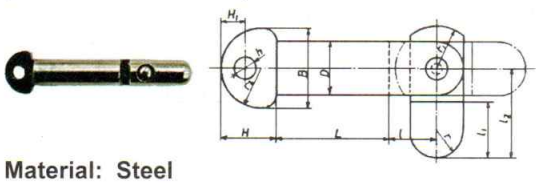
Guide of How to Order

CODE	**69 64 01**
Name	Spring pin
Type	W type
Material	Steel
Nominal Size	2 mm
Length	10 mm

Ship's Toggle Pin A Type

Chaveta Tipo A para Barco　割りピン　A 型船用套环销

(Ref. JIS F 3905-1975)



Material: Steel

Size mm

Nominal Size	D	B	L	Nominal Size	D	B	L
6	6	10	12-25	20	20	30	45- 65
8	8	12	18-35	22	22	32	50- 85
10	10	14	20-40	25	25	38	55- 90
12	12	18	25-45	28	28	42	60- 95
14	14	20	30-50	30	30	44	65-100
16	16	24	35-55	35	35	52	75-130
18	18	26	40-60	40	40	60	85-140

Guide of How to Order

CODE	**69 68 01**
Name	Toggle pin
Type	A
Material	Steel
Nominal Size	12 mm
Length	30 mm

Material: Galvanized Steel

Size mm

Nominal Size	D	B	L	Nominal Size	D	B	L
6	6	10	15- 55	16	16	24	35-100
8	8	12	20- 60	18	18	26	40-100
10	10	14	20-100	20	20	30	45-100
12	12	18	25-100	22	22	32	50- 85
14	14	20	30-100	25	25	38	50- 80

Guide of How to Order

CODE **69 68 02**
Name ..... Toggle pin
Type ..... A
Material ..... Galvanized Steel
Nominal Size ..... 12 mm
Length ..... 30 mm

Material: Stainless Steel

Size mm

Nominal Size	D	B	L	Nominal Size	D	B	L
6	6	10	15- 55	16	16	24	35-100
8	8	12	20-100	18	18	26	40-100
10	10	14	20-100	20	20	30	45-100
12	12	18	25-100	22	22	32	50- 80
14	14	20	35-100				

Guide of How to Order

CODE **69 68 03**
Name ..... Toggle pin
Type ..... A
Material ..... Stainless Steel
Nominal Size ..... 12 mm
Length ..... 30 mm

Material: Brass

Size mm

Nominal Size	D	B	L	Nominal Size	D	B	L
8	8	12	20-50	16	16	24	35-70
10	10	14	20-65	18	18	26	45-70
12	12	18	25-65	20	20	30	45-75
14	14	20	35-65	22	22	32	50-80

Guide of How to Order

CODE **69 68 04**
Name ..... Toggle pin
Type ..... A
Material ..... Brass
Nominal Size ..... 12 mm
Length ..... 30 mm

Cup Hooks, Brass

Alcayatas Abiertas Latonadas
真鍮カップフック　铜帽挂钩

Made of solid brass to assure a rigid made hook.



Unit Per Set

CODE	No.	Length	CODE	No.	Length
69 66 01	13	16 mm	**69 66 06**	9	32 mm
02	12	20 mm	**07**	8	38 mm
03	12	22 mm	**08**	7	45 mm
04	11	25 mm	**09**	7	50 mm
05	10	28 mm			

Screw Hooks, Brass

Tornillo de ganchos, Latón
真鍮 L 型フック　铜 L 型挂钩

Made of solid brass.



Unit Per Pc.

CODE	No.	Length	CODE	No.	Length
69 66 21	13	16 mm	**69 66 26**	9	32 mm
22	12	20 mm	**27**	8	38 mm
23	12	22 mm	**28**	7	45 mm
24	11	25 mm	**29**	7	50 mm
25	10	28 mm			

Screw Eyes, Brass

Tornillo con anillo, Latón
丸フック　铜圆圈挂钩

Made of solid brass.

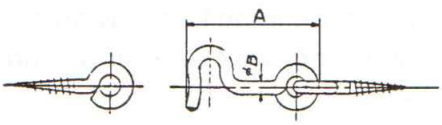


Unit Per Pc.

CODE	No.	Length	CODE	No.	Length
69 66 41	00	15 mm	**69 66 47**	10	40 mm
42	0	20 mm	**48**	12	45 mm
43	2	23 mm	**49**	14	50 mm
44	4	25 mm	**50**	16	60 mm
45	6	30 mm	**51**	18	65 mm
69 66 46	8	35 mm	**69 66 52**	20	75 mm

Gate Hooks & Eyes, Brass

Ganchos con Armella Cerrada Latonados
ゲートフックアイ　门钩和耳环



Unit Per Set

CODE	Size mm		CODE	Size mm	
	A	B		A	B
69 66 61	32	2.9	**69 66 64**	65	3.5
62	38	3.0	**65**	90	4.0
63	50	3.2			

Please don't confuse following
(1) (2) (3) (4) screws when ordering.

1. Hexagon Head Set Screw



2. Hexagon Socket Set Screw



3. Hexagon Socket Head Cap Screw



4. Hexagon Head Cap Screw-U.S.A. (Hexagon Head Bolt)



71
Pipes & Tubes

Steel Pipes  P. 71-1~5	Stainless Steel Pipes  P. 71-5~6
Copper Tubes  P. 71-7	Aluminium Tubes  P. 71-7~8
PVC Tubes  P. 71-8	

Carbon Steel Pipes for Ordinary Piping

Galvanized

Tuberías de Acero Carbono 配管用炭素鋼鋼管(白管) 普通镀锌钢管

Standard length: 5.5 mtrs.

Ref. JIS-G-3452 (SGP) standard industrial quality. SGP denotes Steel Gas Piping.



SGP

Equal to ASTM A53, BS1387, and DIN1615, and ISO65 quality. For general purpose use such as in steam lines, water and gas piping, etc.

How to order: CODE

Pipe, carbon steel, galvanized, NOMINAL SIZE, LENGTH mtr

Unit Per Lgh.

Galvanized
Standard Length 5.5 mtrs

CODE	Nominal Size		Size mm		Kg Per Mtr
	A	B	O.D.	Wall T	
71 01 01	6A	1/8	10.5	2.0	0.419
02	8A	1/4	13.8	2.3	0.652
03	10A	3/8	17.3	2.3	0.851
04	15A	1/2	21.7	2.8	1.310
05	20A	3/4	27.2	2.8	1.680
71 01 06	25A	1	34.0	3.2	2.430
07	32A	1-1/4	42.7	3.5	3.380
08	40A	1-1/2	48.6	3.5	3.890
09	50A	2	60.5	3.8	5.310
10	65A	2-1/2	76.3	4.2	7.470
71 01 11	80A	3	89.1	4.2	8.790
12	90A	3-1/2	101.6	4.2	10.1
13	100A	4	114.3	4.5	12.2
14	125A	5	139.8	4.5	15.0
15	150A	6	165.2	5.0	19.8
71 01 16	175A	7	190.7	5.3	24.2
17	200A	8	216.3	5.8	30.1
18	225A	9	241.8	6.2	36.0
19	250A	10	267.4	6.6	42.4
20	300A	12	318.5	6.9	53.0
71 01 21	350A	14	355.6	7.9	67.7
22	400A	16	406.4	7.9	77.6
23	450A	18	457.2	7.9	87.5
24	500A	20	508.0	7.9	97.4

Carbon Steel Pipes for Ordinary Piping

Ungalvanized

Tuberías de Acero Carbono para Servicio Ordinario (Sin Galcanizar)
配管用炭素鋼鋼管（黒管） 普通碳钢黑管

Standard length: 5.5 mtrs.

Exactly the same specifications as described above but ungalvanized.



SGP

How to order: CODE

Pipe, carbon steel, ungalvanized, NOMINAL SIZE, LENGTH mtr

Unit Per Lgh.

Black or Ungalvanized
Standard Length 5.5 mtrs

CODE	Nominal Size		Size mm		Kg Per Mtr
	A	B	O.D.	Wall T	
71 01 51	6A	1/8	10.5	2.0	0.419
52	8A	1/4	13.8	2.3	0.652
53	10A	3/8	17.3	2.3	0.851
54	15A	1/2	21.7	2.8	1.310
55	20A	3/4	27.2	2.8	1.680
71 01 56	25A	1	34.0	3.2	2.430
57	32A	1-1/4	42.7	3.5	3.380
58	40A	1-1/2	48.6	3.5	3.890
59	50A	2	60.5	3.8	5.310
60	65A	2-1/2	76.3	4.2	7.470
71 01 61	80A	3	89.1	4.2	8.790
62	90A	3-1/2	101.6	4.2	10.1
63	100A	4	114.3	4.5	12.2
64	125A	5	139.8	4.5	15.0
65	150A	6	165.2	5.0	19.8
71 01 66	175A	7	190.7	5.3	24.2
67	200A	8	216.3	5.8	30.1
68	225A	9	241.8	6.2	36.0
69	250A	10	267.4	6.6	42.4
70	300A	12	318.5	6.9	53.0
71 01 71	350A	14	355.6	7.9	67.7
72	400A	16	406.4	7.9	77.6
73	450A	18	457.2	7.9	87.5
74	500A	20	508.0	7.9	97.4

Carbon Steel Pipes

for Pressure Services

Tuberías de Acero Carbono para Servicio de Presión
圧力配管用炭素鋼鋼管 碳钢管

Standard length: 5.5 mtrs.

Ref. JIS-G-3454 (STPG-370) standard industrial quality. STPG denotes Steel Tube Piping General.

Equal quality to ASTM A135/A53 or DIN1626/1629 and ISO2604. Both ends are plain ends. Available in black only. Two types of electric resistant welding (ERW) and seamless pipes are available. Most common schedule (Wall Thickness) Number 40 and 80 are listed below.



STPG

ERW (Electric Resistant Welding) Pipes

How to order: CODE

Pipe, carbon steel for pressure service, ERW, SCHEDULE NO., NOMINAL SIZE, Length mtr

Unit Per Lgh.

ERW Schedule-40
Standard Length 5.5 mtrs

CODE	Nominal Size		Size mm		Test Pressure MPa	Kg Per Mtr
	A	B	O.D.	Wall T		
71 02 01	6A	1/8	10.5	1.7	6.0	0.369
02	8A	1/4	13.8	2.2	"	0.629
03	10A	3/8	17.3	2.3	"	0.851
04	15A	1/2	21.7	2.8	"	1.31
05	20A	3/4	27.2	2.9	"	1.74
71 02 06	25A	1	34.0	3.4	6.0	2.57
07	32A	1-1/4	42.7	3.6	"	3.47
08	40A	1-1/2	48.6	3.7	"	4.10
09	50A	2	60.5	3.9	"	5.44
10	65A	2-1/2	76.3	5.2	"	9.12
71 02 11	80A	3	89.1	5.5	6.0	11.3
12	90A	3-1/2	101.6	5.7	"	13.5
13	100A	4	114.3	6.0	"	16.0
14	125A	5	139.8	6.6	"	21.7
15	150A	6	165.2	7.1	"	27.7
71 02 16	200A	8	216.3	8.2	6.0	42.1
17	250A	10	267.4	9.3	"	59.2
18	300A	12	318.5	10.3	"	78.3
19	350A	14	355.6	11.1	"	94.3
20	400A	16	406.4	12.7	"	123
71 02 21	450A	18	457.2	14.3	6.0	156
22	500A	20	508.0	15.1	"	184

(to be continued)

(to be continued)

Unit Per Lgh.

ERW Schedule-80
Standard Length 5.5 mtrs

CODE	Nominal Size		Size mm		Test Pressure MPa	Kg Per Mtr
	A	B	O.D.	Wall T		
71 02 26	6A	1/8	10.5	2.4	12.0	0.479
27	8A	1/4	13.8	3.0	"	0.799
28	10A	3/8	17.3	3.2	"	1.11
29	15A	1/2	21.7	3.7	"	1.64
30	20A	3/4	27.2	3.9	"	2.24
71 02 31	25A	1	34.0	4.5	12.0	3.27
32	32A	1-1/4	42.7	4.9	"	4.57
33	40A	1-1/2	48.6	5.1	"	5.47
34	50A	2	60.5	5.5	"	7.46
35	65A	2-1/2	76.3	7.0	"	12.0
71 02 36	80A	3	89.1	7.6	12.0	15.3
37	90A	3-1/2	101.6	8.1	"	18.7
38	100A	4	114.3	8.6	"	22.4
39	125A	5	139.8	9.5	"	30.5
40	150A	6	165.2	11.0	"	41.8
71 02 41	200A	8	216.3	12.7	12.0	63.8
42	250A	10	267.4	15.1	"	93.9
43	300A	12	318.5	17.4	"	129
44	350A	14	355.6	19.0	"	158
45	400A	16	406.4	21.4	"	203
71 02 46	450A	18	457.2	23.8	12.0	254
47	500A	20	508.0	26.2	"	311

Seamless Pipes

How to order: CODE

Pipe, carbon steel for pressure service, seamless, SCHEDULE NO., NOMINAL SIZE, LENGTH mtr

Unit Per Lgh.

Seamless Schedule-40
Standard Length 5.5 mtrs

CODE	Nominal Size		Size mm		Test Pressure MPa	Kg Per Mtr
	A	B	O.D.	Wall T		
71 02 51	6A	1/8	10.5	1.7	6.0	0.369
52	8A	1/4	13.8	2.2	"	0.629
53	10A	3/8	17.3	2.3	"	0.851
54	15A	1/2	21.7	2.8	"	1.31
55	20A	3/4	27.2	2.9	"	1.74
71 02 56	25A	1	34.0	3.4	6.0	2.57
57	32A	1-1/4	42.7	3.6	"	3.47
58	40A	1-1/2	48.6	3.7	"	4.10
59	50A	2	60.5	3.9	"	5.44
60	65A	2-1/2	76.3	5.2	"	9.12
71 02 61	80A	3	89.1	5.5	6.0	11.3
62	90A	3-1/2	101.6	5.7	"	13.5
63	100A	4	114.3	6.0	"	16.0
64	125A	5	139.8	6.6	"	21.7
65	150A	6	165.2	7.1	"	27.7
71 02 66	200A	8	216.3	8.2	6.0	42.1
67	250A	10	267.4	9.3	"	59.2
68	300A	12	318.5	10.3	"	78.3
69	350A	14	355.6	11.1	"	94.3
70	400A	16	406.4	12.7	"	123
71 02 71	450A	18	457.2	14.3	6.0	156
72	500A	20	508.0	15.1	"	184

Seamless Schedule-80
Standard Length 5.5 mtrs

71 02 76	6A	1/8	10.5	2.4	12.0	0.479
77	8A	1/4	13.8	3.0	"	0.799
78	10A	3/8	17.3	3.2	"	1.11
79	15A	1/2	21.7	3.7	"	1.64
80	20A	3/4	27.2	3.9	"	2.24
71 02 81	25A	1	34.0	4.5	12.0	3.27
82	32A	1-1/4	42.7	4.9	"	4.57
83	40A	1-1/2	48.6	5.1	"	5.47
84	50A	2	60.5	5.5	"	7.46
85	65A	2-1/2	76.3	7.0	"	12.0
71 02 86	80A	3	89.1	7.6	12.0	15.3
87	90A	3-1/2	101.6	8.1	"	18.7
88	100A	4	114.3	8.6	"	22.4
89	125A	5	139.8	9.5	"	30.5
90	150A	6	165.2	11.0	"	41.8
71 02 91	200A	8	216.3	12.7	12.0	63.8
92	250A	10	267.4	15.1	"	93.9
93	300A	12	318.5	17.4	"	129
94	350A	14	355.6	19.0	"	158
95	400A	16	406.4	21.4	"	203
71 02 96	450A	18	457.2	23.8	12.0	254
97	500A	20	508.0	26.2	"	311

Carbon Steel Pipes

for High Pressure Service

Tuberías de Acero Carbono para Servicio de Alta Presión
高圧配管用炭素鋼鋼管　　碳钢管

Standard length: 5.5 mtrs.

Ref. JIS-G-3455 (STS-370) quality. STS denotes Steel Tube Special.

Equal quality to BS778, DIN1630, ISO2604. Plain both ends. Available in black only. Most common schedule (Wall Thickness) number 40, 80 and 160 are listed below. They are used for temperatures less than 350°C.



STS

How to order: CODE

Pipe, carbon steel for high pressure, NOMINAL SIZE, LENGTH mtr

Unit Per Lgh.

Schedule-40
Standard Length 5.5 mtrs

CODE	Nominal Size		Size mm		Test Pressure MPa	Kg Per Mtr
	A	B	O.D.	Wall T		
71 04 01	6A	1/8	10.5	1.7	6.0	0.369
02	8A	1/4	13.8	2.2	"	0.629
03	10A	3/8	17.3	2.3	"	0.851
04	15A	1/2	21.7	2.8	"	1.31
05	20A	3/4	27.2	2.9	"	1.74
71 04 06	25A	1	34.0	3.4	6.0	2.57
07	32A	1-1/4	42.7	3.6	"	3.47
08	40A	1-1/2	48.6	3.7	"	4.10
09	50A	2	60.5	3.9	"	5.44
10	65A	2-1/2	76.3	5.2	"	9.12
71 04 11	80A	3	89.1	5.5	6.0	11.3
12	90A	3-1/2	101.6	5.7	"	13.5
13	100A	4	114.3	6.0	"	16.0
14	125A	5	139.8	6.6	"	21.7
15	150A	6	165.2	7.1	"	27.7
71 04 16	200A	8	216.3	8.2	6.0	42.1
17	250A	10	267.4	9.3	"	59.2
18	300A	12	318.5	10.3	"	78.3
19	350A	14	355.6	11.1	"	94.3
20	400A	16	406.4	12.7	"	123
71 04 21	450A	18	457.2	14.3	6.0	156
22	500A	20	508.0	15.1	"	184

Schedule-80
Standard Length 5.5 mtrs

71 04 26	6A	1/8	10.5	2.4	12.0	0.479
27	8A	1/4	13.8	3.0	"	0.799
28	10A	3/8	17.3	3.2	"	1.11
29	15A	1/2	21.7	3.7	"	1.64
30	20A	3/4	27.2	3.9	"	2.24
71 04 31	25A	1	34.0	4.5	12.0	3.27
32	32A	1-1/4	42.7	4.9	"	4.57
33	40A	1-1/2	48.6	5.1	"	5.47
34	50A	2	60.5	5.5	"	7.46
35	65A	2-1/2	76.3	7.0	"	12.0

(to be continued)

Unit Per Lgh.

Schedule-80
Standard Length 5.5 mtrs

CODE	Nominal Size A	Nominal Size B	Size mm O.D.	Size mm Wall T	Test Pressure MPa	Kg Per Mtr
71 04 36	80A	3	89.1	7.6	12.0	15.3
37	90A	3-1/2	101.6	8.1	"	18.7
38	100A	4	114.3	8.6	"	22.4
39	125A	5	139.8	9.5	"	30.5
40	150A	6	165.2	11.0	"	41.8
71 04 41	200A	8	216.3	12.7	12.0	63.8
42	250A	10	267.4	15.1	"	93.9
43	300A	12	318.5	17.4	"	129
44	350A	14	355.6	19.0	"	158
45	400A	16	406.4	21.4	"	203
71 04 46	450A	18	457.2	23.8	12.0	254
47	500A	20	508.0	26.2	"	311

Schedule-160
Standard Length 5.5 mtrs

71 04 51	15A	1/2	21.7	4.7	20.0	1.97
52	20A	3/4	27.2	5.5	"	2.94
53	25A	1	34.0	6.4	"	4.36
54	32A	1-1/4	42.7	6.4	"	5.73
55	40A	1-1/2	48.6	7.1	"	7.27
71 04 56	50A	2	60.5	8.7	20.0	11.1
57	65A	2-1/2	76.3	9.5	"	15.6
58	80A	3	89.1	11.1	"	21.4
59	90A	3-1/2	101.6	12.7	"	27.8
60	100A	4	114.3	13.5	"	33.6
71 04 61	125A	5	139.8	15.9	20.0	48.6
62	150A	6	165.2	18.2	"	66.6
63	200A	8	216.3	23.0	"	110
64	250A	10	267.4	28.6	"	168
65	300A	12	318.5	33.3	"	234
71 04 66	350A	14	355.6	35.7	20.0	282
67	400A	16	406.4	40.5	"	365

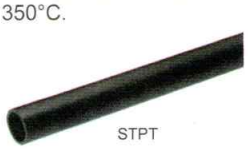
Carbon Steel Pipes

for High Temperature Service

Tuberías de Acero Carbono para Servicio de Alta Temperatura
高温配管用炭素鋼鋼管　碳钢管

Standard length: 5.5 mtrs.

Ref. JIS-G-3456 (STPT-370) standard industrial quality. STPT denotes Steel Tube Piping Temperature. Equal quality to ASTM A106, DIN17175, BS3602 and ISO2604. Available in black only. Most common schedule (Wall Thickness) number 40, 80 and 160 are listed below. They are used for temperatures over 350°C.



STPT

How to order: CODE

Pipe, carbon steel for high temperature service,SCHEDULE NO., NOMINAL SIZE, LENGTH mtr

Unit Per Lgh.

Schedule-40
Standard Length 5.5 mtrs

CODE	Nominal Size A	Nominal Size B	Size mm O.D.	Size mm Wall T	Kg Per Mtr
71 05 01	6A	1/8	10.5	1.7	0.369
02	8A	1/4	13.8	2.2	0.629
03	10A	3/8	17.3	2.3	0.851
04	15A	1/2	21.7	2.8	1.31
05	20A	3/4	27.2	2.9	1.74
71 05 06	25A	1	34.0	3.4	2.57
07	32A	1-1/4	42.7	3.6	3.47
08	40A	1-1/2	48.6	3.7	4.10
09	50A	2	60.5	3.9	5.44
10	65A	2-1/2	76.3	5.2	9.12

(to be continued)

71 05 11	80A	3	89.1	5.5	11.3
12	90A	3-1/2	101.6	5.7	13.5
13	100A	4	114.3	6.0	16.0
14	125A	5	139.8	6.6	21.7
15	150A	6	165.2	7.1	27.7
71 05 16	200A	8	216.3	8.2	42.1
17	250A	10	267.4	9.3	59.2
18	300A	12	318.5	10.3	78.3
19	350A	14	355.6	11.1	94.3
20	400A	16	406.4	12.7	123
71 05 21	450A	18	457.2	14.3	156
22	500A	20	508.0	15.1	184

Schedule-80
Standard Length 5.5 mtrs

71 05 26	6A	1/8	10.5	2.4	0.479
27	8A	1/4	13.8	3.0	0.799
28	10A	3/8	17.3	3.2	1.11
29	15A	1/2	21.7	3.7	1.64
30	20A	3/4	27.2	3.9	2.24
71 05 31	25A	1	34.0	4.5	3.27
32	32A	1-1/4	42.7	4.9	4.57
33	40A	1-1/2	48.6	5.1	5.47
34	50A	2	60.5	5.5	7.46
35	65A	2-1/2	76.3	7.0	12.0
71 05 36	80A	3	89.1	7.6	15.3
37	90A	3-1/2	101.6	8.1	18.7
38	100A	4	114.3	8.6	22.4
39	125A	5	139.8	9.5	30.5
40	150A	6	165.2	11.0	41.8
71 05 41	200A	8	216.3	12.7	63.8
42	250A	10	267.4	15.1	93.9
43	300A	12	318.5	17.4	129
44	350A	14	355.6	19.0	158
45	400A	16	406.4	21.4	203
71 05 46	450A	18	457.2	23.8	254
47	500A	20	508.0	26.2	311

Schedule-160
Standard Length 5.5 mtrs

71 05 51	15A	1/2	21.7	4.7	1.97
52	20A	3/4	27.2	5.5	2.94
53	25A	1	34.0	6.4	4.36
54	32A	1-1/4	42.7	6.4	5.73
55	40A	1-1/2	48.6	7.1	7.27
71 05 56	50A	2	60.5	8.7	11.1
57	65A	2-1/2	76.3	9.5	15.6
58	80A	3	89.1	11.1	21.4
59	90A	3-1/2	101.6	12.7	27.8
60	100A	4	114.3	13.5	33.6
71 05 61	125A	5	139.8	15.9	48.6
62	150A	6	165.2	18.2	66.6
63	200A	8	216.3	23.0	110
64	250A	10	267.4	28.6	168
65	300A	12	318.5	33.3	234
71 05 66	350A	14	355.6	35.7	282
67	400A	16	406.4	40.5	365

Steel Pipes

for Low Temperature Service

Tuberías de Acero para Servicio de Baja Temperatura
低温配管用鋼管　钢管

Standard length: 5.5 mtrs

Ref. JIS-G-3460 (STPL-380) quality. STPL denotes Steel Tube Piping Low. Equal quality of ASTM A333, BS3603, and ISO2604. Available in black only. Most common schedule (Wall Thickness) Number 40 and 80 are listed below. They are used for Temperatures below 0°C.



STPL

How to order: CODE

Pipe, steel for low temperature service, SCHEDULE NO., NOMINAL SIZE, LENGTH mtr

Unit Per Lgh.

Schedule-40
Standard Length 5.5 mtrs

CODE	Nominal Size A	Nominal Size B	Size mm O.D.	Size mm Wall T	Kg Per Mtr
71 06 01	6A	1/8	10.5	1.7	0.369
02	8A	1/4	13.8	2.2	0.629
03	10A	3/8	17.3	2.3	0.851
04	15A	1/2	21.7	2.8	1.31
05	20A	3/4	27.2	2.9	1.74
71 06 06	25A	1	34.0	3.4	2.57
07	32A	1-1/4	42.7	3.6	3.47
08	40A	1-1/2	48.6	3.7	4.10
09	50A	2	60.5	3.9	5.44
10	65A	2-1/2	76.3	5.2	9.12
71 06 11	80A	3	89.1	5.5	11.3
12	90A	3-1/2	101.6	5.7	13.5
13	100A	4	114.3	6.0	16.0
14	125A	5	139.8	6.6	21.7
15	150A	6	165.2	7.1	27.7
71 06 16	200A	8	216.3	8.2	42.1
17	250A	10	267.4	9.3	59.2
18	300A	12	318.5	10.3	78.3
19	350A	14	355.6	11.1	94.3
20	400A	16	406.4	12.7	123
71 06 21	450A	18	457.2	14.3	156
22	500A	20	508.0	15.1	184

Schedule-80
Standard Length 5.5 mtrs

71 06 26	6A	1/8	10.5	2.4	0.479
27	8A	1/4	13.8	3.0	0.799
28	10A	3/8	17.3	3.2	1.11
29	15A	1/2	21.7	3.7	1.64
30	20A	3/4	27.2	3.9	2.24
71 06 31	25A	1	34.0	4.5	3.27
32	32A	1-1/4	42.7	4.9	4.57
33	40A	1-1/2	48.6	5.1	5.47
34	50A	2	60.5	5.5	7.46
35	65A	2-1/2	76.3	7.0	12.0
71 06 36	80A	3	89.1	7.6	15.3
37	90A	3-1/2	101.6	8.1	18.7
38	100A	4	114.3	8.6	22.4
39	125A	5	139.8	9.5	30.5
40	150A	6	165.2	11.0	41.8
71 06 41	200A	8	216.3	12.7	63.8
42	250A	10	267.4	15.1	93.9
43	300A	12	318.5	17.4	129
44	350A	14	355.6	19.0	158
45	400A	16	406.4	21.4	203
71 06 46	450A	18	457.2	23.8	254
47	500A	20	508.0	26.2	311

Carbon Steel Precision Tubes

for Hydraulic Line Service

Tuberías de Presión de Acero para Servicio de Líea Hidráulica

油圧配管用精密炭素鋼鋼管　液压碳钢管



The carbon steel precision tubes for hydraulic line service are classed according to the working pressure, appropriate standard and manufacturing process. The most common classes of line service items are abstracted and listed below.

Name	Class of Working Pressure	Symbol of Standard	Manufacturing Process
Precision carbon steel tubes for hydraulic line service	Under 210 kgf/cm²	OST 2	SC
	Under 100 kgf/cm²	OST 1	S-C E-C

Standard length of pipe is 4 mtrs. and sold by weight.
When ordering, please specify the following points.
1. Working pressure　2. Outside diameter　3. Thickness

How to order: CODE

Pipe, carbon steel, OST - 2, OUTSIDE DIAM mm, THICKNESS mm, LENGTH mtr

OST-2 Standard Length 4 mtrs

Unit Per Lgh.

CODE	Outside Dia. mm	Thickness mm	CODE	Outside Dia. mm	Thickness mm
71 07 01	4	1.0	**71 07 19**	16	1.5
02	6	1.0	**20**	16	2.0
03	6	1.5	**21**	18	1.5
04	8	1.0	**22**	18	2.0
05	8	1.5	**23**	18	2.5
71 07 06	8	2.0	**71 07 24**	20	2.0
07	10	1.0	**25**	20	2.5
08	10	1.2	**26**	20	3.0
09	10	1.5	**27**	22	2.0
10	10	2.0	**28**	22	3.0
71 07 11	12	1.0	**71 07 29**	25	2.0
12	12	1.2	**30**	25	2.5
13	12	1.5	**31**	25	3.0
14	12	2.0	**32**	28	2.5
15	15	1.2	**33**	30	2.5
71 07 16	15	1.5	**71 07 34**	35	2.5
17	15	2.0	**35**	35	4.0
18	15	2.5	**36**	42	4.0

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Available size range normally produced are as follows.

Wall thickness (mm)	Standard dimension	0.5	1.0	1.2	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	7.0
	Tolerance	±15%				±10%									
Outside diameter (mm)															
Standard dimension	Tolerance														
4.0	±0.10	o △	o ◊												
6.0		△	o ◊		o ◊										
8.0		△	o ◊		o ◊										
10.0		△	o ◊		o ◊	o ◊									
12.0			o ◊		o ◊		o ◊								
13.8															
15.0					o		o								
16.0					◊	◊		◊							
17.3															
18.0					o		o	o							
20.0					◊	◊	◊		◊						
21.7															
22.0						o		o		o					
25.0						o		o			o				
27.2	±0.15														
28.0						o	o		o			o			
30.0						◊	◊		◊				◊		
34.0															
35.0						o	o	o			o				
38.0									◊						◊

Notes: 1) Boxed columns ▭ indicates range of dimensions of tubes normally manufactured.
2) Mark o standard dimensions specified in Japan Oil Hydraulic Association Standards (OST).
3) Mark ◊ standard dimensions specified in Japanese Industrial Standards (JIS B STPS).
4) Mark △ standard dimensions of soft iron tubes.

Stainless Steel Pipes

Tuberías de Acero - inoxidable　配管用ステンレス鋼鋼管　不锈钢管

Standard length: 4 mtrs.

Ref. JIS-G-3459 (SUS 304 TP) standard industrial quality. SUS TP denotes Steel Use Stainless Tube Piping. Equal quality of ASTM A312, BS3605.

Used for corrosion proof, heat-resistance and high temperature service.



SUS-TP-8P

Hydraulic Test Pressure

Schedule No.	5	10	20	40	80	160
MPa	1.5	2.0	3.5	6.0	12	20
kgf/cm²	15	20	35	60	120	200
Bar	15	20	34	59	118	196

How to order: CODE

Stainless steel pipe, SCHEDULE NO., NOMINAL SIZE, LENGTH mtr

Unit Per Lgh.

Schedule-5
Standard Length 4 mtrs

CODE	Nominal Size A	Nominal Size B	Size mm O.D.	Size mm Wall T	Kg Per Mtr
71 10 01	6A	1/8	10.5	1.0	0.237
02	8A	1/4	13.8	1.2	0.377
03	10A	3/8	17.3	1.2	0.481
04	15A	1/2	21.7	1.65	0.824
05	20A	3/4	27.2	1.65	1.05
71 10 06	25A	1	34.0	1.65	1.33
07	32A	1-1/4	42.7	1.65	1.69
08	40A	1-1/2	48.6	1.65	1.93
09	50A	2	60.5	1.65	2.42
10	65A	2-1/2	76.3	2.1	3.88
71 10 11	80A	3	89.1	2.1	4.55
12	90A	3-1/2	101.6	2.1	5.20
13	100A	4	114.3	2.1	5.87
14	125A	5	139.8	2.8	9.56
15	150A	6	165.2	2.8	11.3
71 10 16	200A	8	216.3	2.8	14.9
17	250A	10	267.4	3.4	22.4
18	300A	12	318.5	4.0	31.3

(to be continued)

Unit Per Lgh.

CODE	Nominal Size A	Nominal Size B	Size mm O.D.	Size mm Wall T	Kg Per Mtr
Schedule-5 Standard Length 4 mtrs					
Schedule-10 Standard Length 4 mtrs					
71 10 26	6A	1/8	10.5	1.2	0.278
27	8A	1/4	13.8	1.65	0.499
28	10A	3/8	17.3	1.65	0.643
29	15A	1/2	21.7	2.1	1.03
30	20A	3/4	27.2	2.1	1.31
71 10 31	25A	1	34.0	2.8	2.18
32	32A	1-1/4	42.7	2.8	2.78
33	40A	1-1/2	48.6	2.8	3.19
34	50A	2	60.5	2.8	4.02
35	65A	2-1/2	76.3	3.0	5.48
71 10 36	80A	3	89.1	3.0	6.43
37	90A	3-1/2	101.6	3.0	7.37
38	100A	4	114.3	3.0	8.32
39	125A	5	139.8	3.4	11.6
40	150A	6	165.2	3.4	13.7
71 10 41	200A	8	216.3	4.0	21.2
42	250A	10	267.4	4.0	26.2
43	300A	12	318.5	4.5	35.2
Schedule-20 Standard Length 4 mtrs					
71 10 51	6A	1/8	10.5	1.5	0.336
52	8A	1/4	13.8	2.0	0.588
53	10A	3/8	17.3	2.0	0.762
54	15A	1/2	21.7	2.5	1.20
55	20A	3/4	27.2	2.5	1.54
71 10 56	25A	1	34.0	3.0	2.32
57	32A	1-1/4	42.7	3.0	2.97
58	40A	1-1/2	48.6	3.0	3.41
59	50A	2	60.5	3.5	4.97
60	65A	2-1/2	76.3	3.5	6.35
71 10 61	80A	3	89.1	4.0	8.48
62	90A	3-1/2	101.6	4.0	9.72
63	100A	4	114.3	4.0	11.0
64	125A	5	139.8	5.0	16.8
65	150A	6	165.2	5.0	20.0
71 10 66	200A	8	216.3	6.5	34.0
67	250A	10	267.4	6.5	42.2
68	300A	12	318.5	6.5	50.5
Schedule-40 Standard Length 4 mtrs					
71 10 76	6A	1/8	10.5	1.7	0.373
77	8A	1/4	13.8	2.2	0.636
78	10A	3/8	17.3	2.3	0.859
79	15A	1/2	21.7	2.8	1.32
80	20A	3/4	27.2	2.9	1.76
71 10 81	25A	1	34.0	3.4	2.59
82	32A	1-1/4	42.7	3.6	3.51
83	40A	1-1/2	48.6	3.7	4.14
84	50A	2	60.5	3.9	5.50
85	65A	2-1/2	76.3	5.2	9.21
71 10 86	80A	3	89.1	5.5	11.5
87	90A	3-1/2	101.6	5.7	13.6
88	100A	4	114.3	6.0	16.2
89	125A	5	139.8	6.6	21.9
90	150A	6	165.2	7.1	28.0
71 10 91	200A	8	216.3	8.2	42.5
92	250A	10	267.4	9.3	59.8
93	300A	12	318.5	10.3	79.1
Schedule-80 Standard Length 4 mtrs					
71 11 01	6A	1/8	10.5	2.4	0.484
02	8A	1/4	13.8	3.0	0.807
03	10A	3/8	17.3	3.2	1.12
04	15A	1/2	21.7	3.7	1.66
05	20A	3/4	27.2	3.9	2.26
71 11 06	25A	1	34.0	4.5	3.31
07	32A	1-1/4	42.7	4.9	4.61
08	40A	1-1/2	48.6	5.1	5.53
09	50A	2	60.5	5.5	7.54
10	65A	2-1/2	76.3	7.0	12.1
71 11 11	80A	3	89.1	7.6	15.4
12	90A	3-1/2	101.6	8.1	18.9
13	100A	4	114.3	8.6	22.6
14	125A	5	139.8	9.5	30.8
15	150A	6	165.2	11.0	42.3
71 11 16	200A	8	216.3	12.7	64.4
17	250A	10	267.4	15.1	94.9
18	300A	12	318.5	17.4	131
Schedule-120 Standard Length 4 mtrs					
71 11 26	100A	4	114.3	11.1	28.5
27	125A	5	139.8	12.7	40.2
28	150A	6	165.2	14.3	53.8
29	200A	8	216.3	18.2	89.8
30	250A	10	267.4	21.4	131
71 11 31	300A	12	318.5	25.4	185
Schedule-160 Standard Length 4 mtrs					
71 11 51	15A	1/2	21.7	4.7	1.99
52	20A	3/4	27.2	5.5	2.97
53	25A	1	34.0	6.4	4.40
54	32A	1-1/4	42.7	6.4	5.79
55	40A	1-1/2	48.6	7.1	7.34
71 11 56	50A	2	60.5	8.7	11.2
57	75A	2-1/2	76.3	9.5	15.8
58	80A	3	89.1	11.1	21.6
59	90A	3-1/2	101.6	12.7	28.1
60	100A	4	114.3	13.5	33.9
71 11 61	125A	5	139.8	15.9	49.1
62	150A	6	165.2	18.2	66.6
63	200A	8	216.3	23.0	111
64	250A	10	267.4	28.6	170
65	300A	12	318.5	33.3	237

(to be continued)

Stainless Steel Seamless Tubes

Tubos sin Costura de Acero Inoxidable

ステンレス継目無チューブ　不锈钢无缝钢管

Seamless stainless steel tube of SUS 304 TPS-C. For use in general services and tube fittings. Sold by weight at random lengths.



How to order: CODE

Stainless steel tube, seamless, OUTER DIAM mm, THICKNESS mm, LENGTH mtr

Unit Per Kgs.

CODE Unit in Kg	CODE Unit in mtr	O.D. mm	Thickness mm	Wt. Kg Per Meter
71 12 01	**71 12 21**	6	1	0.125
02	**22**		1.5	0.168
03	**23**	8	1	0.174
04	**24**		1.5	0.243
05	**25**	10	1	0.224
71 12 06	**71 12 26**		1.5	0.318
07	**27**	12	1	0.274
08	**28**		1.5	0.392
09	**29**	15	1	0.349
10	**30**		1.5	0.504
71 12 11	**71 12 31**	16	1	0.374
12	**32**		1.5	0.542
13	**33**	18	1	0.423
14	**34**		1.5	0.617
71 12 15	**71 12 35**	20	1	0.473
16	**36**		1.5	0.691
17	**37**	22	1	0.523
18	**38**		1.5	0.766
19	**39**	25	1	0.598
20	**40**		1.5	0.878

Copper Tubes, Seamless

Tubo de Cobre, SinvCostura　継目無銅管　无缝铜管

Standard length: 5 mtrs.

Ref. JIS-H-3300 (C 1220) standard industrial quality. Drawn from solid copper and used for general plumbing, steam piping, etc. Furnished in straight 5 mtr length.



How to order: CODE

Copper tube, seamless, OUTER DIAM mm, THICKNESS mm, LENGTH mtr

Unit Per Lgh.

CODE	Size mm O.D.	Size mm T	Kg Per Mtr
71 14 01	5	0.6	0.0737
71 14 02	6	0.6	0.0905
03		0.8	0.116
04		1	0.140
71 14 05	6.4	0.6	0.0972
06		0.8	0.125
07		1	0.151
71 14 08	8	0.6	0.124
09		0.8	0.161
10		1	0.196
11		1.2	0.228
71 14 12	9.5	0.8	0.194
13		1	0.237
14		1.2	0.278
71 14 15	10	0.8	0.206
16		1	0.251
17		1.2	0.295
71 14 18	12	0.8	0.250
19		1	0.307
20		1.2	0.362
21		1.5	0440
71 14 22	12.7	0.8	0.266
23		1	0.327
24		1.2	0.385
25		1.5	0.469
71 14 26	14	0.8	0.295
27		1	0.363
28		1.2	0.429
71 14 29	15	0.8	0.317
30		1	0.391
31		1.2	0.463
32		1.5	0.566
71 14 33	15.9	0.8	0.317
34		1	0.391
35		1.2	0.463
36		1.5	0.566
71 14 37	16	0.8	0.340
38		1	0.419
39		1.2	0.496

CODE	Size mm O.D.	Size mm T	Kg Per Mtr
71 14 40	18	0.8	0.384
41		1	0.475
42		1.2	0.563
71 14 43	19	0.8	0.407
44		1	0.503
45		1.2	0.597
46		1.5	0.733
47		2	0.950
71 14 48	20	1	0.531
49		1.2	0.630
71 14 50	22	1	0.587
51		1.2	0.697
52		1.5	0.859
71 14 53	22.2	1	0.592
54		1.2	0.704
55		1.5	0.867
71 14 56	25	1	0.670
57		1.2	0.798
58		2	1.28
71 14 59	25.4	1	0.681
60		1.2	0.811
61		1.5	1.00
62		2	1.31
71 14 63	28	1	0.754
64		1.2	0.898
71 14 65	31.8	1	0.860
66		1.2	1.03
67		1.5	1.27
71 14 68	32	1	0.866
69		1.2	1.03
71 14 70	35	1	0.950
71 14 71	38.1	1	1.04
72		1.2	1.24
71 14 73	45	2	2.40
74	50	2	2.68
75	50.8	2	2.73

Copper Tubes, Annealed Seamless
(for Piping Refrigerating Systems)

Tubos de Cobre, Sin Costura Recocido　ナマシ銅管　无缝紫铜盘管

Standard length: 10 or 20 mtrs.

Seamless and flexible tubes. Can be bent, coiled or shaped as required for installation. Tube ends can be flanged and fitted easily for any requirement.



How to order: CODE

Copper tube, annealed, OUTER DIAM mm, THICKNESS mm, LENGTH mtr

Unit Per Mtr

CODE	Out Diameter mm	Out Diameter in	Wall Thickness mm	Kg Per Mtr
71 15 01	5		1.0	0.12
02	6		1.0	0.14
03	6.35	1/4	1.0	0.15
04	8		1.0	0.2
05	9.52	3/8	1.0	0.24
71 15 06	10		1.0	0.26
07	12		1.0	0.31
08	12.7	1/2	1.0	0.33
09	15.87	5/8	1.0	0.42
10	19.05	3/4	1.0	0.51

Aluminium Tubes, Welded

Tubos de Aluminio, Soldados　アルミ溶接管　铝焊接管

Standard length: 5 mtrs.

Ref. JIS-H-4090 (1050) standard industrial quality. There are for the same tube diameter several different wall thicknesses available.



How to order: CODE

Aluminium tube, welded, OUTER DIAM mm, THICKNESS mm, LENGTH mtr

Unit Per Lgh.

CODE	Out Diam mm	Thick-ness mm	Kg Per Mtr
71 16 01	6	1.0	0.043
71 16 02	8	1.0	0.060
03		1.6	0.088
71 16 04	10	1.0	0.077
05		1.6	0.114
06		2.0	0.136
71 15 07	12	1.0	0.094
08		1.6	0.142
09		2.0	0.171
71 16 10	14	1.0	0.111
11		1.6	0.170
12		2.0	0.205
71 16 13	15	1.0	0.120
14		1.6	0.183
15		2.0	0.221
71 16 16	16	1.0	0.128
17		1.6	0.196
18		2.0	0.238
19		2.5	0.287

CODE	Out Diam mm	Thick-ness mm	Kg Per Mtr
71 16 20	18	1.0	0.145
21		1.6	0.223
22		2.0	0.272
23		2.5	0.330
71 16 24	20	1.0	0.162
25		1.6	0.251
26		2.0	0.307
27		2.5	0.372
71 16 28	22	1.0	0.179
29		1.6	0.278
30		2.0	0.340
31		2.5	0.415
71 16 32	25	1.0	0.204
33		1.6	0.319
34		2.0	0.392
35		2.5	0.478
71 16 36	30	1.0	0.247
37		1.6	0.387
38		2.0	0.476
39		2.5	0.586
40		3.0	0.690

Aluminium Brass Tubes

for Condensers and Heat Exchangers

(Ref. JIS H 3300 C6872T)

Tubos de Aluminio y de Latón para Condensadores e Intercambiadores Térmicos

アルブラ管　铝铜合金（公制）

Newly developed high corrosion resistant aluminium brass material for use in condenser and heat exchanger tubes.

"ALUMIBRASS" added Ni to the ordinary contents of the so-called standard alumi brass. These tubes are used most often for various equipment in marine service including not only condensers, various heat exchangers and the heating coils, but also seawater conduits. In the case of ships, as seawater is used for cooling water, most tubes are made of alumi brass because of the very good results.

The standard sizes of the tubes are shown below. Specify size when ordering. These tubes are sold by weight.



Maximum Length & Weight

Class	Outside Diameter			
	< 20Φ	20 - 60Φ	60.1 - 90Φ	> 90Φ
Length	40 m Max	25 m Max	10 m Max	6 m Max
Weight	60 Kg "	60 Kg "	50 Kg "	80 Kg "

How to order: CODE

Alumi brass tube, NOMINAL SIZE, OUT DIAM mm, THICKNESS mm, LENGTH mtr

Metric Size

Unit Per Kg.

CODE		Nominal Size A	O.D. mm	Thickness mm	Kg Per Mtr
Unit in Kg	Unit in mtr				
71 17 01	**71 17 21**	15	20	1.0	0.50
02	**22**	20	25	1.5	0.98
03	**23**	25	30	1.5	1.12
04	**24**	32	38	1.5	1.43
05	**25**	40	44.5	1.5	1.69
71 17 06	**71 17 26**	50	57	1.5	2.18

Inch Converted Metric Size

Unit Per Kg.

CODE		Nominal Size A	O.D. mm	Thickness mm	Kg Per Mtr
Unit in Kg	Unit in mtr				
71 17 11	**71 17 31**	15	15.13	1.21	0.45
12	**32**	20	21.48	1.21	0.65
13	**33**	25	28.24	1.42	1.00
14	**34**	32	34.59	1.42	1.24
15	**35**	40	40.94	1.42	1.48
71 17 16	**71 17 36**	50	54.05	1.62	2.24

Remark: 1. For delivery, please allow extra time.
2. Besides above, other sizes are also available.

PVC Plastic Tubes

Tubos de Plástico PVC　硬質塩化ビニールパイプ　PVC塑料管

Standard length: 4 mtrs.

Used for interior plumbing and also for soil, waste and vent lines and drainage systems. Applicable also for chemical liquids. Ref. JIS K-6741 (VP) standard industrial quality.



How to order: CODE

Tube, PVC plastic, OUTER DIAM mm, INSIDE DIAM mm, LENGTH mtr

Unit Per Lgh.

CODE	Size mm	Diameter mm		Thickness mm	Kg Per 4 Mtrs
		O.D.	I.D.		
71 18 01	13	18	13	2.2	0.70
02	16	22	16	2.7	1.02
03	20	26	20	2.7	1.24
04	25	32	25	3.1	1.79
05	30	38	31	3.1	2.17
71 18 06	40	48	40	3.6	3.16
07	50	60	51	4.1	4.49
08	75	89	77.4	5.5	8.81
09	100	114	100	6.6	13.64

Symbol	Abbreviation
SGP	S: Steel G: Gas P: Piping
SGPW	S: Steel G: Gas P: Piping W: Water
STB	S: Steel T: Tube B: Boiler
STBA	S: Steel T: Tube B: Boiler A: Alloy
STBL	S: Steel T: Tube B: Boiler L: Low Temperature
STH	S: Steel T: Tube H: High Pressure
STK	S: Steel T: Tube K:
STKM	S: Steel T: Tube K: M: Machine
STKS	S: Steel T: Tube K: S: Special
STKR	S: Steel T: Tube K: R: Rectangular
STL	S: Steel T: Tube L: Locomotive
STM	S: Steel T: Tube M: Mining
	C: Core or Casing R: Boring Rod
STO	S: Steel T: Tube O: Oil
STPA	S: Steel T: Tube P: Piping A: Alloy
STPG	S: Steel T: Tube P: Piping G: General
STPL	S: Steel T: Tube P: Piping L: Low
STPT	S: Steel T: Tube P: Piping T: Temperature
STPY	S: Steel T: Tube P: Piping Y:
STS	S: Steel T: Tube S: Special
SUS-TP	S: Steel U: Use S: Stainless T: Tube P: Piping
SUS-TB	S: Steel U: Use S: Stainless T: Tube B: Boiler

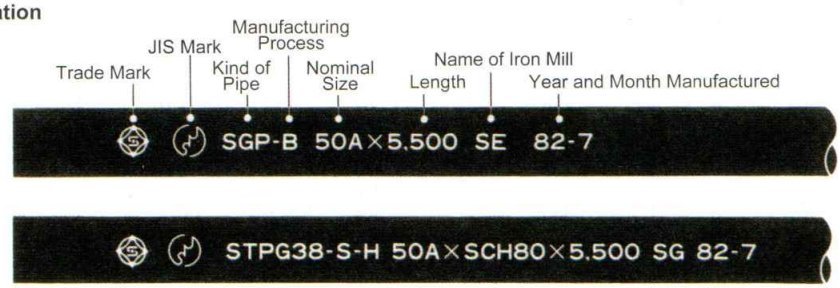
Dimensions of Welded and Seamless Steel Pipe (ANSI/ASME B36.10M)

Nominal Pipe Size	Outside Diameter inch	Schedule 40		Schedule 80		Schedule 120		Schedule 160	
		inch	mm	inch	mm	inch	mm	inch	mm
1/8	0.405	0.068	1.7	0.095	2.4	...	...	...	...
1/4	0.540	0.088	2.2	0.119	3.0	...	...	...	...
3/8	0.675	0.091	2.3	0.126	3.2	...	...	...	...
1/2	0.840	0.109	2.8	0.147	3.7	...	...	0.188	4.8
3/4	1.050	0.113	2.9	0.154	3.9	...	...	0.219	5.6
1	1.315	0.133	3.4	0.179	4.5	...	...	0.250	6.4
1-1/4	1.660	0.140	3.6	0.191	4.9	...	...	0.250	6.4
1-1/2	1.900	0.145	3.7	0.200	5.1	...	...	0.281	7.1
2	2.375	0.154	3.9	0.218	5.5	...	...	0.344	8.7
2-1/2	2.875	0.203	5.2	0.276	7.0	...	...	0.375	9.5
3	3.500	0.216	5.5	0.300	7.6	...	...	0.438	11.1
3-1/2	4.000	0.226	5.7	0.318	8.1	...	...	...	...
4	4.500	0.237	6.0	0.337	8.6	0.438	11.1	0.531	13.5
5	5.563	0.258	6.6	0.375	9.5	0.500	12.7	0.625	15.9
6	6.625	0.280	7.1	0.432	11.0	0.562	14.3	0.719	18.3
8	8.625	0.322	8.2	0.500	12.7	0.719	18.3	0.906	23.0
10	10.750	0.365	9.3	0.594	15.1	0.844	21.4	1.125	28.6
12	12.750	0.406	10.3	0.688	17.5	1.000	25.4	1.312	33.3
14	14.000	0.438	11.1	0.750	19.1	1.094	27.8	1.406	35.7
16	16.000	0.500	12.7	0.844	21.4	1.219	31.0	1.594	40.5
18	18.000	0.562	14.3	0.938	...	1.375	...	1.781	...

JIS ASTM Carbon Steel Pipe Outside Diameter Comparison and Actual Wall Thickness by Schedule Number

Nom. Size		Actual OD mm		Actual Wall Thickness by Schedule Numbers mm.									
A	B	JIS	ASTM	10	20	30	40	60	80	100	120	140	160
6	1/8	10.5	10.3				1.7	2.2	2.4				
8	1/4	13.8	13.7				2.2	2.4	3.0				
10	3/8	17.3	17.1				2.3	2.8	3.2				
15	1/2	21.7	21.3				2.8	3.2	3.7				4.7
20	3/4	27.2	26.7				2.9	3.4	3.9				5.5
25	1	34.0	33.4				3.4	3.9	4.5				6.4
32	1-1/4	42.7	42.2				3.6	4.5	4.9				6.4
40	1-1/2	48.6	48.3				3.7	4.5	5.1				7.1
50	2	60.5	60.3		3.2		3.9	4.9	5.5				8.7
65	2-1/2	76.3	73.0		4.5		5.2	6.0	7.0				9.5
80	3	89.1	88.9		4.5		5.5	6.6	7.6				11.1
90	3-1/2	101.6	101.6		4.5		5.7	7.0	8.1				12.7
100	4	114.3	114.3		4.9		6.0	7.1	8.6		11.1		13.5
125	5	139.8	141.3		5.1		6.6	8.1	9.5		12.7		15.9
150	6	165.2	168.3		5.5		7.1	9.3	11.0		14.3		18.2
200	8	216.3	219.1		6.4	7.0	8.2	10.3	12.7	15.1	18.2	20.6	23.0
250	10	267.4	273.1		6.4	7.8	9.3	12.7	15.1	18.2	21.4	25.4	28.6
300	12	318.5	323.9		6.4	8.4	10.3	14.3	17.4	21.4	25.4	28.6	33.3
350	14	355.6	355.6	6.4	7.9	9.5	11.1	15.1	19.0	23.8	27.8	31.8	35.7
400	16	406.4	406.4	6.4	7.9	9.5	12.7	16.7	21.4	26.2	30.9	36.5	40.5
450	18	457.2	457.2	6.4	7.9	11.1	14.3	19.0	23.8	29.4	34.9	39.7	45.2
500	20	508.0		6.4	9.5	12.7	15.1	20.6	26.2	32.5	38.1	44.4	50.0

Steel Pipe Indication



Metric Carbon Steel Tubing for Hydraulic and Pneumatic Applications

DIN 2391

O.D. mm	Wall Thick mm	Working Pressure Bar*	Proof Pressure Bar*	Burst Pressure Bar*	Kg per Meter
6	1	377	558	1,320	0.12
	1.5	564	792	1,584	0.17
	2	644	966	1,932	0.19
8	1	282	430	953	0.17
	1.5	424	619	1,514	0.24
	2	565	792	2,145	0.30
10	1	239	370	746	0.22
	1.5	359	538	1,170	0.31
	2	479	694	1,634	0.39
12	1	199	308	612	0.27
	1.5	299	455	953	0.39
	2	399	591	1,320	0.49
14	1.5	256	394	804	0.46
	2	342	514	1,107	0.58
	2.5	403	604	1,209	0.71
15	1	129	194	388	0.35
	1.5	239	370	746	0.50
	2	319	483	1,024	0.64
	2.5	376	564	1,128	0.78
16	1	121	182	363	0.36
	1.5	224	347	695	0.54
	2	299	455	953	0.69
	2.5	374	558	1,225	0.83
	3	449	656	1,514	0.96
18	1	107	161	321	0.41
	1.5	199	308	612	0.61
	2	266	408	837	0.79
	2.5	313	469	939	0.96
	3	399	591	1,320	1.11
20	1.5	179	277	547	0.68
	2	239	370	746	0.89
	2.5	299	455	953	1.08
	3	359	538	1,170	1.26
	4	479	694	1,634	1.58
22	1.5	163	252	495	0.76
	2	217	336	673	0.99
	2.5	272	417	858	1.20
	3	326	493	1,050	1.41
25	2	191	296	586	1.13
	2.5	239	370	746	1.39
	3	287	438	911	1.63
	4	399	595	1,259	2.07
28	1.5	128	198	384	0.98
	2	171	264	520	1.28
	2.5	201	301	603	1.57
	3	256	394	804	1.85
	4	302	453	906	2.37
30	2	159	246	483	1.38
	2.5	199	308	612	1.70
	3	239	370	746	2.00
	4	333	504	1,024	2.57
	5	416	617	1,320	3.08
35	2	142	220	411	1.63
	2.5	178	275	520	2.00
	3	214	331	631	2.37
	4	322	463	966	3.06
	5	403	604	1,209	3.70
38	2.5	164	254	476	2.19
	3	197	305	578	2.59
	4	263	405	789	3.35
	5	328	498	1,009	4.07
42	2	119	183	339	1.97
	3	171	264	520	2.89
	4	238	367	707	3.75
	5	297	454	903	4.56
50	5	249	386	746	5.55
	6	299	457	911	6.51
60	6	249	386	746	7.99
	8	333	504	1,024	10.26

Note : *Admissible working pressure according to DIN 2413
Type : Seamless cold drawn high pressure steel tubes
Material : Steel ST 35.4 DIN 2391

Metric Stainless Steel Tubing

ASTM A269

O.D. mm	Wall Thick mm	Working Pressure Bar*	Kg per 100 Meter	Kg per Meter
6	1	470	12.30	0.12
	1.5	705	16.70	0.16
8	1	352	17.30	0.17
	1.5	529	24.00	0.24
	2	705	29.60	0.29
10	1	282	22.20	0.22
	1.5	423	31.40	0.31
	2	564	39.50	0.40
12	1	235	27.10	0.27
	1.5	352	38.90	0.39
	2	470	49.30	0.49
14	1.5	294	46.20	0.46
	2	388	59.20	0.59
15	1.5	282	49.90	0.50
	2	376	64.10	0.64
16	1.5	264	53.60	0.54
	2	352	69.10	0.69
	2.5	440	84.50	0.85
18	1.5	235	61.00	0.61
	2	313	78.90	0.79
	2.5	333	96.70	0.97
20	2	282	88.80	0.89
	2.5	352	107.90	1.08
22	1.5	192	75.80	0.76
	2	256	98.60	0.98
25	2	235	115.20	1.15
	2.5	282	138.70	1.39
	3	338	163.00	1.63
28	2	201	128.20	1.28
	2.5	263	159.40	1.59
	3	302	185.00	1.85
30	2	194	152.00	1.52
	3	282	200.00	2.00
35	2	161	163.00	1.63
	3	241	237.00	2.37
38	2	144	204.00	2.04
	3	222	259.00	2.59
	4	297	335.00	3.35
	5	318	594.00	5.94
42	2	134	197.00	1.97
	3	201	289.00	2.89
	4	280	380.00	3.80

Note : *Admissible working pressure according to DIN 2413
Type : Seamless stainless steel high pressure steel tubes
Material : Stainless steel Type 316L Material No. 1.4404

Conversion Table

[Length]	m	km	in	ft	yd	mile
m	1	1×10^{-3}	39.37	3.28	1.093	6.214×10^{-4}
km	1×10^{3}	1	3.937×10^{4}	3,280	1,093	0.621
in	0.0254	2.54×10^{-5}	1	1/12	1/36	1.58×10^{-5}
ft	0.305	3.048×10^{-4}	12	1	1/3	1.894×10^{-4}
yd	0.914	9.144×10^{-4}	36	3	1	5.682×10^{-4}
mile	1,609	1.609	63,360	5,280	1,760	1

[Mass (Weight)]	g	kg	t	lb	oz
g	1	1×10^{-3}	1×10^{-6}	2.204×10^{-3}	0.0352
kg	1×10^{3}	1	1×10^{-3}	2.204	35.27
t	1×10^{6}	1×10^{3}	1	2,204	35,270
lb	453.6	0.4536	4.536×10^{-4}	1	16
oz	28.35	0.02835	2.835×10^{-5}	1/16	1

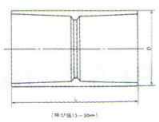
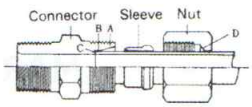
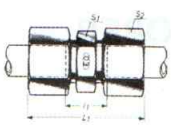
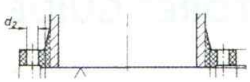
[Volume]	cm^3 (cc or ml)	m^3	l	in^3	qt	pt	fl-oz	ft^3	gal
cm^3 (cc or ml)	1	0.000001	0.001	0.061	0.00088	0.0018	0.035	-	0.00022
m^3	1,000,000	1	1,000	61,024	880	1,760	35,195	35.314	220
l	1,000	0.001	1	61.024	0.880	1.760	35.195	0.035	0.220
in^3	16.387	0.000016	0.016	1	0.014	0.029	0.577	0.00058	0.0036
qt	1,136.52	0.0011	1.137	69.355	1	2	40	0.033	0.25
pt	568	0.00057	0.568	34.677	0.5	1	20	0.017	0.125
fl-oz	28.413	0.000028	0.028	1.734	0.025	0.05	1	0.0008	0.00625
Ft^3	28,316	0.0283	28.316	1,728	29.922	59.844	958	1	7,481
gal	4,546	0.0045	4.546	277	4	8	160	0.134	1

[Pressure]	bar	kgf/cm^2	lbf/cm^2	mmHg (0°C)	Pa (SI)
bar	1	1.020	14.50	750.1	100,000
kgf/cm^2	0.9807	1	14.22	753.6	98,066
lbf/cm^2	0.0689	0.0703	1	51.72	6,895
mmHg (0°C)	0.00133	0.0013	0.0193	1	133.3
Pa (SI)	1×10^{-5}	1.02×10^{-5}	1.45×10^{-4}	10.2×10^{-4}	1

[Stress]	Pa (SI)	MPa	kgf/mm^2	kgf/cm^2
Pa (SI)	1	1×10^{-6}	1.01972×10^{-7}	1.01972×10^{-5}
MPa	1×10^{6}	1	1.01972×10^{-1}	1.01972×10
kgf/mm^2	9.80665×10^{6}	9.80665	1	1×10^{2}
kgf/cm^2	9.80665×10^{4}	9.80665×10^{-2}	1×10^{-2}	1

[Force]	kW	kgf · m/sec	HP
kW	1	102.0	1.341
kgf · m/sec	0.009807	1	0.01315
HP	0.7457	76.04	1

73
Pipe & Tube Fittings

Malleable Cast Iron Pipe Fittings  P. 73-1 ~ 3	Steel Butt-Welding Pipe Fittings for Ordinary Pipe (FSGP)  P. 73-3 ~ 5	Steel Butt-Welding Pipe Fittings for Pressure Service and High Pressure Service (Schedule)  P. 73-5 ~ 7
Steel High Pressure Pipe Fittings Threaded Type  P. 73-7 ~ 8	Brass Pipe Fittings Threaded Type  P. 73-8 ~ 10	Stainless Steel Pipe Fittings Threaded Type  P. 73-10 ~ 11
PVC Plastic Pipe Fittings for Drain  P. 73-11 ~ 13	PVC Plastic Pipe Fittings for Water Supply  P. 73-13 ~ 14	Steel Compression Tube Fittings for High Pressure Service  P. 73-15 ~ 17
Brass Flared Tube Fittings  P. 73-17 ~ 19	Brass Flareless Compression Tube Fittings  P. 73-19 ~ 21	Stainless Steel Flareless Tube Fittings  P. 73-21 ~ 23
Ermeto High Pressure Steel Couplings  P. 73-23	Flanges  P. 73-24 ~ 30	Flexible Pipe Couplings  P. 73-30 ~ 34

Screwed Type Malleable Cast Iron Pipe Fittings

Accesorios de Tubería de Hierro Maleable Negro
ねじ込み式可鍛鋳鉄製継手　铸铁螺纹接头

Standard malleable cast iron fittings used for low pressure water, oil, steam, air and gas line fabrication.

Pressure Rating

Fluid Condition	Maximum Working Pressure
Steam, air, gas, and oil of 300°C or less	1.0 MPa (10.2 kgf/cm²)
Steam, air, gas, oil and pulsation water of 220°C or less	1.4 MPa (14.3 kgf/cm²)
Non shock water of 120°C or less	1.0 MPa (20.4 kgf/cm²)

The screw thread for these fittings conforms to the Taper Pipe Threads of JIS B 0203 equal to the ISO 7/1 (Pipe Thread where pressure tight joints are made on the threads), details are shown in the following table.

Screw Thread Table

Nominal Pipe Size		Nominal Thread Size	Threads Per 25.4 mm	Pitch	Male Thread O.D.	Applicable Carbon Steel Pipe	
A	B					O.D.	Thick
6A	1/8	PT(R)1/8	28	0.9071	9.728	10.5	2.0
8A	1/4	" 1/4	19	1.3368	13.157	13.8	2.3
10A	3/8	" 3/8	19	1.3368	16.662	17.3	2.3
15A	1/2	" 1/2	14	1.8143	20.955	21.7	2.8
20A	3/4	" 3/4	14	1.8143	26.441	27.2	2.8
25A	1	" 1	11	2.3091	33.249	34.0	3.2
32A	1-1/4	" 1-1/4	11	2.3091	41.910	42.7	3.5
40A	1-1/2	" 1-1/2	11	2.3091	47.803	48.6	3.5
50A	2	" 2	11	2.3091	59.614	60.5	3.8
65A	2-1/2	" 2-1/2	11	2.3091	75.184	76.3	4.2
80A	3	" 3	11	2.3091	87.884	89.1	4.2

Available in galvanized or black (ungalvanized), when ordering specify which type is required.

Elbows, 45°

Malleable Cast Iron



Codos, Hembra 45°/Hierro Maleable Negro
可鍛鋳鉄 45° エルボ　45 度弯管

Unit Per Pc.

Galv. CODE	Nom. Size	Black CODE	Galv. CODE	Nom. Size	Black CODE
73 01 01	1/8	73 01 16	73 01 07	1-1/4	73 01 22
02	1/4	17	08	1-1/2	23
03	3/8	18	09	2	24
04	1/2	19	10	2-1/2	25
05	3/4	20	11	3	26
73 01 06	1	73 01 21			

Street Elbows, Male & Female 45°

Malleable Cast Iron



Codos, Macho y Hembra 45°/Hierro Maeable Negro
可鍛鋳鉄ストリートエルボ　45 度内外螺丝弯管接头

The thread size is the same for male and female pieces.

Unit Per Pc.

Galv. CODE	Nom. Size	Black CODE	Galv. CODE	Nom. Size	Black CODE
73 01 31	1/8	73 01 46	73 01 37	1-1/4	73 01 52
32	1/4	47	38	1-1/2	53
33	3/8	48	39	2	54
34	1/2	49	40	2-1/2	55
35	3/4	50	41	3	56
73 01 36	1	73 01 51			

Elbows, 90°

Malleable Cast Iron



Codos, Hembra 90°/Hierro Maleable Negro
可鍛鋳鉄 90° エルボ　90 度弯管

Unit Per Pc.

Galv. CODE	Nom. Size	Black CODE	Galv. CODE	Nom. Size	Black CODE
73 01 61	1/8	73 01 76	73 01 67	1-1/4	73 01 82
62	1/4	77	68	1-1/2	83
63	3/8	78	69	2	84
64	1/2	79	70	2-1/2	85
65	3/4	80	71	3	86
73 01 66	1	73 01 81			

Reducing Elbows, 90°

Malleable Cast Iron



Codos Reducidos, Hembra 90o/Hierro Maleable Negro
可鍛鋳鉄 90° 違径エルボ　90 度异径弯管接头

The sizes of the reducing elbows below are listed with the size of the larger opening first and the smaller opening second.

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 02 01	1/4×1/8	73 02 16	73 02 06	1-1/4×1	73 02 21
02	3/8×1/4	17	07	1-1/2×1-1/4	22
03	1/2×3/8	18	08	2×1-1/2	23
04	3/4×1/2	19	09	2-1/2×2	24
05	1×3/4	20	10	3×2-1/2	25

Street Elbows, Male & Female 90°

Malleable Cast Iron



Cados, Macho y Hembra 90o/Hierro Maleable Negro
可鍛鋳鉄 90° ストリートエルボ
90 度内外螺丝弯管接头

The thread sizes are the same for both male and female elbows.

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 02 31	1/8	73 02 46	73 02 37	1-1/4	73 02 52
32	1/4	47	38	1-1/2	53
33	3/8	48	39	2	54
34	1/2	49	40	2-1/2	55
35	3/4	50	41	3	56
73 02 36	1	73 02 51			

Tees

Malleable Cast Iron



Tes/Hierro Maleable Negro
可鍛鋳鉄チーズ　T 形管

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 03 01	1/8	73 03 16	73 03 07	1-1/4	73 03 22
02	1/4	17	08	1-1/2	23
03	3/8	18	09	2	24
04	1/2	19	10	2-1/2	25
05	3/4	20	11	3	26
73 03 06	1	73 03 21			

Service Tees, Male & Female

Malleable Cast Iron



Tes, Macho y Hembra/Hierro Maleale Negro
可鍛鋳鉄サービスチーズ　内外螺纹三通管

The thread sizes are the same for both male and female service tees.

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 03 31	1/8	73 03 46	73 03 37	1-1/4	73 03 52
32	1/4	47	38	1-1/2	53
33	3/8	48	39	2	54
34	1/2	49	40	2-1/2	55
35	3/4	50	41	3	56
73 03 36	1	73 03 51			

Reducing Tees

Malleable Cast Iron



Tes Reducidas/Hierro Maleable Negro
可鍛鋳鉄違径チーズ　異径三通接头

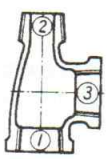
The sizes of the reducing tees are listed below in the order of the left side opening size, the right hand opening size, and the center opening size.

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 03 61	1/4×1/4×1/8	73 03 76	73 03 66	1-1/4×1-1/4×1	73 03 81
62	3/8×3/8×1/4	77	67	1-1/2×1-1/2×1-1/4	82
63	1/2×1/2×3/8	78	68	2×2×1-1/2	83
64	3/4×3/4×1/2	79	69	2-1/2×2-1/2×2	84
65	1×1×3/4	80	70	3×3×2-1/2	85

Reducing Service Tees Male & Female

Malleable Cast Iron



Tes Reducidas, Macho y Hembra/Hierro Maleable Negro
可鍛鋳鉄径違いサービスチーズ
異径内外螺纹三通接头

When referring to the sizes, please list them as they are shown in the illustration and as they are listed in the table below.

Unit Per Pc.

Galv. CODE	Size (1)×(2)×(3)	Black CODE	Galv. CODE	Size (1)×(2)×(3)	Black CODE
73 04 01	3/4×1/2×3/4	73 04 16	73 04 08	2×3/4×2	73 04 23
02	1×1/2×1	17	09	2×1-1/4×2	24
03	1×3/4×1	18	10	2×1-1/2×2	25
04	1-1/4×3/4×1-1/4	19	11	2-1/2×1×2-1/2	26
05	1-1/4×1×1-1/4	20	12	2-1/2×2×2-1/2	27
73 04 06	1-1/2×1×1-1/2	73 04 21	73 04 13	3×2×3	73 04 28
07	1-1/2×1-1/4×1-1/2	22			

Crosses

Malleable Cast Iron



Cruces/Hierro Maleable Negro
可鍛鋳鉄クロス　十字管

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 04 31	1/8	73 04 46	73 04 37	1-1/4	73 04 52
32	1/4	47	38	1-1/2	53
33	3/8	48	39	2	54
34	1/2	49	40	2-1/2	55
35	3/4	50	41	3	56
73 04 36	1	73 04 51			

Caps

Malleable Cast Iron



Tapones Hembra/Hierr Maleable Negro
可鍛鋳鉄キャップ　管帽

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 05 01	1/8	73 05 16	73 05 07	1-1/4	73 05 22
02	1/4	17	08	1-1/2	23
03	3/8	18	09	2	24
04	1/2	19	10	2-1/2	25
05	3/4	20	11	3	26
73 05 06	1	73 05 21			

Sockets

Malleable Cast Iron



Manguitos/Hierro Maleable Negro
可鍛鋳鉄ソケット　套管

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 05 31	1/8	73 05 46	73 05 37	1-1/4	73 05 52
32	1/4	47	38	1-1/2	53
33	3/8	48	39	2	54
34	1/2	49	40	2-1/2	55
35	3/4	50	41	3	56
73 05 36	1	73 05 51			

Reducing Sockets

Malleable Cast Iron



Manguitos reducidos/Hierro Maleable Negro
可鍛鋳鉄違径ソケット　異径管节

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 05 61	1/4×1/8	73 05 76	73 05 66	1-1/4×1	73 05 81
62	3/8×1/4	77	67	1-1/2×1-1/4	82
63	1/2×3/8	78	68	2×1-1/2	83
64	3/4×1/2	79	69	2-1/2×2	84
65	1 ×3/4	80	70	3×2-1/2	85

Hexagon Bushings

Malleable Cast Iron



Tuercas Reducción/Hierro Maleable Negro
可鍛鋳鉄ブッシング　六角衬套

If bushes of a dimension different from those below are required, please specify the necessary data.

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 06 01	1/4×1/8	73 06 16	73 06 06	1-1/4×1	73 06 21
02	3/8×1/4	17	07	1-1/2×1-1/4	22
03	1/2×3/8	18	08	2×1-1/2	23
04	3/4×1/2	19	09	2-1/2×2	24
05	1 ×3/4	20	10	3×2-1/2	25

Square Head Plugs

Malleable Cast Iron



Tapones Macho/Hierro Maleable Negro
可鍛鋳鉄プラグ　方头插塞

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 06 31	1/8	73 06 46	73 06 37	1-1/4	73 06 52
32	1/4	47	38	1-1/2	53
33	3/8	48	39	2	54
34	1/2	49	40	2-1/2	55
35	3/4	50	41	3	56
73 06 36	1	73 06 51			

Lock Nuts

Malleable Cast Iron

Tuercas de Presion/Hierro Maleable Negro
可鍛鋳鉄止めナット　锁紧螺母



Galvanized or black malleable cast iron lock nuts.

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 06 61	1/4	73 06 76	73 06 66	1-1/4	73 06 81
62	3/8	77	67	1-1/2	82
63	1/2	78	68	2	83
64	3/4	79	69	2-1/2	84
65	1	80	70	3	85

Unions

Malleable Cast Iron

Uniones/Hierro Maleable Negro
可鍛鋳鉄ユニオン　连管节



Galvanized and black malleable cast iron unions.

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 07 01	1/8	73 07 16	73 07 07	1-1/4	73 07 22
02	1/4	17	08	1-1/2	23
03	3/8	18	09	2	24
04	1/2	19	10	2-1/2	25
05	3/4	20	11	3	26
73 07 06	1	73 07 21			

Short Nipples

Caron Steel

Machones Cortos/Acero al Carbono
炭素鋼ショートニップル　短螺纹接套



Galvanized and black carbon steel short nipples.

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 07 71	1/8	73 07 86	73 07 77	1-1/4	73 07 92
72	1/4	87	78	1-1/2	93
73	3/8	88	79	2	94
74	1/2	89	80	2-1/2	95
75	3/4	90	81	3	96
73 07 76	1	73 07 91			

Long Nipples

Carbon Steel

Machones largos/Acero al Carbono Tipo Bobina
炭素鋼ロングニップル　长螺纹接头



When ordering, specify the required length. Available from 2 to 6 inches.

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 08 01	1/8×2"	73 08 51	73 08 21	1×2-1/2"	73 08 71
02	3"	52	22	3"	72
03	4"	53	23	4"	73
04	6"	54	24	6"	74
73 08 05	1/4×2"	73 08 55	73 08 25	1-1/4×3"	73 08 75
06	3"	56	26	4"	76
07	4"	57	27	6"	77
08	6"	58	73 08 28	1-1/2×3"	73 08 78
73 08 09	3/8×2"	73 08 59	29	4"	79
10	3"	60	30	6"	80
11	4"	61	73 08 31	2×3"	73 08 81
12	6"	62	32	4"	82
73 08 13	1/2×2"	73 08 63	33	6"	83
14	3"	64	73 08 34	2-1/2×3"	73 08 84
15	4"	65	35	4"	85
16	6"	66	36	6"	86
73 08 17	3/4×2"	73 08 67	73 08 37	3×3"	73 08 87
18	3"	68	38	4"	88
19	4"	69	39	6"	89
20	6"	70			

Hexagon Nipples

Malleable Cast Iron

Machones Hexagonales/Hierro Maleable Negro
可鍛鋳鉄六角ニップル　六角螺母外螺纹接头



Galvanized and black malleable cast iron hexagon nipples.

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 09 01	1/8	73 09 16	73 09 07	1-1/4	73 09 22
02	1/4	17	08	1-1/2	23
03	3/8	18	09	2	24
04	1/2	19	10	2-1/2	25
05	3/4	20	11	3	26
73 09 06	1	73 09 21			

Reducing Hexagon Nipples

Malleable Cast Iron

Machones Reducidos Hexagonales Hierro Maleable Negro
可鍛鋳鉄六角違径ニップル　异径六角螺纹接套



Galvanized and black malleable cast iron reducing hexagon nipples.
Sizes listed with the large opening first and the small opening second.

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 09 31	3/8×1/4	73 09 41	73 09 36	1-1/2×1-1/4	73 09 46
32	1/2×3/8	42	37	2×1-1/2	47
33	3/4×1/2	43	38	2-1/2×2	48
34	1×3/4	44	39	3×2-1/2	49
35	1-1/4×1	45			

Flanges

Malleable Cast Iron

Bridas/Hierro Maleable Negro
可鍛鋳鉄組フランジ　法兰



Galvanized and black malleable cast iron flanges.

Unit Per Pc.

Galv. CODE	Size	Black CODE	Galv. CODE	Size	Black CODE
73 09 51	1/2	73 09 61	73 09 55	1-1/2	73 09 65
52	3/4	62	56	2	66
53	1	63	57	2-1/2	67
54	1-1/4	64	58	3	68

Steel Butt-Welding Pipe Fittings

For Ordinary Use

Accesorios de Tubería de Acero para Soldar a Tope para Usoordinario
一般配管用鉄製突合わせ溶接式管継手　钢制对焊管件普通用途

Butt-Welding Pipe Fittings used for the fabrication of ordinary carbon steel pipe (SGP) of comparatively low pressure steam, water, oil, gas and air. Ends are machine faced and bevelled. Available in galvanized or black (ungalvanized) but usually black ones are supplied unless otherwise specified. Their maximum working pressure is 2.5 MPa (25 kgf/cm^2) .

General Specification of Fittings (FSGP)

Nominal Size A	Nominal Size B	Outside Diam. mm	Inside Diam. mm	Wall Thickness mm
15A	1/2	21.7	16.1	2.8
20A	3/4	27.2	21.6	2.8
25A	1	34	27.6	3.2
32A	1-1/4	42.7	35.7	3.5
40A	1-1/2	48.6	41.6	3.5
50A	2	60.5	52.9	3.8
65A	2-1/2	76.3	67.9	4.2
80A	3	89.1	80.7	4.2
90A	3-1/2	101.6	93.2	4.2
100A	4	114.3	105.3	4.5

(to be continued)

Nominal Size A	Nominal Size B	Outside Diam. mm	Inside Diam. mm	Wall Thickness mm
125A	5	139.8	130.8	4.5
150A	6	165.2	155.2	5
200A	8	216.3	204.7	5.8
250A	10	267.4	254.2	6.6
300A	12	318.5	304.7	6.9

Specified sizes are up to 300A but larger sizes are also available on request.

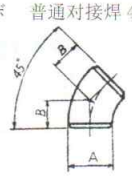
Steel Butt-Welding Elbows

45° Long Radius for Ordinary Pipe

Codes de Acero soldable/45° Radio lago para Tuberia Ordinaria

一般配管用突合せ溶接式ロングエルボ　普通对接焊 45° 弯





Unit Per Pc.

CODE	Nominal Size A	Distance Center to End mm (B)	CODE	Nominal Size A	Distance Center to End mm (B)
73 11 01	15	15.8	**73 11 09**	90	55.3
02	20	15.8	**10**	100	63.1
03	25	15.8	**11**	125	78.9
04	32	19.7	**12**	150	94.7
05	40	23.7	**13**	200	126.3
73 11 06	50	31.6	**73 11 14**	250	157.8
07	65	39.5	**15**	300	189.4
08	80	47.3			

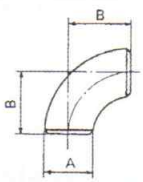
Steel Butt-Welding Elbows

90° Long Radius for Ordinary Pipe

Codes de Acero soldable/45° Radio lago para Tuberia Ordinaria

一般配管用突合せ溶接式ロングエルボ　普通对接焊 45° 弯头





Unit Per Pc.

CODE	Nominal Size A	Distance Center to End mm (B)	CODE	Nominal Size A	Distance Center to End mm (B)
73 11 21	15	38.1	**73 11 29**	90	133.4
22	20	38.1	**30**	100	152.4
23	25	38.1	**31**	125	190.5
24	32	47.6	**32**	150	228.6
25	40	57.2	**33**	200	304.8
73 11 26	50	76.2	**73 11 34**	250	381
27	65	95.3	**35**	300	457.2
28	80	114.3			

Steel Butt-Welding Elbows

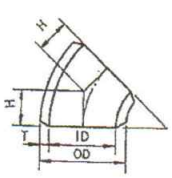
45° Short Radius for Ordinary Pipe

Tubo acodado de 45° de acero de soldadura a tope, radio corto

一般配管用突合わせ溶接式ショートエルボ

一般管道用对焊 45° 短半径弯头





Unit Per Pc.

CODE	Nominal Size A	Distance Center to End mm (B)	CODE	Nominal Size A	Distance Center to End mm (B)
73 11 16	32	13.2	**73 11 37**	100	42.1
17	40	15.8	**38**	125	52.6
18	50	21.0	**39**	150	63.1
19	65	26.3	**40**	200	84.2
20	80	31.6	**54**	250	105.2
73 11 36	90	36.8	**73 11 55**	300	126.2

Steel Butt-Welding Elbows

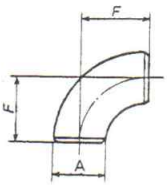
90° Short Radius for Ordinary Pipe

Tubo acodado de 90° de acero de soldadura a tope, radio corto

一般配管用突合わせ溶接式ショートエルボ

一般管道用对焊 90° 短半径弯头





Unit Per Pc.

CODE	Nominal Size A	Distance Center to End mm (B)	CODE	Nominal Size A	Distance Center to End mm (B)
73 11 41	25	25.4	**73 11 48**	100	101.6
42	32	31.8	**49**	125	127
43	40	38.1	**50**	150	152.4
44	50	50.8	**51**	200	203.2
45	65	63.5	**52**	250	254
73 11 46	80	76.2	**73 11 53**	300	304.8
47	90	88.9			

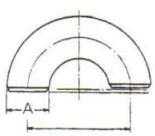
Steel Butt-Welding Return Bends

180° Radius for Ordinary Pipe

Curva de Acero Soldable/180° Radio Largo para tuberia Ordinaria

一般配管用突合せ溶接式 180° ベント　对接焊式 180° 长颈弯头





Unit Per Pc.

CODE	Nominal Size A	Distance Center to End mm (B)	CODE	Nominal Size A	Distance Center to End mm (B)
180° Long Radius					
73 11 61	15	76.2	**73 11 69**	90	266.8
62	20	76.2	**70**	100	304.8
63	25	76.2	**71**	125	381
64	32	95.2	**72**	150	457.2
65	40	114.4	**73**	200	609.6
73 11 66	50	152.4	**73 11 74**	250	762
67	65	190.6	**75**	300	914.4
68	80	228.6			
180° Short Radius					
73 11 81	25	50.8	**73 11 88**	100	203.2
82	32	63.6	**89**	125	254
83	40	76.2	**90**	150	304.8
84	50	101.6	**91**	200	406.4
85	65	127	**92**	250	508
73 11 86	80	152.4	**73 11 93**	300	609.6
87	90	177.8			

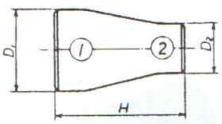
Steel Butt-Welding Concentric Radius Reducers

for Ordinary Pipe

Reducción Concéntrica de Acero Solderable para Tubería Ordinaria

一般配管用突合せ溶接式同心 レデューサー　対接焊式异径接管





Unit Per Pc.

CODE	Nominal Size A (D1×D2)	Length Overall mm (H)	CODE	Nominal Size A (D1×D2)	Length Overall mm (H)
73 12 01	20 × 15	38.1	73 12 28	40	
73 12 02	25 × 15		29	50	
03	20		30	100 × 65	101.6
73 12 04	15	50.8	31	80	
05	32 × 20		32	90	
06	25		73 12 33	50	
73 12 07	15		34	65	
08	20		35	125 × 80	139.8
09	40 × 25	63.5	36	90	
10	32		37	100	
73 12 11	20		73 12 38	65	
12	25		39	80	
13	50 × 32	76.2	40	150 × 90	165.2
14	40		41	100	
73 12 15	25		42	125	
16	32		73 12 43	90	
17	65 × 40		44	200 × 100	216.3
18	50	88.9	45	125	
73 12 19	32		46	150	
20	40		73 12 47	100	
21	80 × 50		48	250 × 125	267.4
22	65		49	150	
73 12 23	32		50	200	
24	40		73 12 51	125	
25	90 × 50	101.6	52	300 × 150	318.5
26	65		53	200	
27	80		54	250	

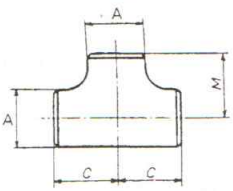
Steel Butt-Welding Tees

for Ordinary Pipe

Tes de Acero Soldble para Tuberia Ordinaria

一般配管用突合せ溶接式チーズ　対接焊式三通





Unit Per Pc.

CODE	Nominal Size A	Distance Center to End mm (C)	CODE	Nominal Size A	Distance Center to End mm (C)
73 12 61	15	25.4	73 12 69	90	95.3
62	20	28.6	70	100	104.8
63	25	38.1	71	125	123.8
64	32	47.6	72	150	142.9
65	40	57.2	73	200	177.8
73 12 66	50	63.5	73 12 74	250	215.9
67	65	76.2	75	300	254
68	80	85.7			

Besides above list Reducing Tees are also available on request.

Steel Butt-Welding Pipe Fittings

For Pressure Service & High Pressure Service

Conexión de Acero Soldable para Tuberia de Presi´ón y de Servicio de Alta Presión

高圧配管用鋼製突合せ溶接式管継手　高压管路弯头

Steel Butt-Welding ungalvanized (Black) Pipe Fittings used for the fabrication of

1. Carbon Steel Pipe for Pressure Service (STPG).
2. Carbon Steel Pipe for High Pressure Service (STS).
3. Carbon Steel Pipe for High Temperature Service (STPT).
4. Steel Pipe for Low Temperature Service (STPL).

General Specifications of Fittings

Nominal Size		Outside Diam. mm	Schedule 40		Schedule 80	
A	B		ID	T	ID	T
15	1/2	21.7	16.1	2.8	14.3	3.7
20	3/4	27.2	21.4	2.9	19.4	3.9
25	1	34	27.2	3.4	25	4.5
32	1-1/4	42.7	35.5	3.6	32.9	4.9
40	1-1/2	48.6	41.2	3.7	38.4	5.1
50	2	60.5	52.7	3.9	49.5	5.5
65	2-1/2	76.3	65.9	5.2	62.3	7
80	3	89.1	78.1	5.5	73.9	7.6
90	3-1/2	101.6	90.2	5.7	85.4	8.1
100	4	114.3	102.3	6	97.1	8.6
125	5	139.8	126.6	6.6	120.8	9.5
150	6	165.2	151	7.1	143.2	11
200	8	216.3	199.9	8.2	190.9	12.7
250	10	267.4	248.8	9.3	237.2	15.1
300	12	318.5	297.9	10.3	283.7	17.4

Schedule 120 and 160 pipe fittings and fittings of sizes larger than 300A are also available upon request.

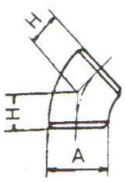
Steel Butt-Welding Elbows

45° Long Radius for HP Service Pipe

Codos de Acero Soldable 45° para Tuberia de Servicio de Alta Presión

高圧配管用突合せ溶接式 45° エルボ　45° 对焊式长径高压弯头





How to order: CODE

Steel butt-welding elbow, 45° long radius, for high pressure service pipe, SCHEDULE NO., NOMINAL SIZE

Unit Per Pc.

Sched. 40 CODE	Sched. 80 CODE	Nominal Size A	Distance Center to End mm (H)
45° Long Radius			
73 14 01	73 14 21	15	15.8
02	22	20	15.8
03	23	25	15.8
04	24	32	19.7
05	25	40	23.7
73 14 06	73 14 26	50	31.6
07	27	65	39.5
08	28	80	47.3
09	29	90	55.3
10	30	100	63.1
73 14 11	73 14 31	125	78.9
12	32	150	94.7
13	33	200	126.3
14	34	250	157.8
15	35	300	189.4

(to be continued)

Unit Per Pc.

Sched. 40 CODE	Sched. 80 CODE	Nominal Size A	Distance Center to End mm (H)
45° Short Radius			
73 14 16	73 14 43	32	13.2
17	44	40	15.8
18	45	50	21.0
19	46	65	26.3
20	47	80	31.6
73 14 36	73 14 48	90	36.8
37	49	100	42.1
38	50	125	52.6
39	66	150	63.1
40	67	200	84.2
73 14 41	73 14 68	250	105.2
42	69	300	126.2

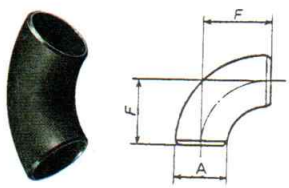
Steel Butt-Welding Elbows

90° for HP Service Pipe

Codos de Acero Soldable 90° para Tubería de Servicio de Alta Presión

高圧配管用突合せ溶接式 90°エルボ

90° 对焊式长径高压弯头



How to order: CODE

Steel butt-welding elbow, 90° long radius, for high pressure service pipe, SCHEDULE NO., NOMINAL SIZE

Unit Per Pc.

Sched. 40 CODE	Sched. 80 CODE	Nominal Size A	Distance Center to End mm (F)
90° Long Radius			
73 14 51	73 14 71	15	38.1
52	72	20	38.1
53	73	25	38.1
54	74	32	47.6
55	75	40	57.2
73 14 56	73 14 76	50	76.2
57	77	65	95.3
58	78	80	114.3
59	79	90	133.4
60	80	100	152.4
73 14 61	73 14 81	125	190.5
62	82	150	228.6
63	83	200	304.8
64	84	250	381
65	85	300	457.2
90° Short Radius			
73 15 01	73 15 16	25	25.4
02	17	32	31.8
03	18	40	38.1
04	19	50	50.8
05	20	65	63.5
73 15 06	73 15 21	80	76.2
07	22	90	88.9
08	23	100	101.6
09	24	125	127
10	25	150	152.4
73 15 11	73 15 26	200	203.2
12	27	250	254
13	28	300	304.8

Steel Butt-Welding Concentric Radius Reducers

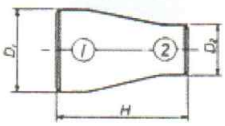
for HP Service Pipe

Reductor de radios concéntricos para soldadura a tope de acero para tuberías de servicio de HP

高圧配管用突合わせ溶接式同心レデューサー

高压管道用对焊同心异径管





Unit Per Pc.

Sched. 40 CODE	Sched. 80 CODE	Nominal Size A (D1×D2)	Length Overall mm (H)	Sched. 40 CODE	Sched. 80 CODE	Nominal Size A (D1×D2)	Length Overall mm (H)
73 15 14	73 16 11	20× 15	38.1	73 15 69	73 16 38	40	
73 15 15	73 16 12	25× 15		70	39	50	
29	13	20		86	40	100× 65	101.6
73 15 30	73 16 14	15	50.8	87	41	80	
31	15	32× 20		88	42	90	
32	16	25		73 15 89	73 16 43	50	
73 15 33	73 16 17	15		90	44	65	
34	18	40× 20	63.5	91	45	125× 80	127.0
35	19	25		92	46	90	
36	20	32		93	47	100	
73 15 37	73 16 21	20		73 15 94	73 16 48	65	
38	22	50× 25	76.2	95	49	80	
39	23	32		96	50	150× 90	139.7
40	24	40		97	51	100	
73 15 41	73 16 25	25		98	52	125	
42	26	65× 32		73 15 99	73 16 53	90	
43	27	40		73 16 00	54	200× 100	152.4
44	28	50	88.9	01	55	125	
73 15 45	73 16 29	32		02	56	150	
46	30	80× 40		73 16 03	73 16 57	100	
47	31	50		04	58	250× 125	177.8
48	32	65		05	59	150	
73 15 49	73 16 33	32		06	60	200	
50	34	40		73 16 07	73 16 61	125	
66	35	90× 50	101.6	08	62	300× 150	203.2
67	36	65		09	63	200	
68	37	80		10	64	250	

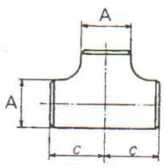
Steel Butt-Welding Tees

for HP Service Pipe

Tes de Acero Soldble para Tuberia de Servicio de Alta Presión

高圧配管用突合せ溶接式チーズ　T 形 HP 管用焊接接管





How to order: CODE

Steel butt-welding tee, for high pressure service pipe, SCHEDULE NO., NOMINAL SIZE

Unit Per Pc.

Sched. 40 CODE	Sched.80 CODE	Nominal Size A	Distance Center to End mm (C)
73 15 51	73 15 71	15	25.4
52	72	20	28.6
53	73	25	38.1
54	74	32	47.6
55	75	40	57.2
73 15 56	73 15 76	50	63.5
57	77	65	76.2
58	78	80	85.7
59	79	90	95.3
60	80	100	104.8
73 15 61	73 15 81	125	123.8
62	82	150	142.9
63	83	200	177.8
64	84	250	215.9
65	85	300	254

* Besides the above enumerated fittings, the following items are also available: Return Bends, Cap, Concentric Reducer, Eccentric Reducer, Reducing Tee, etc. Please specify separately what kind of part you require along with the necessary nominal size.

Steel High Pressure Pipe Fittings

Threaded Type

Conexión de Aero para Tuberia de Alta Presión Tipo Roscado
高圧鋼製ねじ込み継手　高压螺纹接头

High pressure, drop forged steel, ungalvanized (black) pipe fittings with a pressure rating of 210 kgf/cm² at 120°C. Threads conform to the Taper Pipe Threads standards of JIS B 0203 and the ISO 7/1. Larger sizes and types of fittings not listed below are also available.

Steel Threaded Elbows, 45°

for High Pressure Pipe Fitting



Codos Roscados de Acero, 45° para Conexión de Tubería de Alta Presión
高圧鋼製 45° エルボ
45° 钢质丝扣高压弯头

Unit Per Pc.

CODE	Nom. Size	CODE	Nom. Size	CODE	Nom. Size
73 17 01	1/8	73 17 05	3/4	73 17 09	2
02	1/4	06	1	10	2-1/2
03	3/8	07	1-1/4	11	3
04	1/2	08	1-1/2		

Steel Threaded Elbows, 90°

for High Pressure Pipe Fitting



Codos Roscados de Acero, 90° para Conexión de Tubería de Alta Presión
高圧鋼製 90° エルボ
90° 钢质丝扣高压弯头

Unit Per Pc.

CODE	Nom. Size	CODE	Nom. Size	CODE	Nom. Size
73 17 16	1/8	73 17 20	3/4	73 17 24	2
17	1/4	21	1	25	2-1/2
18	3/8	22	1-1/4	26	3
19	1/2	23	1-1/2		

Steel Threaded Street Elbows, 90°

for High Pressure Pipe Fitting



Codos Roscados de Acero, 90° para Conexión de Tubería de Alta Presión
高圧鋼製 90° ストリートエルボ
90° 钢质内外丝扣高压弯头

Unit Per Pc.

CODE	Nom. Size	CODE	Nom. Size	CODE	Nom. Size
73 17 31	1/8	73 17 34	1/2	73 17 37	1-1/4
32	1/4	35	3/4	38	1-1/2
33	3/8	36	1	39	2

Steel Threaded Tees

for High Pressure Pipe Fitting



Tes Roscadas de Acero para Conexión de Tubería de Alta Presión
高圧鋼製チーズ　钢质高压三通

Unit Per Pc.

CODE	Nom. Size	CODE	Nom. Size	CODE	Nom. Size
73 17 46	1/8	73 17 50	3/4	73 17 54	2
47	1/4	51	1	55	2-1/2
48	3/8	52	1-1/4	56	3
49	1/2	53	1-1/2		

Steel Threaded Crosses

for High Pressure Pipe Fitting



Cruces roscadas de Acero para Conexión de Tubería de Alta Presión
高圧鋼製クロス　高压钢四通

Unit Per Pc.

CODE	Nom. Size	CODE	Nom. Size	CODE	Nom. Size
73 17 61	1/8	73 17 65	3/4	73 17 69	2
62	1/4	66	1	70	2-1/2
63	3/8	67	1-1/4	71	3
64	1/2	68	1-1/2		

Square Head Steel Threaded Plugs

for High Pressure Pipe Fitting



Tapones Macho Roscados de Acero para Conexión de Tubería de Alta presión
高圧鋼製プラグ　高压方头钢管塞

Unit Per Pc.

CODE	Nom. Size	CODE	Nom. Size	CODE	Nom. Size
73 17 76	1/8	73 17 80	3/4	73 17 84	2
77	1/4	81	1	85	2-1/2
78	3/8	82	1-1/4	86	3
79	1/2	83	1-1/2		

Steel Threaded Hexagon Bushings

for High Pressure Pipe Fitting



Tuercas Reducción de Acero para Conexióon de Tubería de Alta Presión
高圧鋼製ブッシング　钢螺纹六角衬套

Unit Per Pc.

CODE	Nom. Size	CODE	Nom. Size
73 18 01	1/4 x 1/8	73 18 13	1-1/4 x 1
02	3/8 x 1/4	14	1-1/2 x 1/2
03	1/2 x 1/4	15	1-1/2 x 3/4
04	1/2 x 3/8	16	1-1/2 x 1
05	3/4 x 1/4	17	1-1/2 x 1-1/4
73 18 06	3/4 x 3/8	73 18 18	2 x 3/4
07	3/4 x 1/2	19	2 x 1
08	1 x 3/8	20	2 x 1-1/4
09	1 x 1/2	21	2 x 1-1/2
10	1 x 3/4	22	2-1/2 x 2
73 18 11	1-1/4 x 1/2	73 18 23	3 x 2-1/2
12	1-1/4 x 3/4		

Steel Threaded Unions

for High Pressure Pipe Fitting



Uniones Roscadas de Acero para Conexióon de Tubería de Alta Presión

高圧鋼製ユニオン　钢螺纹连管节

Unit Per Pc.

CODE	Nom. Size	CODE	Nom. Size	CODE	Nom. Size
73 18 26	1/8	**73 18 30**	3/4	**73 18 34**	2
27	1/4	**31**	1	**35**	2-1/2
28	3/8	**32**	1-1/4	**36**	3
29	1/2	**33**	1-1/2		

Steel Threaded Sockets

for High Pressure Pipe Fitting



Manguitos Roscados de Acero para Conexión de Tubería de Alta Presión

高圧鋼製ソケット　钢螺纹套筒

Unit Per Pc.

CODE	Nom. Size	CODE	Nom. Size	CODE	Nom. Size
73 18 41	1/8	**73 18 45**	3/4	**73 18 49**	2
42	1/4	**46**	1	**50**	2-1/2
43	3/8	**47**	1-1/4	**51**	3
44	1/2	**48**	1-1/2		

Steel Threaded Reducing Sockets

for High Pressure Pipe Fitting



Mangitos Reducidos Roscadas deAcero para Conexión de Tubería de Alta Presión

高圧鋼製遵径ソケット　钢螺纹异径管接头

Unit Per Pc.

CODE	Size	CODE	Nom. Size
73 18 56	1/4 x 1/8	**73 18 63**	1 x 3/4
57	3/8 x 1/4	**64**	1-1/4 x 3/4
58	1/2 x 1/4	**65**	1-1/4 x 1
59	1/2 x 3/8	**66**	1-1/2 x 1
60	3/4 x 3/8	**67**	1-1/2 x 1-1/4
73 18 61	3/4 x 1/2	**73 18 68**	2 x 1-1/4
62	1 x 1/2	**69**	2 x 1-1/2

Steel Threaded Long Nipples

for High Pressure Pipe Fitting

Machones Tipo Bobina Largos Roscados de Acero para Conexióon de Tubería de Alta Presión

高圧鋼製ロングニップル　长螺纹钢接头



When ordering, specify the required length. Available in 2, 4, or 6" lengths.

Unit Per Pc.

CODE	Nom. Size	CODE	Nom. Size	CODE	Nom. Size
73 18 71	1/8 x 2"	**73 18 79**	3/4 x 2"	**73 18 87**	2 x 4"
72	1/8 x 4"	**80**	3/4 x 4"	**88**	2 x 6"
73 18 73	1/4 x 2"	**73 18 81**	1 x 2"	**73 18 89**	2-1/2 x 4"
74	1/4 x 4"	**82**	1 x 4"	**90**	2-1/2 x 6"
73 18 75	3/8 x 2"	**73 18 83**	1-1/4 x 4"	**73 18 91**	3 x 4"
76	3/8 x 4"	**84**	1-1/4 x 6"	**92**	3 x 6"
73 18 77	1/2 x 2"	**73 18 85**	1-1/2 x 4"		
78	1/2 x 4"	**86**	1-1/2 x 6"		

Steel Threaded Hexagon Nipples

for High Pressure Pipe Fitting



Machones Hexagonales Roscados de Acero para Conexión de Tuberia de Alta Presión

高圧鋼製六角ニップル　六角螺纹钢接头

Unit Per Pc.

CODE	Nom. Size	CODE	Nom. Size	CODE	Nom. Size
73 19 01	1/8	**73 19 04**	1/2	**73 19 07**	1-1/4
02	1/4	**05**	3/4	**08**	1-1/2
03	3/8	**06**	1	**09**	2

Steel Threaded Hexagon Reducing Nipples

for High Pressure Pipe Fitting



Machones Reducidos Roscados de Acero para Conexión de Tuberia de Alta Presión

高圧鋼製遵径六角ニップル　六角异径螺纹钢接套

Unit Per Pc.

CODE	Nom. Size	CODE	Nom. Size
73 19 21	1/4 × 1/8	**73 19 31**	1-1/4 × 1/2
22	3/8 × 1/4	**32**	1-1/4 × 3/4
23	1/2 × 1/4	**33**	1-1/4 × 1
24	1/2 × 3/8	**34**	1-1/2 × 3/4
25	3/4 × 1/4	**35**	1-1/2 × 1
73 19 26	3/4 × 3/8	**73 19 36**	1-1/2 × 1-1/4
27	3/4 × 1/2	**37**	2 × 3/4
28	1 × 3/8	**38**	2 × 1
29	1 × 1/2	**39**	2 × 1-1/4
30	1 × 3/4	**40**	2 × 1-1/2

Brass Pipe Fittings

Threaded Type

Codos roscados de Latón,Tipo roscado

真鍮（黄銅）製ねじ込み継手　黄铜螺纹接头

Made from high quality seamless brass tubing for use with the fabrication of copper or brass tubes.

The threads conform to the Taper Pipe Threads of JIS B 0203 and the ISO 7/1.

Larger sized fittings and types other than those listed below are also available upon request.

Brass Threaded Elbows, 45°



Codos Roscados de Latón, 45° (Hembra)

真鍮 45° エルボ　45 度黄铜螺纹肘管

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 21 01	1/8	**73 21 04**	1/2	**73 21 07**	1-1/4
02	1/4	**05**	3/4	**08**	1-1/2
03	3/8	**06**	1	**09**	2

Brass Threaded Elbows, 90°



Codos Roscados de Latón, 90° (Hembra)

真鍮 90° エルボ　90 度黄铜螺纹肘管

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 21 16	1/8	73 21 19	1/2	73 21 22	1-1/4
17	1/4	20	3/4	23	1-1/2
18	3/8	21	1	24	2

Brass Threaded Tees

Tes Roscadas de Latón
真鍮チーズ　黄铜螺纹 T 形管



Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 21 31	1/8	73 21 34	1/2	73 21 37	1-1/4
32	1/4	35	3/4	38	1-1/2
33	3/8	36	1	39	2

Brass Threaded Reducing Tees

Tes Reducidas Roscadas de Latón
真鍮違径チーズ　黄铜螺纹异径 三通接头



Unit Per Pc.

CODE	Size	CODE	Size
73 21 46	1/4 × 1/8	73 21 50	1 × 3/4
47	3/8 × 1/4	51	1-1/4 × 1
48	1/2 × 1/4	52	1-1/2 × 1-1/4
49	3/4 × 1/2	53	2 × 1-1/2

Brass Threaded Crosses

Cruces Roscadas de Latón
真鍮クロス
黄铜螺纹十字管



Unit Per Pc.

CODE	Size	CODE	Size	CODE	Nom. Size
73 21 61	1/8	73 21 64	1/2	73 21 67	1-1/4
62	1/4	65	3/4	68	1-1/2
63	3/8	66	1	69	2

Brass Threaded Caps

Tapones Roscados de Latón
真鍮キャップ　黄铜螺纹帽



Unit Per Pc.

CODE	Size	CODE	Size
73 21 76	1/8	73 21 81	1
77	1/4	82	1-1/4
78	3/8	83	1-1/2
79	1/2	84	2
80	3/4	85	2-1/2

Brass Threaded Sockets

Manguitos Roscadas de Latón
真鍮ソケット　黄铜螺纹套筒



Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 21 91	1/8	73 21 94	1/2	73 21 97	1-1/4
92	1/4	95	3/4	98	1-1/2
93	3/8	96	1	99	2

Brass Threaded Reducing Sockets

Manguitos Reducidos Roscadas de Latón
真鍮違径ソケット　黄铜螺纹异径管节



Unit Per Pc.

CODE	Size	CODE	Size
73 22 01	1/4 × 1/8	73 22 05	1 × 3/4
02	3/8 × 1/4	06	1-1/4 × 1
03	1/2 × 1/4	07	1-1/2 × 1-1/4
04	3/4 × 1/2	08	2 × 1-1/2

Brass Threaded Hexagon Bushings

Tuercas Reducción de Latón
真鍮ブッシング　黄铜螺纹六角衬套



Unit Per Pc.

CODE	Size	CODE	Size
73 22 16	1/4 × 1/8	73 22 21	1-1/4 × 1
17	3/8 × 1/4	22	1-1/2 × 1-1/4
18	1/2 × 3/8	24	2 × 1-1/4
19	3/4 × 1/2	23	2 × 1-1/2
20	1 × 3/4		

Brass Threaded Square Head Plugs

Tapones Macho Roscados de Latón
真鍮プラグ
黄铜螺纹方头插塞



Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 22 31	1/8	73 22 34	1/2	73 22 37	1-1/4
32	1/4	35	3/4	38	1-1/2
33	3/8	36	1	39	2

Brass Threaded Lock Nuts

Tuercas de Presión Roscadas
真鍮止めナット　黄铜螺纹锁紧螺母



Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 22 46	1/8	73 22 49	1/2	73 22 52	1-1/4
47	1/4	50	3/4	53	1-1/2
48	3/8	51	1	54	2

Brass Threaded Unions

Uniones Roscadas de Latón
真鍮ユニオン
黄铜螺纹管节



Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 22 61	1/8	73 22 64	1/2	73 22 67	1-1/4
62	1/4	65	3/4	68	1-1/2
63	3/8	66	1	69	2

Brass Threaded Short Nipples

Machones Cortos Roscados de Latón
真鍮ニップル　黄铜螺纹接套



Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 22 76	1/8	73 22 79	1/2	73 22 82	1-1/4
77	1/4	80	3/4	83	1-1/2
78	3/8	81	1	84	2

Brass Threaded Long Nipples

Machones Largos Roscados de Latón Tipo Bobina
真鍮ロングニップル　黄铜长螺纹接套

When ordering, specify the required length. Available in lengths of 2 – 6 inches.



Unit Per Pc.

CODE	Nom. Size	CODE	Nom. Size	CODE	Nom. Size
73 23 01	2"	73 23 14	3"	73 23 27	1-1/2 × 4"
02	3"	15	1/2 × 4"	73 23 28	3"
03	1/8 × 4"	16	6"	29	1-1/2 × 4"
04	6"	73 23 17	2"	30	6"
73 23 05	2"	18	3"	73 23 31	3"
06	3"	19	3/4 × 4"	32	2 × 4"
07	1/4 × 4"	20	6"	33	6"
08	6"	73 23 21	2"	73 23 34	3"
73 23 09	2"	22	3"	35	2-1/2 × 4"
10	3"	23	1 × 4"	36	6"
11	3/8 × 4"	24	6"	73 23 37	3"
12	6"	73 23 25	1-1/4 × 3"	38	3 × 4"
73 23 13	1/2 × 2"	26	1-1/4 × 4"	39	6"

Brass Threaded Hexagon Nipples

Machones Hexagonales Roscados de Latón
真鍮六角ニップル　黄铜螺纹六角接套



Unit Per Pc.

CODE	Nom. Size	CODE	Nom. Size	CODE	Nom. Size
73 23 51	1/8	73 23 54	1/2	73 23 57	1-1/4
52	1/4	55	3/4	58	1-1/2
53	3/8	56	1	59	2

Brass Threaded Reducing Hexagon Nipples

Machones Hexagonales Reducidos Rescados de Latón
真鍮違径六角ニップル　黄铜螺纹违径六角接套



Unit Per Pc.

CODE	Size	CODE	Size
73 23 66	1/4 × 1/8	73 23 70	1 × 3/4
67	3/8 × 1/4	71	1-1/4 × 1
68	1/2 × 3/8	72	1-1/2 × 1-1/4
69	3/4 × 1/2	73	2 × 1-1/2

Brass Threaded Reducing Nipples

Female and Male End

Machones reducidos roscados de latón
真鍮丸胴異径ニップル　黄铜螺纹丸胴违径接套



Unit Per Pc.

CODE	Size BSP	CODE	Size BSP
73 23 76	1/2" (Female) × 3/8" (Male)	73 23 77	3/4" (Female) × 1/2" (Male)

Stainless Steel Pipe Fittings

Threaded Type

Accessorios de Acero-inoxidable para Tuberia Tipo Roscado
ステンレス製ねじ込み継手　不锈钢管件 螺纹型

Stainless steel SUS 304 conforms to a working pressure of 10 kgf/cm² in saturated steam. These fittings have high corrosion and thermal resistance and are mainly used in the petroleum refinery, petrochemical, thermal and nuclear power industries. They are all threaded for use in general service lines.

The threads for these fittings are Taper Pipe Thread Standards (JIS B 0203) compliant with ISO 7/1 standards. Other types of fittings, and sizes larger than those listed below are also available upon request.

Stainless Steel Threaded Elbows, 90°

Codos Roscados de Acero-inoxidable 90°
ステンレス 90° エルボー　90 度不锈钢螺纹弯管

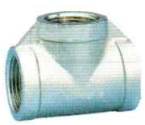


Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 25 01	1/8	73 25 04	1/2	73 25 07	1-1/4
02	1/4	05	3/4	08	1-1/2
03	3/8	06	1	09	2

Stainless Steel Threaded Tees

Tes Roscadas de Acero-inoxidable
ステンレスチーズ
不锈钢螺纹 T 形管



Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 25 21	1/8	73 25 24	1/2	73 25 27	1-1/4
22	1/4	25	3/4	28	1-1/2
23	3/8	26	1	29	2

Stainless Steel Threaded Round Caps

Tapones Redondos Roscados de Acero-inoxidabble
ステンレス丸キャップ　圆形不锈钢螺纹帽



Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 25 36	1/8	73 25 39	1/2	73 25 42	1-1/4
37	1/4	40	3/4	43	1-1/2
38	3/8	41	1	44	2

Stainless Steel Threaded Hexagon Caps

Tapones Hexgonales Roscados de Acero-inoxidabble
ステンレス六角キャップ　不锈钢六角螺纹帽



Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 25 51	1/8	73 25 54	1/2	73 25 57	1-1/4
52	1/4	55	3/4	58	1-1/2
53	3/8	56	1	59	2

Stainless Steel Threaded Sockets

Manguitos Roscadas de Acero-inoxidable
ステンレスソケット　不锈钢螺纹管套



Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 25 66	1/8	**73 25 69**	1/2	**73 25 72**	1-1/4
67	1/4	**70**	3/4	**73**	1-1/2
68	3/8	**71**	1	**74**	2

Stainless Steel Threaded Reducing Sockets



Llaves de tubos reducidos roscados de acero inoxidable
ステンレス異径ソケット　不锈钢外螺纹异径管箍

73 25 76	Socket, reducing, threaded, Stainless steel, 2 x 1-1/2	Pc.

Stainless Steel Threaded Hexagon Bushings



Tuercas Reducción Roscadas de acero-noxidable
ステンレスブッシング
不锈钢六角螺纹衬套

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 25 81	1/4 × 1/8	**73 25 84**	3/4 × 1/2	**73 25 87**	1-1/2 × 1-1/4
82	3/8 × 1/4	**85**	1 × 3/4	**88**	2 × 1-1/2
83	1/2 × 3/8	**86**	1-1/4 × 1		

Stainless Steel Threaded Square Head Plugs



Tapones Macho Roscados de Acero-inoxidable
ステンレスプラグ
不锈钢螺纹方头插塞

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 26 01	1/8	**73 26 04**	1/2	**73 26 07**	1-1/4
02	1/4	**05**	3/4	**08**	1-1/2
03	3/8	**06**	1	**09**	2

Stainless Steel Threaded Unions



Uniones Roscadas de Acero-inoxidable
ステンレスユニオン　不锈钢螺纹管节

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 26 16	1/8	**73 26 19**	1/2	**73 26 22**	1-1/4
17	1/4	**20**	3/4	**23**	1-1/2
18	3/8	**21**	1	**24**	2

Stainless Steel Threaded Round Nipples



Machones Tipo Bobina Roscados de Acero-inoxidable
ステンレス丸ニップル　不锈钢螺纹圆形接套

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 26 31	1/8	**73 26 34**	1/2	**73 26 37**	1-1/4
32	1/4	**35**	3/4	**38**	1-1/2
33	3/8	**36**	1	**39**	2

Stainless Steel Threaded Hexagon Nipples



Machones Hexagonales Roscados de Acero-inoxidable
ステンレス六角ニップル　不锈钢六角接套

Unit Per Pc.

CODE	Size	CODE	Size	CODE	Size
73 26 46	1/8	**73 26 49**	1/2	**73 26 52**	1-1/4
47	1/4	**50**	3/4	**53**	1-1/2
48	3/8	**51**	1	**54**	2

Stainless Steel Threaded Reducing Nipples



Machones reducidos roscados de acero inoxidable
ステンレス異径ニップル　不锈钢外螺纹异径接头

Unit Per Pc.

CODE	Size	CODE	Size
73 26 56	3/8 × 1/4	**73 26 60**	1-1/4 × 1
57	1/2 × 3/8	**61**	1-1/2 × 1-1/4
58	3/4 × 1/2	**62**	2 × 1-1/2
59	1 × 3/4		

PVC Plastic Pipe Fittings for Drain

Accessorios para Tubería de Plástico P.V.C. Para Drenaje
排水用硬質塩化ビニル管継手　P. V. C. 塑料排水管配件

These PVC plastic fittings are used for the fabrication of PVC plastic drain pipes.

General Specifications of Fittings

Nominal Size	Diameter mm		Wall Thickness mm	Applicable Pipe O.D. mm
	O.D.	I.D.		
30	44	38.25	2.7	38
40	54	48.30	2.7	48
50	67	60.35	3.1	60
65	83	76.40	3.1	76
75	97	89.45	3.6	89
100	124	114.55	4.9	114

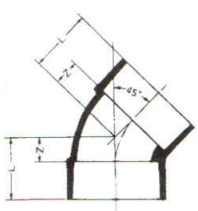
Sizes larger and smaller than those listed below are also available upon request.

PVC Elbows, 45°

for Drain

Codos P.V.C., 45° para Drenaje
排水用 PVC 45°　エルボ　45 度排水用 PVC 弯管





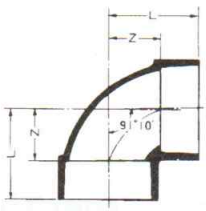
Unit Per Pc.

CODE	Nom. Size	Size mm Z	Size mm L	CODE	Nom. Size	Size mm Z	Size mm L
73 28 01	30	12	30	**73 28 04**	65	22	57
02	40	14	36	**05**	75	25	65
03	50	18	43	**06**	100	30	80

PVC Elbows, 90°
Short Radius for Drain

Codos P.V.C., 90° - Radio Corto para Drenaje
排水用 PVC 90° ショートエルボ 90 度排水用 PVC 弯管





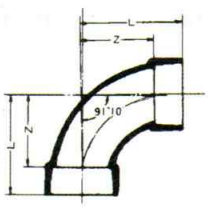
Unit Per Pc.

CODE	Nom. Size	Size mm Z	Size mm L	CODE	Nom. Size	Size mm Z	Size mm L
73 28 11	30	22	40	**73 28 14**	65	42	77
12	40	27	49	**15**	75	48	88
13	50	33	58	**16**	100	62	112

PVC Elbows, 90°
Long Radius for Drain

Codos P.V.C., 90° - Radio Large para Drenaje
排水用 PVC 90° 大曲りエルボ 90 度排水用 PVC 弯管



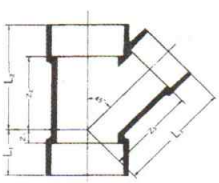


Unit Per Pc.

CODE	Nom. Size	Size mm Z	Size mm L	CODE	Nom. Size	Size mm Z	Size mm L
73 28 21	30	37	55	**73 28 24**	65	90	125
22	40	52	74	**25**	75	100	140
23	50	66	91	**26**	100	128	178

PVC Y-Pieces, 45°
for Drain

Partes-Y Reducidas de P.V.C., 45° para Drenaje
排水用 PVC 45° 違径 Y ピース 45° PVC Y 型接头



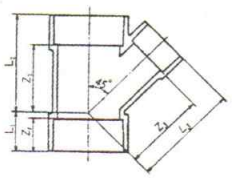
Unit Per Pc.

CODE	Nom. Size	Size mm L_1	Size mm L_2	CODE	Nom. Size	Size mm L_1	Size mm L_2
73 28 31	30	30	63	**73 28 34**	65	55	127
32	40	34	80	**35**	75	66	146
33	50	45	97	**36**	100	82	184

PVC Reducing Y-Pieces, 45°
for Drain

Pieza en Y de P.V.C., 45° para Drenaje
排水用 PVC 45° Y ピース 90 度 PVC Y- 件





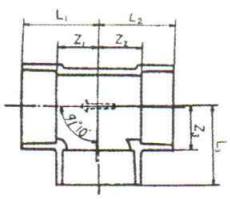
Unit Per Pc.

CODE	Nom. Size	Size mm L_1	Size mm L_2	CODE	Nom. Size	Size mm L_1	Size mm L_2
73 28 41	40 × 30	28	72	**73 28 47**	75 × 50	43	126
42	50 × 30	25	81	**48**	75 × 65	54	138
43	50 × 40	33	87	**49**	100 × 40	36	146
44	65 × 40	34	107	**50**	100 × 50	42	148
45	65 × 50	43	115	**51**	100 × 65	53	160
73 28 46	75 × 40	34	118	**73 28 52**	100 × 75	69	168

PVC Tees
for Drain

Tes P.V.C. Para Drenaje 排水用 PVC チーズ 排水用 PVCT 形管



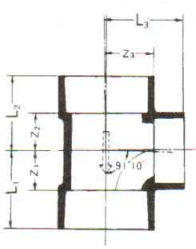


Unit Per Pc.

CODE	Nom. Size	Size mm L_1	Size mm L_3	CODE	Nom. Size	Size mm L_1	Size mm L_3
73 28 61	30	40	40	**73 28 64**	65	77	77
62	40	49	49	**65**	75	88	88
63	50	59	59	**66**	100	112	112

PVC Reducing Tees
for Drain

Tes Reducidas de P.V.C. Para Drenaje
排水用 PVC 違径チーズ PVC 异径三通接头



Unit Per Pc.

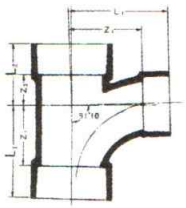
CODE	Nom. Size	Size mm L_1	Size mm L_2	CODE	Nom. Size	Size mm L_1	Size mm L_2
73 28 71	40 × 30	44	45	**73 28 79**	75 × 50	74	73
72	50 × 30	47	51	**80**	75 × 65	82	83
73	50 × 40	52	55	**81**	100 × 30	72	80
74	65 × 30	57	60	**82**	100 × 40	77	84
75	65 × 40	62	64	**83**	100 × 50	84	87
73 28 76	75 × 50	69	67	**73 28 84**	100 × 65	92	97
77	75 × 30	62	66	**85**	100 × 75	98	102
78	75 × 40	67	70				

PVC Reducing Y-Pieces, 90°

Long Radius for Drain

Pieza en Y Reducidas de P.V.C., 90° Radio Largo para Drenaje
排水用 PVC 90° 大曲異径 Y ピース 90 度 PVC 異径 Y- 件





Unit Per Pc.

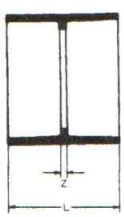
CODE	Nom. Size	Size mm L_1	Size mm L_2	CODE	Nom. Size	Size mm L_1	Size mm L_2
73 29 01	40 × 30	59	42	**73 29 07**	75 × 50	106	69
02	50 × 30	62	46	**08**	75 × 65	130	72
03	50 × 40	77	48	**09**	100 × 40	102	78
04	65 × 40	87	59	**10**	100 × 50	116	82
05	65 × 50	101	62	**11**	100 × 65	140	86
73 29 06	75 × 40	92	65	**73 29 12**	100 × 75	150	83

PVC Sockets

for Drain

Manguitos P.V.C. Para Drenaje 排水用 PVC ソケット PVC 管套





Unit Per Pc.

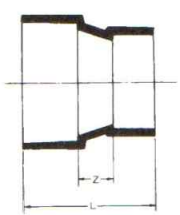
CODE	Nom. Size	Size mm Z	Size mm L	CODE	Nom. Size	Size mm Z	Size mm L
73 29 21	30	3	39	**73 29 24**	65	3	73
22	40	3	47	**25**	75	4	84
23	50	3	53	**26**	100	4	104

PVC Increasers

for Drain

Incrementadores P.V.C. Para Drenaje
排水用 PVC インクリーザー PVC 异径接头管





Unit Per Pc.

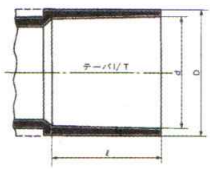
CODE	Nom. Size	Size mm Z	Size mm L	CODE	Nom. Size	Size mm Z	Size mm L
73 29 31	40 × 30	20	60	**73 29 37**	75 × 50	25	90
32	50 × 30	20	63	**38**	75 × 65	25	100
33	50 × 40	20	67	**39**	100 × 40	30	102
34	65 × 40	20	77	**40**	100 × 50	30	105
35	65 × 50	20	80	**41**	100 × 65	30	115
73 29 36	75 × 40	25	87	**73 29 42**	100 × 75	30	120

PVC Plastic Pipe Fittings

for Water Supply

Accesorios de Tuberia Plástica de P.V.C.
水道用硬質塩化ビニル管継手 供水管 PVC 接头

PVC pipe fittings for normal water pressure and temperature. Not recommended using for compressed air or gas system.



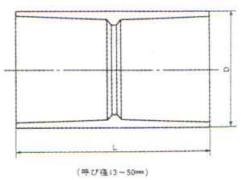
General Specification of Fitting Sizes

Nominal Size	Size mm D	Size mm d	Size mm l
13	24	18.40	26
16	29	22.40	30
20	33	26.45	35
25	40	32.55	40
30	46	38.60	44
40	57	48.70	55
50	70	60.80	63
65	87	76.60	61
75	102	89.60	64
100	130	114.70	84
125	157	140.85	104
150	186	166.00	132

PVC Sockets

for Water Supply

Manguitos P.V.C. para Distribución de Agua o Suministro de Agua
水道用 PVC ソケット
供水用 PVC 管套



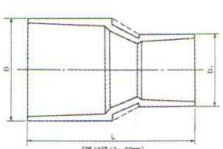
Unit Per Pc.

CODE	Nom. Size	Size mm D	Size mm L
73 29 51	13	24	57
52	16	29	67
53	20	33	77
54	25	40	87
55	30	46	95
73 29 56	40	57	117
57	50	70	133
58	65	87	145
59	75	102	155
60	100	130	200
73 29 61	125	157	231
62	150	186	300

PVC Reducing Sockets

for Water Supply

Manguitos Reducidos de P.V.C.
水道用 PVC 遵径ソケット
水管用 PVC 塑料异径套管



Unit Per Pc.

CODE	Nom. Size	Size mm D	Size mm D1	Size mm L
73 29 71	16 × 13	29	24	61
72	20 × 13	33	24	68
73	20 × 16	33	29	71
74	25 × 13	40	24	86
75	25 × 16	40	29	85

(to be continued)

Unit Per Pc.

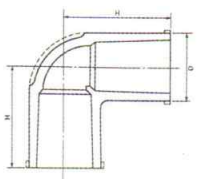
CODE	Nom. Size	Size mm		
		D	D1	L
73 29 76	25 × 20	40	33	84
77	30 × 20	46	33	93
78	30 × 25	46	40	93
79	40 × 20	57	33	113
80	40 × 25	57	40	114
73 29 81	40 × 30	57	46	114
82	50 × 25	70	40	140
83	50 × 30	70	46	136
84	50 × 40	70	57	136
85	65 × 50	87	70	149
73 29 86	75 × 50	102	70	165
87	75 × 65	102	87	159
88	100 × 75	130	102	190
89	125 × 100	157	130	229
90	150 × 100	186	130	295
73 29 91	150 × 125	186	157	272

PVC Elbows, 90°

for Water Supply

Codos P.V.C. 90° Para Distribución

水道用 PVC90° エルボ　90 度 PVC 弯管



Unit Per Pc.

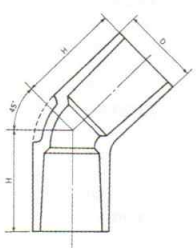
CODE	Nom. Size	Size mm	
		D	L
73 30 01	13	24	36
02	16	29	43
03	20	33	50
04	25	40	58
05	30	46	65
73 30 06	40	57	82
07	50	70	96
08	65	87	110
09	75	102	120
10	100	130	155
73 30 11	125	157	187
12	150	186	230

PVC Elbows, 45°

for Water Supply

Codos P.V.C. 45° Para Distribución

水道用 PVC45° エルボ　45 度 PVC 弯管



Unit Per Pc.

CODE	Nom. Size	Size mm	
		D	L
73 30 15	13	24	33
16	20	33	44

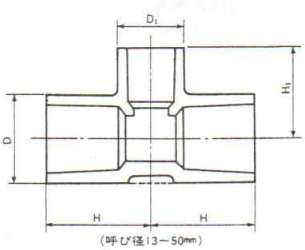
PVC Tees

for Water Supply

Tes P.V.C. Para Distribución de Agua o Suministro de Agua

水道用 PVC チーズ

PVC T 形管



Unit Per Pc.

CODE	Nom. Size	Size mm			
		D	H	D1	L
73 30 21	13 × 13	24	36	24	36
22	16 × 13	29	41	24	38
23	16 × 16	29	43	29	43
24	20 × 13	33	46	24	40
25	20 × 16	33	48	29	45
73 30 26	20 × 20	33	50	33	50
27	25 × 13	40	51	24	43
28	25 × 16	40	53	29	48
29	25 × 20	40	55	33	53
30	25 × 25	40	58	40	58
73 30 31	30 × 13	46	55	24	46
32	30 × 16	46	57	29	51
33	30 × 20	46	59	33	56
34	30 × 25	46	62	40	61
35	30 × 30	46	65	46	65
73 30 36	40 × 13	57	66	24	52
37	40 × 16	57	68	29	57
38	40 × 20	57	70	33	62
39	40 × 25	57	73	40	67
40	40 × 30	57	76	46	71
73 30 41	40 × 40	57	82	57	82
42	50 × 13	70	74	24	58
43	50 × 16	70	76	29	63
44	50 × 20	70	78	33	68
45	50 × 25	70	81	40	73
73 30 46	50 × 30	70	84	46	77
47	50 × 40	70	90	57	88
48	50 × 50	70	96	70	96
49	65 × 50	87	101	70	104
50	65 × 65	87	110	87	110
73 30 51	75 × 25	102	81	40	88
52	75 × 40	102	100	57	102
53	75 × 50	102	105	70	110
54	75 × 65	102	113	87	117
55	75 × 75	102	120	102	120
73 30 56	100 × 50	130	125	70	122
57	100 × 75	130	140	102	132
58	100 × 100	130	152	130	152
59	125 × 75	157	160	102	147
60	125 × 100	157	173	130	167
73 30 61	125 × 125	157	187	157	187
62	150 × 75	186	195	102	158
63	150 × 100	186	208	130	182
64	150 × 125	186	217	157	201
65	150 × 150	186	230	186	230

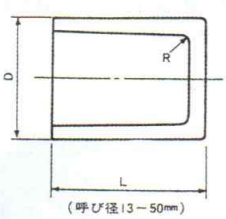
PVC Caps

for Water Supply

Tapones P.V.C. para Distribución

水道用 PVC キャップ

水管用 PVC 三通



Unit Per Pc.

CODE	Nom. Size	Size mm	
		D	L
73 30 71	13	24	29.0
72	16	29	33.5
73	20	33	38.5
74	25	40	44.0
75	30	46	48.0
73 30 76	40	57	59.5
77	50	70	68.0
78	75	102	105.0
79	100	130	138.0
80	125	157	171.0
73 30 81	150	186	205.0

Steel Compression Tube Fittings

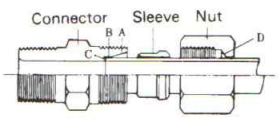
For High Pressure Service
250 kgf/cm² – 400 kgf/cm²

Accessoios para Tuberia de Alta Presión de (Acero) Comprensión
鋼製高圧配管用継手　钢制管接头

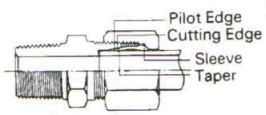
These fittings are used for pneumatic, chemical and most other fluids without flaring-welding.

Threads of these pipe fittings conform to the Taper Pipe Threads of JIS B 0203 and ISO 7/1 standards.

Types with a rated pressure of 100 kgf/cm² are also available upon request.



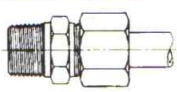
Before Assembly



After Assembly

Steel Compression Connectors

Conexión de Comprensión de Acero Unión Macho
ニップル型継手　压缩钢接头



How to order: CODE

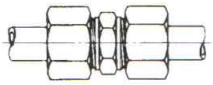
Steel compression connector, RATED PRESSURE, TUBE O.D. mm, THREAD END SIZE

Unit Per Pc.

CODE	Tube O.D. mm	Thread End PT	CODE	Tube O.D. mm	Thread End PT
Rated Pressure 400 kgf/cm²					
For Millimeter Size Tube O.D.					
73 31 01	4	1/8	**73 31 11**	15	1/2
02	6	1/8	**12**	16	3/8
03	6	1/4	**13**	16	1/2
04	8	1/8	**14**	18	3/8
05	8	1/4	**15**	18	1/2
73 31 06	10	1/4	**73 31 16**	20	1/2
07	10	3/8	**17**	20	3/4
08	12	1/4	**18**	22	1/2
09	12	3/8	**19**	22	3/4
10	15	3/8			
For Inch Size Tube O.D.					
73 31 21	10.5	1/8	**73 31 25**	17.3	3/8
22	10.5	1/4	**26**	17.3	1/2
23	13.8	1/4	**27**	21.7	1/2
24	13.8	3/8	**28**	21.7	3/4
Rated Pressure 350 kgf/cm²					
For Millimeter Size Tube O.D.					
73 31 31	25	1	**73 31 32**	28	1
For Inch Size Tube O.D.					
73 31 36	27.2	3/4	**73 31 37**	27.2	1
Rated Pressure 250 kgf/cm²					
For Millimeter Size Tube O.D.					
73 31 41	30	1-1/4	**73 31 43**	38	1-1/2
42	35	1-1/4	**44**	42	1-1/2
For Inch Size Tube O.D.					
73 31 46	34	1	**73 31 48**	42.7	1-1/4
47	34	1-1/4	**49**	42.7	1-1/2

Steel Compression Unions

Uniones de Compresión de Acero
ユニオン型継手
压缩钢管节



How to order: CODE

Steel compression union, RATED PRESSURE, TUBE O.D. mm

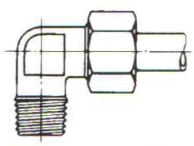
Unit Per Pc.

CODE	Tube O.D. mm	CODE	Tube O.D. mm
Rated Pressure 400 kgf/cm²			
For Millimeter Size Tube O.D.			
73 31 51	4	**73 31 56**	15
52	6	**57**	16
53	8	**58**	18
54	10	**59**	20
55	12	**60**	22
For Inch Size Tube O.D.			
73 31 66	10.5	**73 31 68**	17.3
67	13.8	**69**	21.7
Rated Pressure 350 kgf/cm²			
For Millimeter Size Tube O.D.			
73 31 71	25	**73 31 72**	28
For Inch Size Tube O.D.			
73 31 76	27.2		
Rated Pressure 250 kgf/cm²			
For Millimeter Size Tube O.D.			
73 31 81	30	**73 31 83**	38
82	35	**84**	42
For Inch Size Tube O.D.			
73 31 86	34.0	**73 31 87**	42.7

Steel Compression Elbows

with Male End

Codos de Macho de Compresión de Acero
エルボ型ねじ込み継手
压缩钢弯管接头



How to order: CODE

Steel compression elbow with male end, RATED PRESSURE, TUBE O.D. mm, THREAD END SIZE

Unit Per Pc.

CODE	Tube O.D. mm	Thread End PT	CODE	Tube O.D. mm	Thread End PT
Rated Pressure 400 kgf/cm²					
For Millimeter Size Tube O.D.					
73 32 01	4	1/8	**73 32 11**	15	1/2
02	6	1/8	**12**	16	3/8
03	6	1/4	**13**	16	1/2
04	8	1/8	**14**	18	3/8
05	8	1/4	**15**	18	1/2
73 32 06	10	1/4	**73 32 16**	20	1/2
07	10	3/8	**17**	20	3/4
08	12	1/4	**18**	22	1/2
09	12	3/8	**19**	22	3/4
10	15	3/8			
For Inch Size Tube O.D.					
73 32 21	10.5	1/8	**73 32 25**	17.3	3/8
22	10.5	1/4	**26**	17.3	1/2
23	13.8	1/4	**27**	21.7	1/2
24	13.8	3/8	**28**	21.7	3/4

(to be continued)

Unit Per Pc.

CODE	Tube O.D. mm	Thread End PT	CODE	Tube O.D. mm	Thread End PT
Rated Pressure 350 kgf/cm²					
For Millimeter Size Tube O.D.					
73 32 31	25	1	**73 32 32**	28	1
For Inch Size Tube O.D.					
73 32 36	27.2	3/4	**73 32 37**	27.2	1
Rated Pressure 250 kgf/cm²					
For Millimeter Size Tube O.D.					
73 32 41	30	1-1/4	**73 32 43**	38	1-1/2
42	35	1-1/4	**44**	42	1-1/2
For Inch Size Tube O.D.					
73 32 46	34	1	**73 32 48**	42.7	1-1/4
47	34	1-1/4	**49**	42.7	1-1/2

Steel Compression Elbows

Codos de Compresión de Acero
エルボ型管継手
压缩钢弯管接头



How to order: CODE

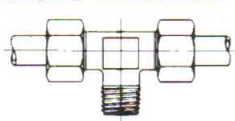
Steel compression elbow, RATED PRESSURE,TUBE O.D. mm

Unit Per Pc.

CODE	Tube O.D. mm	CODE	Tube O.D. mm
Rated Pressure 400 kgf/cm²			
For Millimeter Size Tube O.D.			
73 32 51	4	**73 32 56**	15
52	6	**57**	16
53	8	**58**	18
54	10	**59**	20
55	12	**60**	22
For Inch Size Tube O.D.			
73 32 66	10.5	**73 32 68**	17.3
67	13.8	**69**	21.7
Rated Pressure 350 kgf/cm²			
For Millimeter Size Tube O.D.			
73 32 71	25	**73 32 72**	28
For Inch Size Tube O.D.			
73 32 76	27.2		
Rated Pressure 250 kgf/cm²			
For Millimeter Size Tube O.D.			
73 32 81	30	**73 32 83**	38
82	35	**84**	42
For Inch Size Tube O.D.			
73 32 86	34.0	**73 32 87**	42.7

Steel Compression Male Branch Tees

Tes de Comprensión de Acero Macho
T 型ねじ込み継手
压缩钢阳极 T 形管接头



How to order: CODE

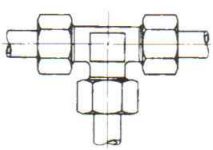
Steel compression male branch tee, RATED PRESSURE, TUBE O.D. mm, THREAD END SIZE

Unit Per Pc.

CODE	Tube O.D. mm	Thread End PT	CODE	Tube O.D. mm	Thread End PT
Rated Pressure 400 kgf/cm²					
For Millimeter Size Tube O.D.					
73 33 01	4	1/8	**73 33 09**	12	3/8
02	6	1/8	**10**	15	3/8
03	6	1/4	**11**	15	1/2
04	8	1/8	**12**	16	1/2
05	8	1/4	**13**	18	1/2
73 33 06	10	1/4	**73 33 14**	20	3/4
07	10	3/8	**15**	22	3/4
08	12	1/4			
For Inch Size Tube O.D.					
73 33 21	10.5	1/4	**73 33 24**	17.3	1/2
22	13.8	3/8	**25**	21.7	1/2
23	17.3	3/8	**26**	21.7	3/4
Rated Pressure 350 kgf/cm²					
For Millimeter Size Tube O.D.					
73 33 31	25	1	**73 33 32**	28	1
For Inch Size Tube O.D.					
73 33 36	27.2	3/4	**73 33 37**	27.2	1
Rated Pressure 250 kgf/cm²					
For Millimeter Size Tube O.D.					
73 33 41	30	1-1/4	**73 33 43**	38	1-1/2
42	35	1-1/4	**44**	42	1-1/2
For Inch Size Tube O.D.					
73 33 46	34	1	**73 33 48**	42.7	1-1/2
47	34	1-1/4			

Steel Compression Tees

Tes de Compresión de Acero
T 型管継手　T 形管接头



How to order: CODE

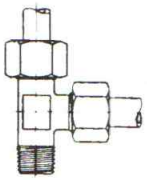
Steel compression tee, RATED PRESSURE, TUBE O.D.mm

Unit Per Pc.

CODE	Tube O.D. mm	CODE	Tube O.D. mm
Rated Pressure 400 kgf/cm²			
For Millimeter Size Tube O.D.			
73 33 51	4	**73 33 56**	15
52	6	**57**	16
53	8	**58**	18
54	10	**59**	20
55	12	**60**	22
For Inch Size Tube O.D.			
73 33 66	10.5	**73 33 68**	17.3
67	13.8	**69**	21.7
Rated Pressure 350 kgf/cm²			
For Millimeter Size Tube O.D.			
73 33 71	25	**73 33 72**	28
For Inch Size Tube O.D.			
73 33 76	27.2		
Rated Pressure 250 kgf/cm²			
For Millimeter Size Tube O.D.			
73 33 81	30	**73 33 83**	38
82	35	**84**	42
For Inch Size Tube O.D.			
73 33 86	34.0	**73 33 87**	42.7

Steel Compression Male Run Tees

Tes Machos Laterales de Compresión de Acero
サービスＴ型管継手
高压管外丝三通接头（公制）



How to order: CODE

Steel compression male run tee, RATED PRESSURE, TUBE O.D. mm, THREAD END SIZE

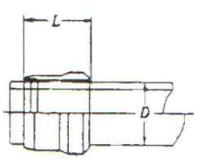
Unit Per Pc.

CODE	Tube O.D. mm	Thread End PT	CODE	Tube O.D. mm	Thread End PT
Rated Pressure 400 kgf/cm²					
For Millimeter Size Tube O.D.					
73 34 01	4	1/8	**73 34 09**	12	3/8
02	6	1/8	**10**	15	3/8
03	6	1/4	**11**	15	1/2
04	8	1/8	**12**	16	1/2
05	8	1/4	**13**	18	1/2
73 34 06	10	1/4	**73 34 14**	20	3/4
07	10	3/8	**15**	22	3/4
08	12	1/4			
For Inch Size Tube O.D.					
73 34 21	10.5	1/4	**73 34 24**	17.3	1/2
22	13.8	3/8	**25**	21.7	1/2
23	17.3	3/8	**26**	21.7	3/4
Rated Pressure 350 kgf/cm²					
For Millimeter Size Tube O.D.					
73 34 31	25	1	**73 34 32**	28	1
For Inch Size Tube O.D.					
73 34 36	27.2	3/4	**73 34 37**	27.2	1
Rated Pressure 250 kgf/cm²					
For Millimeter Size Tube O.D.					
73 34 41	30	1-1/4	**73 34 43**	38	1-1/2
42	35	1-1/4	**44**	42	1-1/2
For Inch Size Tube O.D.					
73 34 46	34	1	**73 34 48**	42.7	1-1/2
47	34	1-1/4			

Steel Sleeves

For Steel Compression Tube Fitting

Ovalillos Acero para Conexión de Tubería de Compresión de Acero
鋼製コンプレッション管継手用スチールスリーブ
用于钢制压缩管接头 钢套管



How to order: CODE

Steel sleeve for compression tube fitting, RATED PRESSURE, TUBE O.D. mm

Unit Per Pc.

CODE	Tube O.D. mm	L mm	CODE	Tube O.D. mm	L mm
Rated Pressure 400 kgf/cm²					
For Millimeter Size Tube O.D.					
73 34 51	4	8	**73 34 56**	15	10
52	6	9.5	**57**	16	10.5
53	8	9.5	**58**	18	10.5
54	10	10	**59**	20	11.5
55	12	10	**60**	22	11.5
For Inch Size Tube O.D.					
73 34 66	10.5	10	**73 34 68**	17.3	10.5
67	13.8	10	**69**	21.7	11.5

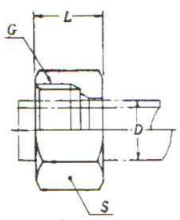
(to be contunued)

Rated Pressure 350 kgf/cm²					
For Millimeter Size Tube O.D.					
73 34 71	25	12	**73 34 72**	28	12
For Inch Size Tube O.D.					
73 34 76	27.2	12			
Rated Pressure 250 kgf/cm²					
For Millimeter Size Tube O.D.					
73 34 81	30	13	**73 34 83**	38	13.5
82	35	13	**84**	42	13.5
For Inch Size Tube O.D.					
73 34 86	34	13	**73 34 87**	42.7	14

Steel Nuts

For Steel Compression Fitting

Tuercas de Acero para Conexión de Compresión de Acero
スチール圧縮フィッティング用スチールナット
用于钢制压缩接头 钢螺母



The threads conform with the metric fine series outlined by JIS B 0207 standards. The pitch sizes are listed as follows.

How to order : CODE

Steel nut for compression tube fitting, RATED PRESSURE, TUBE O.D. mm

Unit Per Pc.

CODE	Tube O.D. mm	Thread MF I.D. Pitch	CODE	Tube O.D. mm	Thread MF I.D. Pitch
Rated Pressure 400 kgf/cm²					
For Millimeter Size Tube O.D.					
73 35 01	4	M10×1.25	**73 35 06**	15	M22×1.5
02	6	M10×1.5	**07**	16	M24×1.5
03	8	M14×1.5	**08**	18	M26×1.5
04	10	M16×1.5	**09**	20	M28×1.5
05	10	M18×1.5	**10**	22	M30×1.5
For Inch Size Tube O.D.					
73 35 16	10.5	M16×1.5	**73 35 18**	17.3	M26×1.5
17	13.8	M20×1.5	**19**	21.7	M30×1.5
Rated Pressure 350 kgf/cm²					
For Millimeter Size Tube O.D.					
73 35 21	25	M34×1.5	**73 35 22**	28	M36×1.5
For Inch Size Tube O.D.					
73 35 26	27.2	M36×1.5			
Rated Pressure 250 kgf/cm²					
For Millimeter Size Tube O.D.					
73 35 31	30	M40×1.5	**73 35 33**	38	M48×1.5
32	35	M45×1.5	**34**	42	M52×2
For Inch Size Tube O.D.					
73 35 36	34.0	M45×1.5	**73 35 37**	42.7	M56×2

Brass 45° Flared Tube Fittings

Conexión de Tuberia Abocardada 45° de Latón
45° フレアー型真鍮継手　　45° 扩口黄铜接头

For use with copper, brass, aluminium and steel tubings. Working Temperature: –20°C - 150°C.



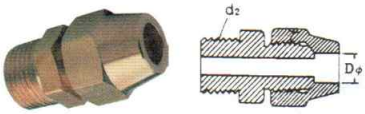
Working Pressure

Tube Size O.D. mm	Rated Pressure	Bursting Pressure
6	250 kgf/cm²	1,000 kgf/cm² & Over
8	250 "	1,000 "
10	180 "	700 "
12	150 "	650 "

Brass Flared Half Unions

Straight Thread End

Media Uniones Abocardada Macho de Latón - Rosca Recta
ストレートハーフ真鍮ユニオン　黄铜接管器，直管丝端（公制）



How to order CODE

Brass flared half union, straight thread end, TUBE O.D. mm, THREAD END SIZE

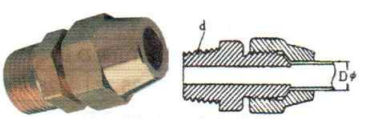
Unit Per Pc.

For Millimeter Size Tube O.D.			For Inch Size Tube O.D.		
CODE	Tube O.D. D mm	Thread End d_2PF	CODE	Tube O.D. D Inch	Thread End d_2PF
73 36 01	6	1/8	**73 36 16**	1/4	1/8
02		1/4	**17**		1/4
03		3/8	**18**		3/8
73 36 04	8	1/8	**73 36 19**	3/8	1/4
05		1/4	**20**		3/8
06		3/8	**21**		1/2
73 36 07	10	1/4	**73 36 22**	1/2	3/8
08		3/8	**23**		1/2
09		1/2	**73 36 24**	5/8	1/2
73 36 10	12	3/8			
11		1/2			

Brass Flared Half Unions

Taper Thread End

Media Uniones Abocardada Macho de Latón - Rosca Cónica
テーパー真鍮ハーフユニオン　黄铜接管器，锥管丝端（公制）



How to order: CODE

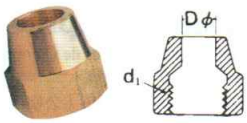
Brass flared half union, taper thread end, TUBE O.D. mm, THREAD END SIZE

Unit Per Pc.

For Millimeter Size Tube O.D.			For Inch Size Tube O.D.		
CODE	Tube O.D. D mm	Thread End d PT	CODE	Tube O.D. D Inch	Thread End d PT
73 36 31	6	1/8	**73 36 46**	1/4	1/8
32		1/4	**47**		1/4
33		3/8	**48**		3/8
73 36 34	8	1/8	**73 36 49**	3/8	1/4
35		1/4	**50**		3/8
36		3/8	**51**		1/2
73 36 37	10	1/4	**73 36 52**	1/2	3/8
38		3/8	**53**		1/2
39		1/2	**73 36 54**	5/8	1/2
73 36 40	12	3/8			
41		1/2			

Brass Flared Nuts

Tuercas Abocardadas de Latón
真鍮フレアーナット
黄铜接管螺母（公制）



How to order: CODE

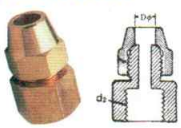
Brass flared nut, TUBE O.D. mm, THREAD SIZE

Unit Per Pc.

For Millimeter Size Tube O.D.			For Inch Size Tube O.D.		
CODE	Tube O.D. D mm	Unf Thread Size × Nos. d_1	CODE	Tube O.D. D Inch	Unf Thread Size × Nos. d_1
73 36 61	6	7/16×20s	**73 36 71**	1/4	7/16×20s
62		1/2×20s	**72**		1/2×20s
73 36 63	8	1/2×20s	**73 36 73**	3/8	5/8×18s
64		5/8×18s	**74**		3/4×16s
73 36 65	10	5/8×18s	**73 36 75**	1/2	3/4×16s
66		3/4×16s			
73 36 67	12	3/4×16s	**73 36 76**	5/8	7/8×14s

Brass Flared Reducing Unions

Uniones Reducidas Abocardadas de Latón
真鍮ゲージヒッチング　黄铜扩口异径接头



How to order: CODE

Brass flared reducing union, TUBE O.D. mm, or inch

Unit Per Pc.

For Millimeter Size Tube O.D.			For Inch Size Tube O.D.		
CODE	Tube O.D. D mm	Thread Female d_2 PF	CODE	Tube O.D. D mm	Thread Female d_2 PF
73 36 91	6	1/4	**73 36 96**	1/4	1/4
92	8	1/4	**97**	3/8	3/8
93	10	3/8	**98**	1/2	1/2
94	12	1/2			

Brass Flared Union Couplings

Uniones Abocardadade Latón
真鍮ユニオン　黄铜扩口管接头



How to order: CODE

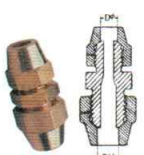
Brass flared union coupling, TUBE O.D. mm, or inch

Unit Per Pc.

For Millimeter Size Tube O.D.		For Inch Size Tube O.D.	
CODE	Tube O.D. D mm	CODE	Tube O.D. D Inch
73 37 01	6 × 6	**73 37 06**	1/4 × 1/4
02	8 × 8	**07**	3/8 × 3/8
03	10 × 10	**08**	1/2 × 1/2
04	12 × 12	**09**	5/8 × 5/8

Brass Flared Reducing Union Couplings

Uniones Reducidos Abocardadas de Latón
真鍮違径ユニオン　黄铜异径扩口管接头



How to order: CODE

Brass flared reducing union coupling, TUBE O.D. mm, or inch

Unit Per Pc.

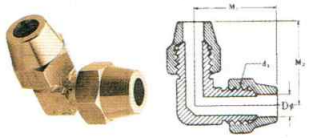
CODE	Tube O.D. D mm	Tube O.D. D'Inch	CODE	Tube O.D. D Inch	Tube O.D. D'Inch
73 37 11	6	3/8	**73 37 15**	1/4	3/8
12		10 mm	**16**		10 mm
13		12 mm	**17**		12 mm
14		1/2	**18**		1/2

Brass Flared Elbows, 90°

Codos Abocardados de Latón 90° 真鍮エルボ 90 度黄铜扩口弯管接头

How to order: CODE

Brass flared elbow 90°, TUBE O.D.



Unit Per Pc.

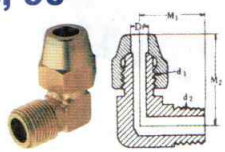
For Millimeter Size Tube O.D.		For Inch Size Tube O.D.	
CODE	Tube O.D. D mm	CODE	Tube O.D. D Inch
73 37 41	6 × 6	**73 37 46**	1/4 × 1/4
42	8 × 8	**47**	3/8 × 3/8
43	10 × 10	**48**	1/2 × 1/2
44	12 × 12	**49**	5/8 × 5/8

Brass Flared Elbows, 90°

with Male End

Codos Abocardados de Latón, 90° Macho
真鍮ねじ込みエルボ
90 度黄铜扩口弯管接头

Tapered pipe thread on male end.



How to order: CODE

Brass flared elbow, 90° with male end, TUBE O.D., MALE THREAD SIZE

Unit Per Pc.

CODE	Tube O.D. D Inch	Male Thread d_2 PT	CODE	Tube O.D. D Inch	Male Thread d_2 PT
73 37 51	6 mm	1/8	**73 37 58**	10 mm	1/4
52		1/4	**59**		3/8
73 37 53	1/4	1/8	**73 37 60**	12 mm	3/8
54		1/4	**61**		1/2
73 37 55	8 mm	1/4	**73 37 62**	1/2	3/8
73 37 56	3/8	1/4	**63**		1/2
57		3/8	**73 37 64**	5/8	1/2

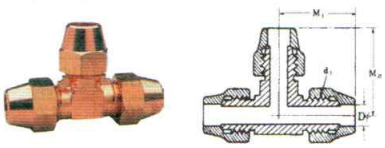
Brass Flared Tees

Tes Abocardadas de Latón 真鍮チーズ T 形黄铜扩口管

Equal O.D. tube size tees.

How to order: CODE

Brass flared tee, TUBE O.D.



Unit Per Pc.

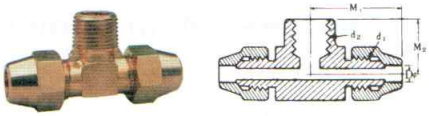
For Millimeter Size Tube O.D.		For Inch Size Tube O.D.	
CODE	Tube O.D. D mm	CODE	Tube O.D. D Inch
73 37 71	6	**73 37 76**	1/4
72	8	**77**	3/8
73	10	**78**	1/2
74	12	**79**	5/8

Brass Flared Tees

with Male Thread End

Tes Abocardadas de Latón con Rosca Macho
真鍮雄ねじブランチチーズ T 形黄铜扩口管

The male end has tapered pipe thread.



How to order: CODE

Brass flared tee with male thread end, TUBE O.D., MALE THREAD SIZE

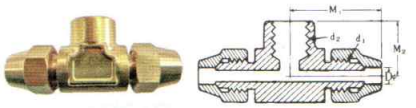
Unit Per Pc.

For Millimeter Size Tube O.D.			For Inch Size Tube O.D.		
CODE	Tube O.D. D mm	Male Thread d_2 PT	CODE	Tube O.D. D Inch	Male Thread d_2 PT
73 37 81	6	1/8	**73 37 91**	1/4	1/8
73 37 82		1/4	**73 37 92**		1/4
73 37 83	8	1/4	**73 37 93**	3/8	1/4
73 37 84	10	1/4	**73 37 94**		3/8
73 37 85		3/8	**73 37 95**	1/2	3/8
73 37 86	12	3/8	**73 37 96**		1/2
73 37 87		1/2			

Brass Flared Tees

with Female Thread End

Tes Abocardadas de Latón con Rosca Hembra
真鍮雌ねじブランチチーズ T 形黄铜扩口管



How to order: CODE

Brass flared tee with female thread end, TUBE O.D. mm, FEMALE THREAD SIZE

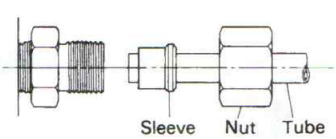
Unit Per Pc.

For Millimeter Size Tube O.D.			For Inch Size Tube O.D.		
CODE	Tube O.D. D mm	Female Thread d_2 PT	CODE	Tube O.D. D mm	Female Thread d_2 PT
73 38 01	6	1/8	**73 38 11**	1/4	1/8
73 38 02		1/4	**73 38 12**		1/4
73 38 03	8	1/4	**73 38 13**	3/8	1/4
73 38 04	10	1/4	**73 38 14**		3/8
73 38 05		3/8	**73 38 15**	1/2	3/8
73 38 06	12	3/8	**73 38 16**		1/2
73 38 07		1/2			

Brass Flareless Compression Tube Fittings

Tuercas de Latón para Conexión de Tuberia sin Abocardar
真鍮くい込み継手 管附件的黄铜螺母

Used for connecting copper tubing. No soldering or flaring is required. Pipes and fittings are tightly connected by sleeves as illustrated.



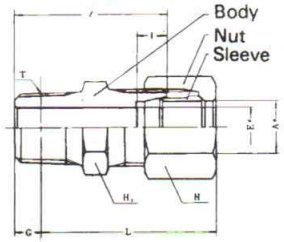
Working Pressure

Copper Tube O.D. mm	Rated Pressure kgf/cm²
4 - 15	140
20, 25	105

Brass Flareless Male Connectors

Uniones Macho sin Abocardar de Latón
真鍮オスコネクター　黄铜阳性接头





How to order: CODE

Brass flareless male connector, TUBE O.D., THREAD END SIZE

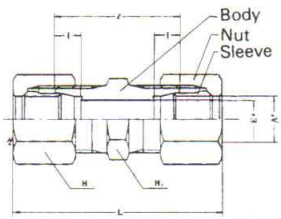
Unit Per Pc.

CODE	Tube O.D. mm	Thread End PT	CODE	Tube O.D. mm	Thread End PT
73 40 01	4	1/8	**73 40 09**	12	3/8
02	6	1/8	**10**	15	3/8
03	6	1/4	**11**	15	1/2
04	8	1/8	**12**	20	1/2
05	8	1/4	**13**	20	3/4
73 40 06	10	1/4	**73 40 14**	25	3/4
07	10	3/8	**15**	25	1
08	12	1/4			

Brass Flareless Unions

Uniones sin Abocarda de Latón　真鍮ユニオン　黄铜连接管





How to order: CODE

Brass flareless union, TUBE O.D.

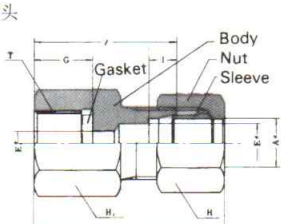
Unit Per Pc.

CODE	Tube O.D. mm	Thread Nut PF	CODE	Tube O.D. mm	Thread Nut PF
73 40 21	4	1/8	**73 40 25**	12	1/2
29	6	1/8	**26**	15	5/8
22	6	1/4	**27**	20	3/4
23	8	1/4	**28**	25	1
24	10	3/8			

Brass Flareless Female Couplings

Uniones Hembra sin Abocardar de Latón
真鍮ソケット　黄铜阴性管接头





How to order: CODE

Brass flareless female coupling, TUBE O.D., FEMALE THREAD SIZE

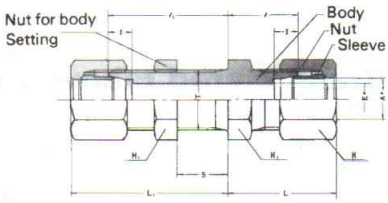
Unit Per Pc.

CODE	Tube O.D. mm	Thread Female PT	CODE	Tube O.D. mm	Thread Female PT
73 40 31	4	1/4	**73 40 38**	8	1/2
32		3/8	**73 40 39**	10	1/4
73 40 33	6	1/4	**40**		3/8
34		3/8	**41**		1/2
35		1/2	**73 40 42**	12	1/4
73 40 36	8	1/4	**43**		3/8
37		3/8	**44**		1/2

Brass Flareless Bulkhead Unions

Uniones Pasatabiques sin Abocardar de Latón
隔壁ユニオン　黄铜壁舱接头





How to order: CODE

Brass flareless bulkhead union, TUBE O.D., NUT THREAD SIZE

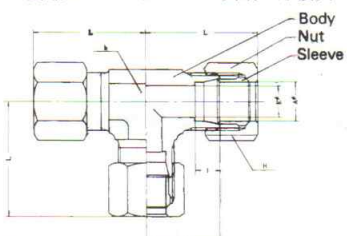
Unit Per Pc.

CODE	Tube O.D. mm	Nut Thread PF	CODE	Tube O.D. mm	Nut Thread PF
73 40 51	4	1/8	**73 40 55**	12	1/2
52	6	1/4	**56**	15	5/8
53	8	1/4	**57**	20	3/4
54	10	3/8	**58**	25	1

Brass Flareless Union Tees

Tes sin Abocardar de Latón　真鍮ユニオンチーズ　黄铜 T 形接头





How to order: CODE

Brass flareless union tee, TUBE O.D., NUT THREAD SIZE

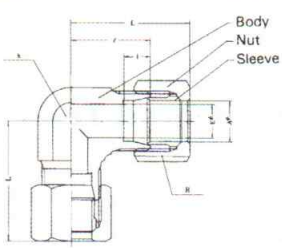
Unit Per Pc.

CODE	Tube O.D. mm	Nut Thread PF	CODE	Tube O.D. mm	Nut Thread PF
73 40 61	4	1/8	**73 40 65**	12	1/2
62	6	1/4	**66**	15	5/8
63	8	1/4	**67**	20	3/4
64	10	3/8	**68**	25	1

Brass Flareless Union Elbows

Codos sin Abocrdar de Latón　真鍮ユニオンエルボ　黄铜弯管接头





How to order: CODE

Brass flareless union elbow, TUBE O.D., NUT THREAD SIZE

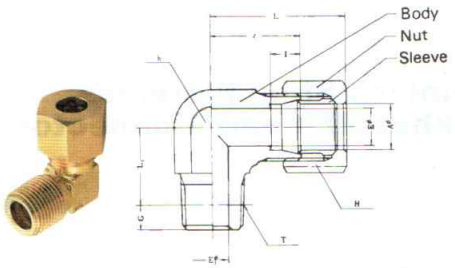
Unit Per Pc.

CODE	Tube O.D. mm	Nut Thread PF	CODE	Tube O.D. mm	Nut Thread PF
73 40 71	4	1/8	**73 40 75**	12	1/2
72	6	1/4	**76**	15	5/8
73	8	1/4	**77**	20	3/4
74	10	3/8	**78**	25	1

Brass Flareless Male Elbows

Codos Machos sin Abocardar de Latón

真鍮雄ねじエルボ　黄铜阳性弯管接头



How to order: CODE

Brass flareless male elbow, TUBE O.D., THREAD END SIZE

Unit Per Pc.

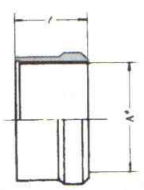
CODE	Tube O.D. mm	Thread End PT	CODE	Tube O.D. mm	Thread End PT
73 40 81	4	1/8	**73 40 89**	12	3/8
82	6	1/8	**90**	15	3/8
83	6	1/4	**91**	15	1/2
84	8	1/8	**92**	20	1/2
85	8	1/4	**93**	20	3/4
73 40 86	10	1/4	**73 40 94**	25	3/4
87	10	3/8	**95**	25	1
88	12	1/4			

Brass Sleeves

for Flareless Tube Fitting

Ovalillos de Latón para Conexión

真鍮圧着継手スリーブ　管附件的黄铜衬套



Unit Per Pc.

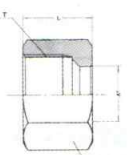
CODE	Tube O.D. mm	Length mm	CODE	Tube O.D. mm	Length mm
73 41 01	4	7	**73 41 05**	12	10
02	6	9	**06**	15	10
03	8	9	**07**	20	10
04	10	10	**08**	25	11

Brass Nuts

for Flareless Tube Fitting

Tuercas de latón para racores sin abocardar

真鍮圧着継手ナット　管附件的黄铜螺母



Unit Per Pc.

CODE	Tube O.D. mm	Nut Thread	CODE	Tube O.D. mm	Nut Thread
73 41 11	4	M10×1.25	**73 41 15**	12	M18×1.5
12	6	M12×1.5	**16**	15	M22×1.5
13	8	M14×1.5	**17**	20	M28×1.5
14	10	M16×1.5	**18**	25	M34×1.5

Stainless Steel Flareless Tube Fittings

Conexión de Tuberia sin Abocardar de Acero-inoxidable

ステンレスチューブ継手　不锈钢管接头

These stainless steel flareless tube fittings have the following characteristics and specifications.

1. Applicable for extreme high and low temperatures.
2. Applicable for high pressure.
3. May be used for vacuum lines.
4. May be used for gas analyzer lines when high accuracy is required.

How to assemble



Specifications

Material	Stainless Steel SUS 316
Test Pressure	850 Kgf/cm^2
Working Pressure	210 "
Thread	JIS PT (Taper Pipe Thread) and JIS PF for union of pressure gauge

Stainless Steel Flareless Male Connectors

Uniones Machos sin Abocardar de acero-inoxidable

ステンレス雄ねじコネクター　不锈钢管接头



How to order: CODE

Stainless steel flareless male connector, TUBE O.D., MALE THREAD SIZE

Unit Per Pc.

CODE	Tube O.D.	Thread Male End	CODE	Tube O.D.	Thread Male End
73 43 01	6 mm	PT 1/8	**73 43 09**	10 mm	PT 1/4
02		" 1/4	**10**		" 3/8
03		" 3/8	**11**		" 1/2
04		" 1/2			
73 43 05	8 mm	PT 1/8	**73 43 12**	12 mm	PT 1/4
06		" 1/4	**13**		" 3/8
07		" 3/8	**14**		" 1/2
08		" 1/2			

Stainless Steel Flareless Male Elbows

Codos Machos sin Abocardar de Acero-inoxidable

ステンレス雄ねじエルボ　不锈钢弯头



How to order: CODE

Stainless steel flareless male elbow, TUBE O.D., MALE THREAD SIZE

Unit Per Pc.

CODE	Tube O.D.	Thread Male End	CODE	Tube O.D.	Thread Male End
73 43 21	6 mm	PT 1/8	**73 43 29**	10 mm	PT 1/4
22		" 1/4	**30**		" 3/8
23		" 3/8	**31**		" 1/2
24		" 1/2			
73 43 25	8 mm	PT 1/8	**73 43 32**	12 mm	PT 1/4
26		" 1/4	**33**		" 3/8
27		" 3/8	**34**		" 1/2
28		" 1/2			

Stainless Steel Flareless Bulkhead Male Connectors

Uniones Macho Pasatabiques sin Abocardar de Acero-inoxidabñle
ステンレス雄ねじバルクヘッドコネクター　不锈钢管舱壁接头

How to order: CODE
Stainless steel flareless bulkhead male connector, TUBE O.D., MALE THREAD SIZE



Unit Per Pc.

CODE	Tube O.D.	Thread Male End	CODE	Tube O.D.	Thread Male End
73 43 41 42	6 mm	PT1/8 " 1/4	73 43 44	10 mm	PT 1/4
73 43 43	8 mm	PT1/4	73 43 45	12 mm	PT 3/8

Stainless Steel Flareless Male Run Tees

Tes Macho lateral sin Abocardar de Acero-inoxidable
ステンレス雄ねじランチーズ　不锈钢外丝支路 T 型管

How to order: CODE
Stainless steel flareless male run tee, TUBE O.D., MALE THREAD SIZE



Unit Per Pc.

CODE	Tube O.D.	Thread Male End	CODE	Tube O.D.	Thread Male End
73 43 51 52	6 mm	PT 1/8 " 1/4	73 43 54	8 mm	PT 1/4
			73 43 55	10 mm	" 1/4
73 43 53	8 mm	PT 1/8	73 43 56	12 mm	PT 3/8

Stainless Steel Flareless Male Branch Tees

Tes Macho sin Abocardar de Acero-inoxidable
ステンレス雄ねじブランチチーズ　不锈钢外丝支路 T 型管

How to order: CODE
Stainless steel flareless male branch tee, TUBE O.D., MALE THREAD SIZE



Unit Per Pc.

CODE	Tube O.D.	Thread Male End	CODE	Tube O.D.	Thread Male End
73 43 61 62	6 mm	PT 1/8 " 1/4	73 43 64	8 mm	PT 1/4
			73 43 65	10 mm	" 1/4
73 43 63	8 mm	PT 1/8	73 43 66	12 mm	PT 3/8

Stainless Steel Flareless Female Connectors

Uniones Hembra sin Abocardar de Acero-inoxidable
ステンレス雌ねじコネクター　不锈钢内丝接头

How to order : CODE
Stainless steel flareless female connector, TUBE O.D., FEMALE THREAD SIZE



Unit Per Pc.

CODE	Tube O.D.	Thread Female End	CODE	Tube O.D.	Thread Female End
73 43 71 72 73 74	6 mm	PF 1/8 " 1/4 " 3/8 " 1/2	73 43 78 79 80	10 mm	PF 1/4 " 3/8 " 1/2
73 43 75 76 77	8 mm	PF 1/4 " 3/8 " 1/2	73 43 81 82 83	12 mm	PF 1/4 " 3/8 " 1/2

Only this type thread is PF.

Stainless Steel Flareless Female Branch Tees

Tes Hembra sin Abocardar de Acero-inoxidable
ステンレス雌ねじブランチチーズ　不锈钢支路 T 型管

How to order: CODE
Stainless steel flareless female branch tee, TUBE O.D., FEMALE THREAD SIZE



Unit Per Pc.

CODE	Tube O.D.	Thread Female End	CODE	Tube O.D.	Thread Female End
73 43 86 87	6 mm	PT 1/8 " 1/4	73 43 89	10 mm	PT 1/4
73 43 88	8 mm	PT 1/4	73 43 90	12 mm	PT 3/8

Stainless Steel Flareless Bulkhead Female Connectors

Uniones Hembra de Pasatabique sin Abocardar de Acero-inoxidable
ステンレス雌ねじバルクヘッドコネクター
不锈钢管舱壁接头



Unit Per Pc.

CODE	Tube O.D.	Thread Female End	CODE	Tube O.D.	Thread Female End
73 43 94 95	6 mm	PT 1/8 " 1/4	73 43 97	10 mm	PT 1/4
73 43 96	8 mm	PT 1/4	73 43 98	12 mm	PT 3/8

Stainless Steel Flareless Unions

Uniones sin Abocardar de Aceroinoxidable
ステンレスユニオン　不锈钢活管接



Unit Per Pc.

CODE	Tube O.D.	CODE	Tube O.D.
73 44 01 02	6 mm 8 mm	73 44 03 04	10 mm 12 mm

Stainless Steel Flareless Reducing Unions

Uniones Reducidas sin Abocardar de Acero-inoxidable
ステンレス遵径ユニオン　不锈钢异径接头



Unit Per Pc.

CODE	Tube O.D.	CODE	Tube O.D.
73 44 06 07	6 × 8 mm 8 × 10 mm	73 44 08	10 × 12 mm

Stainless Steel Flareless Bulkhead Unions

Uniones Pasatabique sin Abocardar de Acero-inoxidable
ステンレス隔壁ユニオン　不锈钢舱壁活管接



Unit Per Pc.

CODE	Tube O.D.	CODE	Tube O.D.
73 44 11 12	6 mm 8 mm	73 44 13 14	10 mm 12 mm

Stainless Steel Flareless Tee Unions



Tes sin Abocardar de Acero-inoxidable
ステンレスチーユニオン　不锈钢 T 形管接头

Unit Per Pc.

CODE	Tube O.D.	CODE	Tube O.D.
73 44 16	6 mm	**73 44 18**	10 mm
17	8 mm	**19**	12 mm

Stainless Steel Flareless Elbow Unions



Codos sin Abocardar de Acero-noxidable
ステンレスエルボユニオン　不锈钢弯管接头

Unit Per Pc.

CODE	Tube O.D.	CODE	Tube O.D.
73 44 21	6 mm	**73 44 23**	10 mm
22	8 mm	**24**	12 mm

Tube Fitting Accessories

for Stainless Steel Flareless Tube Fittings

Accesoios para Conexión de Tuberia sin Abocardar de Acero-inoxidable
チューブ継手付属品　管接头附属品

Following items are for use with the tube fittings.

Stainless Steel Nut, Ferrule Front & Rear

Tuerca de Acero-inoxidable, Frente y Atrás de Casquillo
ステンレスナット締輪（前後）　不锈钢管螺帽

	**73 44 31**	Stainless steel nut for tube O.D. 6 mm	Pc.
	32	" 8 mm	"
	33	" 10 mm	"
	34	" 12 mm	"
	**73 44 36**	Stainless steel ferrule front for tube O.D " 6 mm	Pc.
	37	" 8 mm	"
	38	" 10 mm	"
	39	" 12 mm	"
	**73 44 41**	Stainless steel ferrule rear for tube O.D. " 6 mm	Pc.
	42	" 8 mm	"
	43	" 10 mm	"
	44	" 12 mm	"

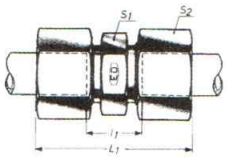
Ermeto High Pressure Steel Couplings

Acoplamientos de aceo Tipo Ermeto, de Alta Presión
エルメト高圧食い込み継ぎ手　高压防蚀钢接头

Ermeto high pressure steel couplings are available in steel, stainless steel, and brass with working temperature ranges varying based upon the material of the cast. When ordering, specify the type of material the coupling should be supplied in. Unless specified otherwise, steel couplings will be provided.

Steel Unions

How to order: CODE
Ermeto steel union, NOMINAL PRESSURE, TUBE O.D., PART NO.

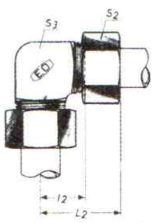


Unit Per Pc.

CODE	Tube O.D.	Pressure Rating	Paft No.	Length L_1
Nominal Pressure: 100 kgf/cm²				
73 44 51	4 mm	PN 100	G4 - LL	31 mm
52	6		G6 - LL	32
53	8		G8 - LL	35
54	10		G10 - LL	35
55	12		G12 - LL	35
Nominal Pressure: 315 kgf/cm²				
73 44 56	6 mm	PN 315	G6 - PL	39 mm
57	8		G8 - PL	40
58	10		G10 - PL	42
59	12		G12 - PL	43
60	15		G15 - PL	46
61	18		G18 - PL	48

Steel Elbows

How to order: CODE
Ermeto steel elbow, NOMINAL PRESSURE, TUBE O.D., PART NO.

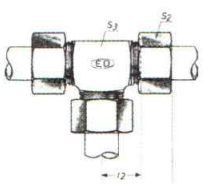


Unit Per Pc.

CODE	Tube O.D.	Pressure Rating	Paft No.	Length L_2
Nominal Pressure: 100 kgf/cm²				
73 44 65	4 mm	PN 100	W4 - LL	21 mm
66	6		W6 - LL	21
67	8		W8 - LL	23
68	10		W10 - LL	24
69	12		W12 - LL	25
Nominal Pressure: 315 kgf/cm²				
73 44 71	6 mm	PN 315	W6 - PL	27 mm
72	8		W8 - PL	29
73	10		W10 - PL	30
74	12		W12 - PL	32
75	15		W15 - PL	36
76	18		W18 - PL	40

Steel Tees

How to order: CODE
Ermeto steel tee, NOMINAL PRESSURE, TUBE O.D., PART NO.



Unit Per Pc.

CODE	Tube O.D.	Pressure Rating	Paft No.	Length L_2
Nominal Pressure: 100 kgf/cm²				
73 44 81	4 mm	PN 100	T4 - LL	21 mm
82	6		T6 - LL	21
83	8		T8 - LL	23
84	10		T10 - LL	24
85	12		T12 - LL	25
Nominal Pressure: 315 kgf/cm²				
73 44 86	6 mm	PN 315	T6 - PL	27 mm
87	8		T8 - PL	29
88	10		T10 - PL	30
89	12		T12 - PL	32
90	15		T15 - PL	36
91	18		T18 - PL	40

Flanges

Bridas　フランジ　法兰

Many types of flanges are produced according to various standards. The most common types are listed below.

DIN 2531 / 2532 / 2533 – Cast Iron Flanges

Nominal Pressure	DIN No.	Raised Face Type (Nominal Size)
PN 6	DIN 2531	10 - 3,600 mm
PN 10	DIN 2532	10 - 3,000 mm
PN 16	DIN 2533	10 - 1,000 mm

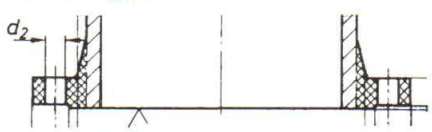
JIS B 2220 (1990) – Steel Welding Pipe Flanges

Nominal Pressure		Slip on Welding Type Flange		
		Plate Flange	Hub Flange	
		Flat Face	Without Groove on Hub Side	
			Flat Face	Large Raised Face
5 kgf/cm²		10 -400 mm	450-1,000 mm	-
10 kgf/cm²	Thin Type	10 -350 mm	400 mm	-
	Ordi-nary Type	10 -225 mm	250-1,000 mm	-
16 kgf/cm²		-	10- 600 mm	600-1,200mm

ANSI B16.5

Nominal Pressure	Flange Type	
	Slip on	Socket welding
Class 150	1/2 - 24"	1/2 - 24"
Class 300	1/2 - 24"	1/2 - 24"

DIN 2531 / 2532 / 2533 – Raised Face Type Cast Iron Flanges



How to order: CODE

Flange, cast iron, raised face, DIN NO., NOMINAL PRESSURE, NOMINAL DIAM

DIN 2531 – Cast Iron Flanges, Nominal pressure PN 6

Unit Per Pc.

CODE	Nominal Diam. mm	Size mm			Bolt Size mm		
		O.D.	Thick	P.C.D.	No.	Thread	Diam.
73 45 01	10	75	12	50	4	M10	11
02	15	80	12	55	4	M10	11
03	20	90	14	65	4	M10	11
04	25	100	14	75	4	M10	11
05	32	120	16	90	4	M12	14
73 45 06	40	130	16	100	4	M12	14
07	50	140	16	110	4	M12	14
08	65	160	16	130	4	M12	14
09	80	190	18	150	4	M16	18
10	100	210	18	170	4	M16	18
73 45 11	125	240	20	200	8	M16	18
12	150	265	20	225	8	M16	18
13	200	320	22	280	8	M16	18
14	250	375	24	335	12	M16	18
15	300	440	24	395	12	M20	22

DIN 2532 – Cast Iron Flanges, Nominal pressure PN 10

Unit Per Pc.

CODE	Nominal Diam. mm	Size mm			Bolt Size mm		
		O.D.	Thick	P.C.D.	No.	Thread	Diam.
73 45 21	10	90	14	60	4	M12	14
22	15	95	14	65	4	M12	14
23	20	105	16	75	4	M12	14
24	25	115	16	85	4	M12	14
25	32	140	18	100	4	M16	18
73 45 26	40	150	18	110	4	M16	18
27	50	165	20	125	4	M16	18
28	65	185	20	145	4	M16	18
29	80	200	22	160	8	M16	18
30	100	220	24	180	8	M16	18
73 45 31	125	250	26	210	8	M16	18
32	150	285	26	240	8	M20	22
33	175	315	28	270	8	M20	22
34	200	340	26	295	8	M20	22
35	250	395	28	350	12	M20	22
73 45 36	300	445	28	400	12	M20	22

DIN 2533 – Cast Iron Flanges, Nominal pressure PN 16

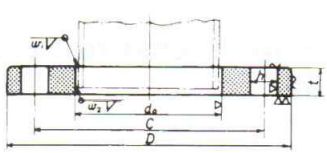
Unit Per Pc.

CODE	Nominal Diam. mm	Size mm			Bolt Size mm		
		O.D.	Thick	P.C.D.	No.	Thread	Diam.
73 45 41	10	90	14	60	4	M12	14
42	15	95	14	65	4	M12	14
43	20	105	16	75	4	M12	14
44	25	115	16	85	4	M12	14
45	32	140	18	100	4	M16	18
73 45 46	40	150	18	110	4	M16	18
47	50	165	20	125	4	M16	18
48	65	185	20	145	4	M16	18
49	80	200	22	160	8	M16	18
50	100	220	24	180	8	M16	18
73 45 51	125	250	26	210	8	M16	18
52	150	285	26	240	8	M20	22
53	175	315	28	270	8	M20	22
54	200	340	30	295	12	M20	22
55	250	405	32	355	12	M24	26
73 45 56	300	460	32	410	12	M24	26

Slip-on Welding Steel Pipe Flanges

(Ref. JIS B 2220 – 90)

Bridas para Soldar　鋼管差し込み溶接フランジ　钢管焊接平面法兰



How to order: CODE

Flange, steel, slip-on welding, JIS B 2220, PRESSURE, NOMINAL SIZE

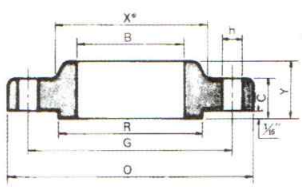
Unit Per Pc.

CODE	Nominal Size		Pipe O.D. mm	Flange Size mm					
				Bore	O.D.	Thick	Pitch	Bolt	Hole
	A	B		do	D	t	C	No.	hΦ
5 kgf/cm² Ref. JIS B 2220									
73 46 01	10	3/8	17.3	17.8	75	9	55	4	12
02	15	1/2	21.7	22.2	80	9	60	4	12
03	20	3/4	27.2	27.7	85	10	65	4	12
04	25	1	34.0	34.5	95	10	75	4	12
05	32	1-1/4	42.7	43.2	115	12	90	4	15
73 46 06	40	1-1/2	48.6	49.1	120	12	95	4	15
07	50	2	60.5	61.1	130	14	105	4	15
08	65	2-1/2	76.3	77.1	155	14	130	4	15
09	80	3	89.1	90.0	180	14	145	4	19
10	100	4	114.3	115.4	200	16	165	8	19
73 46 11	125	5	139.8	141.2	235	16	200	8	19
12	150	6	165.2	166.6	265	18	230	8	19
13	200	8	216.3	218	320	20	280	8	23
14	250	10	267.4	269.5	385	22	345	12	23
15	300	12	318.5	321	430	22	390	12	23
73 46 16	350	14	355.6	358.1	480	24	435	12	25
17	400	16	406.4	409.0	540	24	495	16	25
18	450	18	457.2	460.0	605	24	555	16	25
19	500	20	508.0	511.0	655	24	605	20	25
10 kgf/cm² Ref. JIS B 2220									
73 46 21	10	3/8	17.3	17.8	90	12	65	4	15
22	15	1/2	21.7	22.2	95	12	70	4	15
23	20	3/4	27.2	27.7	100	14	75	4	15
24	25	1	34	34.5	125	14	90	4	19
25	32	1-1/4	42.7	43.2	135	16	100	4	19
73 46 26	40	1-1/2	48.6	49.1	140	16	105	4	19
27	50	2	60.5	61.1	155	16	120	4	19
28	65	2-1/2	76.3	77.1	175	18	140	4	19
29	80	3	89.1	90	185	18	150	8	19
30	100	4	114.3	115.4	210	18	175	8	19
73 46 31	125	5	139.8	141.2	250	20	210	8	23
32	150	6	165.2	166.6	280	22	240	8	23
33	200	8	216.3	218	330	22	290	12	23
34	250	10	267.4	269.5	400	24	355	12	25
35	300	12	318.5	321	445	24	400	16	25
73 46 36	350	14	355.6	358.1	490	26	445	16	25
37	400	16	406.4	409.0	560	28	510	16	27
38	450	18	457.2	460.0	620	30	565	20	27
39	500	20	508.0	511.0	675	30	620	20	27

Slip-on Welding Steel Pipe Flanges

(Ref. ASME / ANSI B 16.5 - 1988)

Bridas para Soldar　鋼管差し込み溶接フランジ　钢管焊接平面法兰



How to order: CODE

Flange, steel , slip-on welding, ASME/ANSI B16.5, PRESSURE, NOMINAL SIZE

Unit Per Pc.

CODE	Nominal Size		Flange Size inch			Bolt Hole Inch		
	A	B	O.D.	I.D.	Thick	Dia	No.	Circle
Nominal Pressure 150 lbs								
73 46 51	15	1/2	3.50	0.88	0.44	0.62	4	2.38
52	20	3/4	3.88	1.09	0.50	0.62	4	2.75
53	25	1	4.25	1.36	0.56	0.62	4	3.12
54	32	1-1/4	4.62	1.70	0.62	0.62	4	3.50
55	40	1-1/2	5.00	1.95	0.69	0.62	4	3.88
73 46 56	50	2	6.00	2.44	0.75	0.75	4	4.75
57	65	2-1/2	7.00	2.94	0.88	0.75	4	5.50
58	80	3	7.50	3.57	0.94	0.75	4	6.00
59	90	3-1/2	8.50	4.07	0.94	0.75	8	7.00
60	100	4	9.00	4.57	0.94	0.75	8	7.50
73 46 61	125	5	10.00	5.66	0.94	0.88	8	8.50
62	150	6	11.00	6.72	1.00	0.88	8	9.50
63	200	8	13.50	8.72	1.12	0.88	8	11.75
64	250	10	16.00	10.88	1.19	1.00	12	14.25
65	300	12	19.00	12.88	1.25	1.00	12	17.00
73 46 66	350	14	21.00	14.14	1.38	1.12	12	18.75
67	400	16	23.50	16.16	1.44	1.12	16	21.25
68	450	18	25.00	18.18	1.56	1.25	16	22.75
69	500	20	27.50	20.20	1.69	1.25	20	25.00
Nominal Pressure 300 lbs								
73 46 71	15	1/2	3.75	0.88	0.56	0.62	4	2.62
72	20	3/4	4.62	1.09	0.62	0.75	4	3.25
73	25	1	4.88	1.36	0.69	0.75	4	3.50
74	32	1-1/4	5.25	1.70	0.75	0.75	4	3.88
75	40	1-1/2	6.12	1.95	0.81	0.88	4	4.50
73 46 76	50	2	6.50	2.44	0.88	0.75	8	5.00
77	65	2-1/2	7.50	2.94	1.00	0.88	8	5.88
78	80	3	8.25	3.57	1.12	0.88	8	6.62
79	90	3-1/2	9.00	4.07	1 19	0.88	8	7.25
80	100	4	10.00	4.57	1.25	0.88	8	7.88
73 46 81	125	5	11.00	5.66	1.38	0.88	8	9.25
82	150	6	12.50	6.72	1.44	0.88	12	10.62
83	200	8	15.00	8.72	1.62	1.00	12	13.00
84	250	10	17.50	10.88	1.88	1.12	16	15.25
85	300	12	20.50	12.88	2.00	1.25	16	17.75
73 46 86	350	14	23.00	14.14	2.13	1.25	20	20.25
87	400	16	25.50	16.16	2.25	1.38	20	22.50
88	450	18	28.00	18.18	2.38	1.38	24	24.75
89	500	20	30.50	20.20	2.50	1.38	24	27.00

Stainless Steel Flanges

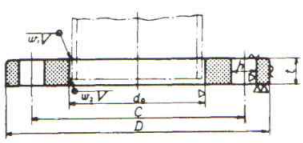
Bridas de Aceroinoxidable　ステンレスパイプフランジ　不锈钢法兰

Made of forged stainless steel SUS 304 with high corrosion and thermal resistance. Mainly used in petroleum, petro-chemical, thermal and nuclear power industries.

Many types of flanges are produced according to various standards. The most common types are listed below.

Slip-on Welding Stainless Steel Pipe Flanges

(Ref. JIS B 2220 – 90)



How to order: CODE

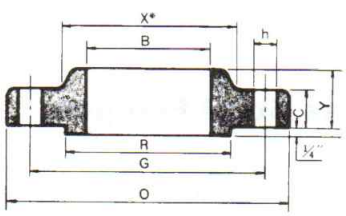
Flange, stainless steel, slip-on welding, JIS B 2220, PRESSURE, NOMINAL SIZE

Unit Per Pc.

CODE	Nominal Size		Flange Size inch			Bolt Hole Inch		
	mm(A)	Inch(B)	O.D.	I.D.	Thick	Dia	Nos.	Circle
JIS 5 kgf/cm2 Forged Stainless Steel								
								Size: mm
73 47 01	10	3/8	75	17.8	9	12	4	55
02	15	1/2	80	22.2	9	12	4	60
03	20	3/4	85	27.7	10	12	4	65
04	25	1	95	34.5	10	12	4	75
05	32	1-1/4	115	43.2	12	15	4	90
73 47 06	40	1-1/2	120	49.1	12	15	4	95
07	50	2	130	61.1	14	15	4	105
08	65	2-1/2	155	77.1	14	15	4	130
09	80	3	180	90.0	14	19	4	145
10	100	4	200	115.4	16	19	8	165
73 47 11	125	5	235	141.2	16	19	8	200
12	150	6	265	166.6	18	19	8	230
13	200	8	320	218.0	20	23	8	280
14	250	10	385	269.5	22	23	12	345
15	300	12	430	321.0	22	23	12	390
JIS 10 kgf/cm2 Forged Stainless Steel								
73 47 16	10	3/8	90	17.8	12	15	4	65
17	15	1/2	95	22.2	12	15	4	70
18	20	3/4	100	27.7	14	15	4	75
19	25	1	125	34.5	14	19	4	90
20	32	1-1/4	135	43.2	16	19	4	100
73 47 21	40	1-1/2	140	49.1	16	19	4	105
22	50	2	155	61.1	16	19	4	120
23	65	2-1/2	175	77.1	18	19	4	140
24	80	3	185	90.0	18	19	8	150
25	100	4	210	115.4	18	19	8	175
73 47 26	125	5	250	141.2	20	23	8	210
27	150	6	280	166.6	22	23	8	240
28	200	8	330	218.0	22	23	12	290
29	250	10	400	269.5	24	25	12	355
30	300	12	445	321.0	24	25	16	400

Slip-on Welding Stainless Steel Pipe Flanges

(Ref. ASME / ANSI B16.5 – 1988)



How to order: CODE

Flange, stainless steel, slip-on welding, ASME/ANSI B16.5
PRESSURE, NOMINAL SIZE

Unit Per Pc.

CODE	Nominal Size		Flange Size inch			Bolt Hole Inch		
	A	B	O.D.	I.D.	Thick	Dia	No.	Circle
Nominal Pressure 150 lbs								
73 47 51	15	1/2	3.50	0.88	0.44	0.62	4	2.38
52	20	3/4	3.88	1.09	0.50	0.62	4	2.75
53	25	1	4.25	1.36	0.56	0.62	4	3.12
54	32	1-1/4	4.62	1.70	0.62	0.62	4	3.50
55	40	1-1/2	5.00	1.95	0.69	0.62	4	3.88
73 47 56	50	2	6.00	2.44	0.75	0.75	4	4.75
57	65	2-1/2	7.00	2.94	0.88	0.75	4	5.50
58	80	3	7.50	3.57	0.94	0.75	4	6.00
59	90	3-1/2	8.50	4.07	0.94	0.75	8	7.00
60	100	4	9.00	4.57	0.94	0.75	8	7.50
73 47 61	125	5	10.00	5.66	0.94	0.88	8	8.50
62	150	6	11.00	6.72	1.00	0.88	8	9.50
63	200	8	13.50	8.72	1.12	0.88	8	11.75
64	250	10	16.00	10.88	1.19	1.00	12	14.25
65	300	12	19.00	12.88	1.25	1.00	12	17.00
Nominal Pressure 300 lbs								
73 47 66	15	1/2	3.75	0.88	0.56	0.62	4	2.62
67	20	3/4	4.62	1.09	0.62	0.75	4	3.25
68	25	1	4.88	1.36	0.69	0.75	4	3.50
69	32	1-1/4	5.25	1.70	0.75	0.75	4	3.88
70	40	1-1/2	6.12	1.95	0.81	0.88	4	4.50
73 47 71	50	2	6.50	2.44	0.88	0.75	8	5.00
72	65	2-1/2	7.50	2.94	1.00	0.88	8	5.88
73	80	3	8.25	3.57	1.12	0.88	8	6.62
74	90	3-1/2	9.00	4.07	1 19	0.88	8	7.25
75	100	4	10.00	4.57	1.25	0.88	8	7.88
73 47 76	125	5	11.00	5.66	1.38	0.88	8	9.25
77	150	6	12.50	6.72	1.44	0.88	12	10.62
78	200	8	15.00	8.72	1.62	1.00	12	13.00
79	250	10	17.50	10.88	1.88	1.12	16	15.25
80	300	12	20.50	12.88	2.00	1.25	16	17.75

(to be continued)

Slip-on Welding Square Pipe Flanges

21 MPa for Hydraulic Use

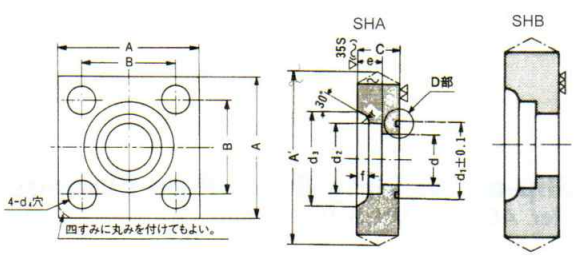
Bridas de tubo cuadradas para soldar deslizantes

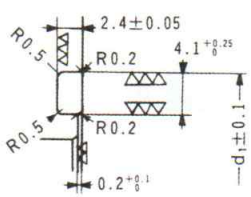
スリップオン溶接角パイプフランジ　　滑套焊接方形管法兰

Square flanges suitable for hydraulic use welding pipe. Made of carbon steel.

Patterns

Model	Bolt	Groove for O ring
SHA	Hexagon bolt	Yes
SHB		No
SSA	Hexagon socket head cap screw	Yes
SSB		No





SHA (Hexagon Bolt with Groove for O ring)

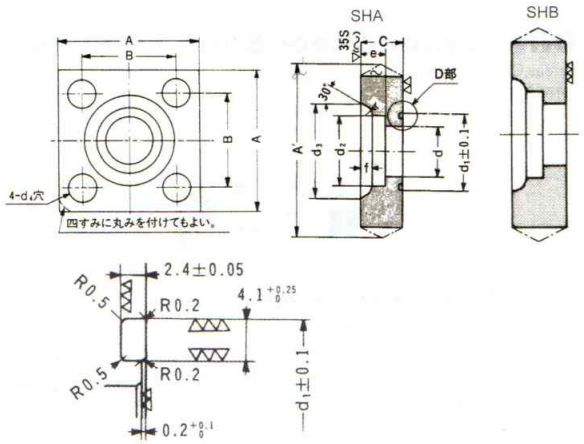
Unit Per Pc.

CODE	Nom Size	A	B	C	d	d_1	d_2	d_4	e	f
73 48 01	15	63	40	22	16.0	30	22.2	11	11	3.5
02	20	68	45	22	20.0	35	27.7	11	12	4.0
03	25	80	53	28	25.0	40	34.5	13	14	4.0
04	32	90	63	28	31.5	45	43.2	13	16	6.0
05	40	100	70	36	37.5	55	49.1	18	18	7.0
73 48 06	50	112	80	36	47.5	65	61.1	18	20	7.0
07	65	140	100	45	60.0	80	77.1	22	22	9.5
08	80	155	112	45	71.0	90	90.0	24	25	11.0

SHB (Hexagon Bolt without Groove)

Unit Per Pc.

CODE	Nom Size	A	B	C	d	d_1	d_2	d_4	e	f
73 48 11	15	63	40	22	16.0	30	22.2	11	11	3.5
12	20	68	45	22	20.0	35	27.7	11	12	4.0
13	25	80	53	28	25.0	40	34.5	13	14	4.0
14	32	90	63	28	31.5	45	43.2	13	16	6.0
15	40	100	70	36	37.5	55	49.1	18	18	7.0
73 48 16	50	112	80	36	47.5	65	61.1	18	20	7.0
17	65	140	100	45	60.0	80	77.1	22	22	9.5
18	80	155	112	45	71.0	90	90.0	24	25	11.0



SSA (Hexagon Socket Head Cap Screw with groove for O ring)

Unit Per Pc.

CODE	Nom Size	A	B	C	d	d_1	d_2	d_4	e	f
73 48 21	15	54	36	22	16.0	30	22.2	11	11	3.5
22	20	58	40	22	20.0	35	27.7	11	12	4.0
23	25	68	48	28	25.0	40	34.5	13	14	4.0
24	32	76	56	28	31.5	45	43.2	13	16	6.0
25	40	92	65	36	37.5	55	49.1	18	18	7.0
73 48 26	50	100	73	36	47.5	65	61.1	18	20	7.0
27	65	128	92	45	60.0	80	77.1	22	22	9.5
28	80	140	103	45	71.0	90	90.0	24	25	11.0

SSB (Hexagon Socket Head Cap Screw without groove)

Unit Per Pc.

CODE	Nom Size	A	B	C	d	d_1	d_2	d_4	e	f
73 48 31	15	54	36	22	16.0	30	22.2	11	11	3.5
32	20	58	40	22	20.0	35	27.7	11	12	4.0
33	25	68	48	28	25.0	40	34.5	13	14	4.0
34	32	76	56	28	31.5	45	43.2	13	16	6.0
35	40	92	65	36	37.5	55	49.1	18	18	7.0
73 48 36	50	100	73	36	47.5	65	61.1	18	20	7.0
37	65	128	92	45	60.0	80	77.1	22	22	9.5
38	80	140	103	45	71.0	90	90.0	24	25	11.0

JIS Steel Blind Flanges

Brida Ciega de Acero　鋼製ブラインドフランジ　鋼製盲法蘭

A blind Flange is which has no bore, and is used to close ends of piping systems. Made from rolled steel (SS-400).



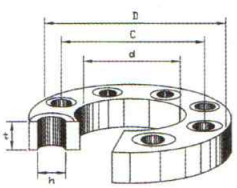
Unit Per Pc.

CODE	Nom Size A	Nom Size B	For Pipe OD mm	Flange Size mm O.D.	Thick	Pitch	Bolt Hole No.	Bolt Hole Dia.
5 kgf/cm² Ref. JIS B 2220								
73 48 41	10	3/8	17.3	75	9	55	4	12
42	15	1/2	21.7	80	9	60	4	12
43	20	3/4	27.2	85	10	65	4	12
44	25	1	34	95	10	75	4	12
45	32	1-1/4	42.7	115	12	90	4	15
73 48 46	40	1-1/2	48.6	120	12	95	4	15
47	50	2	60.5	130	14	105	4	15
48	65	2-1/2	76.3	155	14	130	4	15
49	80	3	89.1	180	14	145	4	19
50	100	4	114.3	200	16	165	8	19
73 48 51	125	5	139.8	235	16	200	8	19
52	150	6	165.2	265	18	230	8	19
53	200	8	216.3	320	20	280	8	23
54	250	10	267.4	385	22	345	12	23
55	300	12	318.5	430	22	390	12	23
10 kgf/cm² Ref. JIS B 2220								
73 48 61	10	3/8	17.3	90	12	65	4	15
62	15	1/2	21.7	95	12	70	4	15
63	20	3/4	27.2	100	14	75	4	15
64	25	1	34	125	14	90	4	19
65	32	1-1/4	42.7	135	16	100	4	19
73 48 66	40	1-1/2	48.6	140	16	105	4	19
67	50	2	60.5	155	16	120	4	19
68	65	2-1/2	76.3	175	18	140	4	19
69	80	3	89.1	185	18	150	8	19
70	100	4	114.3	210	18	175	8	19
73 48 71	125	5	139.8	250	20	210	8	23
72	150	6	165.2	280	22	240	8	23
73	200	8	216.3	330	22	290	12	23
74	250	10	267.4	400	24	355	12	25
75	300	12	318.5	445	24	400	16	25

DIN Carbon Steel Slip-on Flanges

Bridas Postizas de Acero al Crbono, según DIN

DIN 鋳鋼板フランジ　DIN 铸钢法兰（滑动型）



DIN 2573 Slip-on Flanges PN6

Unit Per Pc.

CODE	Nominal Diam mm	Size mm d	D	C	t	Bolt Hole No.	Bolt Hole h mm	Weight kg
73 55 01	10	17.7	75	50	12	4	14	0.27
02	15	22.2	80	55	12	4	14	0.30
03	20	27.6	90	65	14	4	14	0.37
04	25	34.4	100	75	14	4	14	0.45
05	32	43.1	120	90	16	4	14	0.78
73 55 06	40	49	130	100	16	4	14	0.83
07	50	61.1	140	110	16	4	14	1.07
08	65	77.1	160	130	16	4	14	1.49
09	80	90.3	190	150	18	4	18	1.99
10	100	115.9	210	170	18	4	18	2.39

(to be continued)

Unit Per Pc.

CODE	Nominal Diam mm	Size mm				Bolt Hole		Weight kg
		d	D	C	t	No.	h mm	
73 55 11	125	141.6	240	200	20	8	18	3.23
12	150	170.5	265	225	20	8	18	4.41
13	200	221.8	320	280	22	8	18	6.33
14	250	276.2	375	335	24	12	18	9.45
15	300	327.6	440	395	24	12	22	10.30
73 55 16	350	359.7	490	445	26	12	22	14.00
17	400	423.7	540	495	28	16	22	16.90
18	450	462.3	595	550	30	16	22	21.60
19	500	513.6	645	600	30	20	22	23.10

DIN 2576 Slip-on Flanges PN10

Unit Per Pc.

CODE	Nominal Diam mm	Size mm				Bolt Hole		Weight kg
		d	D	C	t	No.	h mm	
73 55 21	10	17.7	90	60	14	4	14	0.52
22	15	22.2	95	65	14	4	14	0.57
23	20	27.6	105	75	16	4	14	0.73
24	25	34.4	115	85	16	4	14	1.13
25	32	43.1	140	100	16	4	18	1.48
73 55 26	40	49	150	110	16	4	18	1.56
27	50	61.1	165	125	18	4	18	1.88
28	65	77.1	185	145	18	4	18	2.60
29	80	90.3	200	160	20	4	18	2.61
30	100	115.9	220	180	20	8	18	3.14
73 55 31	125	141.6	250	210	22	8	18	4.77
32	150	170.5	285	240	22	8	22	6.34
33	175	196.1	315	270	24	8	22	6.82
34	200	221.8	340	295	24	8	22	7.53
35	250	276.2	395	350	26	12	22	11.80
73 55 36	300	327.6	445	400	26	12	22	13.50
37	350	359.7	505	460	28	16	22	16.40
38	400	423.7	565	515	32	16	26	23.00
39	450	462.3	615	565	38	20	26	29.50
40	500	513.6	670	620	38	20	26	33.50

DIN 2576 (PN16) Slip-on Flanges PN16

Unit Per Pc.

CODE	Nominal Diam mm	Size mm				Bolt Hole		Weight kg
		d	D	C	t	No.	h mm	
73 55 51	10	17.7	90	60	14	4	14	0.51
52	15	22.2	95	65	14	4	14	0.56
53	20	27.6	105	75	16	4	14	0.72
54	25	34.4	115	85	16	4	14	1.13
55	32	43.1	140	100	16	4	18	1.46
73 55 56	40	49	150	110	16	4	18	1.56
57	50	61.1	165	125	18	4	18	1.70
58	65	77.1	185	145	18	4	18	2.40
59	80	90.3	200	160	20	8	18	3.50
60	100	115.9	220	180	20	8	18	4.50
73 55 61	125	141.6	250	210	22	8	18	6.50
62	150	170.5	285	240	22	8	22	8.70
63	175	196.1	315	270	24	8	22	8.95
64	200	221.8	340	295	24	12	22	10.90
65	250	276.2	405	355	26	12	26	18.00
73 55 66	300	327.6	460	410	28	12	26	21.50
67	350	359.7	520	470	30	16	26	30.80
68	400	423.7	580	525	32	16	30	42.80
69	450	462.3	640	585	34	20	30	55.10
70	500	513.6	715	650	34	20	33	65.10

DIN 2576 (PN40) Slip-on Flanges PN40

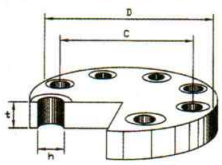
Unit Per Pc.

CODE	Nominal Diam mm	Size mm				Bolt Hole		Weight kg
		d	D	C	t	No.	h mm	
73 55 71	10	17.7	90	60	14	4	14	0.60
72	15	22.2	95	65	16	4	14	0.70
73	20	27.6	105	75	18	4	14	0.80
74	25	34.4	115	85	18	4	14	1.30
75	32	43.1	140	100	18	4	18	1.60
73 55 76	40	49	150	110	18	4	18	1.70
77	50	61.1	165	125	20	4	18	1.90
78	65	77.1	185	145	22	8	18	2.60
79	80	90.3	200	160	24	8	18	3.80
80	100	115.9	235	190	24	8	22	4.90
73 55 81	125	141.6	270	220	26	8	26	7.80
82	150	170.5	300	250	28	8	26	10.10
83	175	196.1	350	295	28	12	30	11.35
84	200	221.8	375	320	30	12	30	12.60
85	250	276.2	450	385	32	12	33	21.90
73 55 86	300	327.6	515	450	34	16	33	25.80
87	350	359.7	580	510	38	16	36	36.20
88	400	423.7	660	585	40	16	39	51.70
89	450	462.3	685	610	42	20	39	66.10
90	500	513.6	755	670	44	20	42	77.40

DIN Carbon Steel Blind Flanges

Bridas Ciegas de Acero al Carbono, según DIN

DIN 鋳鋼盲フランジ　DIN 铸钢法兰（盲法兰）



DIN 2527 Blind Flanges PN6

Unit Per Pc.

CODE	Nominal Diam mm	Size mm			Bolt Hole		Weight kg
		D	C	t	No.	h mm	
73 56 01	10	75	50	12	4	14	0.30
02	15	80	55	12	4	14	0.40
03	20	90	65	14	4	14	0.50
04	25	100	75	14	4	14	0.60
05	32	120	90	16	4	14	0.90
73 56 06	40	130	100	16	4	14	1.00
07	50	140	110	16	4	14	1.40
08	65	160	130	16	4	14	2.00
09	80	190	150	18	4	18	2.70
10	100	210	170	18	4	18	3.70
73 56 11	125	240	200	20	8	18	5.20
12	150	265	225	20	8	18	7.50
13	200	320	280	22	8	18	12.20
14	250	375	335	24	12	18	19.30
15	300	440	395	24	12	22	24.30
73 56 16	350	490	445	26	12	22	33.20
17	400	540	495	28	16	22	41.90
18	450	595	550	30	16	22	53.00
19	500	645	600	30	20	22	61.90

DIN 2527 Blind Flanges PN10

Unit Per Pc.

CODE	Nominal Diam mm	Size mm			Bolt Hole		Weight kg
		D	C	t	No.	h mm	
73 56 21	10	90	60	14	4	14	0.54
22	15	95	65	14	4	14	0.61
23	20	105	75	16	4	14	0.79
24	25	115	85	16	4	14	1.24
25	32	140	100	16	4	18	1.66

(to be continued)

Unit Per Pc.

CODE	Nominal Diam mm	Size mm			Bolt Hole		Weight kg
		D	C	t	No.	h mm	
73 56 26	40	150	110	16	4	18	1.81
27	50	165	125	18	4	18	2.23
28	65	185	145	18	4	18	3.24
29	80	200	160	20	4	18	3.50
30	100	220	180	20	8	18	4.60
73 56 31	125	250	210	22	8	18	7.30
32	150	285	240	22	8	22	10.10
33	175	315	270	24	8	22	11.80
34	200	340	295	24	8	22	14.00
35	250	395	350	26	12	22	22.70
73 56 36	300	445	400	26	12	22	29.50
37	350	505	460	28	16	22	37.10
38	400	565	515	32	16	26	52.50
39	450	615	565	38	20	26	68.80
40	500	670	620	38	20	26	82.10

DIN 2527 Blind Flanges PN16

Unit Per Pc.

CODE	Nominal Diam mm	Size mm			Bolt Hole		Weight kg
		D	C	t	No.	h mm	
73 56 51	10	90	60	14	4	14	0.53
52	15	95	65	14	4	14	0.60
53	20	105	75	16	4	14	0.79
54	25	115	85	16	4	14	1.23
55	32	140	100	16	4	18	1.66
73 56 56	40	150	110	16	4	18	1.81
57	50	165	125	18	4	18	2.10
58	65	185	145	18	4	18	3.10
59	80	200	160	20	8	18	4.50
60	100	220	180	20	8	18	6.30
73 56 61	125	250	210	22	8	18	9.20
62	150	285	240	22	8	22	12.80
63	175	315	270	24	8	22	13.15
64	200	340	295	24	12	22	18.60
65	250	405	355	26	12	26	30.60
73 56 66	300	460	410	28	12	26	40.70
67	350	520	470	30	16	26	57.80
68	400	580	525	32	16	30	82.20
69	450	640	585	34	20	30	107.60
70	500	715	650	34	20	33	133.10

DIN 2527 Blind Flanges PN40

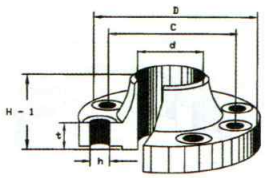
Unit Per Pc.

CODE	Nominal Diam mm	Size mm			Bolt Hole		Weight kg
		D	C	t	No.	h mm	
73 56 71	10	90	60	14	4	14	0.60
72	15	95	65	16	4	14	0.70
73	20	105	75	18	4	14	0.90
74	25	115	85	18	4	14	1.50
75	32	140	100	18	4	18	1.80
73 56 76	40	150	110	18	4	18	2.00
77	50	165	125	20	4	18	2.40
78	65	185	145	22	8	18	3.40
79	80	200	160	24	8	18	4.90
80	100	235	190	24	8	22	6.90
73 56 81	125	270	220	26	8	26	11.00
82	150	300	250	28	8	26	14.90
83	175	350	295	28	12	30	16.45
84	200	375	320	30	12	30	21.40
85	250	450	385	32	12	33	37.20
73 56 86	300	515	450	34	16	33	48.80
87	350	580	510	38	16	36	68.00
88	400	660	585	40	16	39	99.40
89	450	685	610	42	20	39	129.10
90	500	755	670	44	20	42	158.40

DIN Carbon Steel Weld-Neck Flanges

Bridas de Casquillo Soldado de Acero al Carbono, según DIN

DIN 鋳鋼突合せ溶接型フランジ　DIN 铸钢法兰（凸口型）



DIN 2633 Weld Neck Flanges PN16

Unit Per Pc.

CODE	Nominal Diam mm	Size mm					Bolt Hole		Weight kg
		d	D	C	t	H-1	No.	h mm	
73 57 01	10	17.2	90	60	14	35	4	14	0.58
02	15	21.3	95	65	14	35	4	14	0.65
03	20	26.9	105	75	16	38	4	14	0.95
04	25	33.7	115	85	16	38	4	14	1.14
05	32	42.4	140	100	16	40	4	18	1.69
73 57 06	40	48.3	150	110	16	42	4	18	1.86
07	50	60.3	165	125	18	45	4	18	2.53
08	65	76.1	185	145	18	45	4	18	3.06
09	80	88.9	200	160	20	50	8	18	3.70
10	100	114.3	220	180	20	52	8	18	4.62
73 57 11	125	139.7	250	210	22	55	8	18	6.30
12	150	168.3	285	240	22	55	8	22	7.75
13	175	193.7	315	270	24	60	8	22	9.85
14	200	219.1	340	295	24	62	12	22	11.00
15	250	273.0	405	355	26	70	12	26	15.60
73 57 16	300	323.9	460	410	28	78	12	26	22.00
17	350	355.6	520	470	30	82	16	26	31.20
18	400	406.4	580	525	32	85	16	30	39.30
19	500	508.0	715	650	34	90	20	33	61.00

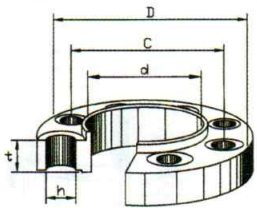
DIN 2635 Weld Neck Flanges PN40

Unit Per Pc.

CODE	Nominal Diam mm	Size mm					Bolt Hole		Weight kg
		d	D	C	t	H-1	No.	h mm	
73 57 21	10	17.2	90	60	16	35	4	14	0.66
22	15	21.3	95	65	16	38	4	14	0.75
23	20	26.9	105	75	18	40	4	14	1.06
24	25	33.7	115	85	18	40	4	14	1.29
25	32	42.4	140	100	18	42	4	18	1.88
73 57 26	40	48.3	150	110	18	45	4	18	2.33
27	50	60.3	165	125	20	48	4	18	2.82
28	65	76.1	185	145	22	52	8	18	3.74
29	80	88.9	200	160	24	58	8	18	4.75
30	100	114.3	235	190	24	65	8	22	6.52
73 57 31	125	139.7	270	220	26	68	8	26	9.07
32	150	168.3	300	250	28	75	8	26	11.80
33	175	193.7	350	295	32	82	12	30	18.20
34	200	219.1	375	320	34	88	12	30	21.50
35	250	273.0	450	385	38	105	12	33	34.90
73 57 36	300	323.9	515	450	42	115	16	33	49.70
37	350	355.6	580	510	46	125	16	33	68.10
38	400	406.4	660	585	50	135	16	39	96.50
39	500	508.0	755	670	52	140	20	42	117.00

DIN Carbon Steel Slip-on Raised Face Flanges

Bridas Positzas con Rebordes de Acero al Carbono, según DIN
DIN 鋳鋼差し込み溶接型フランジ　DIN 铸钢法兰（插入型）



DIN 86029 Slip-on Raised Face Flanges PN10

Unit Per Pc.

CODE	Nominal Diam mm	Size mm					Bolt Hole		Weight kg
		d	D	C	t	H-1	No.	h mm	
73 57 51	10	17.7	90	60	14	20	4	14	0.56
52	15	22.0	95	65	14	20	4	14	0.64
53	20	27.6	105	75	16	24	4	14	0.98
54	25	34.4	115	85	16	24	4	14	1.12
55	32	43.1	140	100	16	26	4	18	1.58
73 57 56	40	49.0	150	110	16	26	4	18	1.77
57	50	61.1	165	125	18	28	4	18	2.40
58	65	77.1	185	145	18	32	4	18	3.10
59	80	90.3	200	160	20	34	8	18	3.80
60	100	115.9	220	180	20	38	8	18	4.30
73 57 61	125	141.6	250	210	22	40	8	18	5.80
62	150	170.5	285	240	22	44	8	22	7.10
63	175	196.1	315	270	24	44	8	22	9.10
64	200	222.0	340	295	24	44	8	22	9.90
65	250	276.0	395	350	26	46	12	22	12.70
73 57 66	300	327.0	445	400	26	46	12	22	14.40
67	350	359.0	505	460	26	53	16	22	22.30
68	400	410.0	565	515	26	57	16	26	26.70
69	500	512.0	670	620	28	67	20	26	37.30

DIN 86030 Slip-on Raised Face Flanges PN16

Unit Per Pc.

CODE	Nominal Diam mm	Size mm					Bolt Hole		Weight kg
		d	D	C	t	H-1	No.	h mm	
73 57 71	10	17.7	90	60	14	20	4	14	0.56
72	15	22.0	95	65	14	20	4	14	0.64
73	20	27.6	105	75	16	24	4	14	0.98
74	25	34.4	115	85	16	24	4	14	1.12
75	32	43.1	140	100	16	26	4	18	1.58
73 57 76	40	49.0	150	110	16	26	4	18	1.77
77	50	61.1	165	125	18	28	4	18	2.40
78	65	77.1	185	145	18	32	4	18	3.10
79	80	90.3	200	160	20	34	8	18	3.80
80	100	115.9	220	180	20	38	8	18	4.30
73 57 81	125	141.6	250	210	22	40	8	18	5.80
82	150	170.5	285	240	22	44	8	22	7.10
83	175	196.1	315	270	24	44	8	22	9.10
84	200	222.0	340	295	24	44	12	22	9.70
85	250	276.0	405	355	26	46	12	26	13.40
73 57 86	300	327.0	460	410	28	46	12	26	17.30
87	350	359.0	520	470	30	57	16	26	27.60
88	400	410.0	580	525	32	63	16	30	36.00
89	500	512.0	715	650	34	73	20	33	56.40

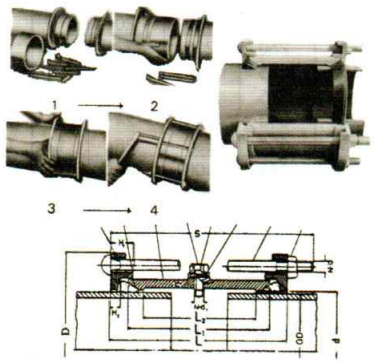
Flexible Pipe Couplings

Acoplamientos Flexibles para Tuberia　伸縮管継手　伸缩管接头

Coupling joints, because of their greater flexibility and economy, are steadily replacing flanged pipe joints in today's plant and marine applications. Unlike flanged joints, couplings not only eliminate the need for costly welding but also compensate for extreme degrees of pipe linear expansion, vibration, and laying deflection. From chemical plants to mammoth tankers, these couplings are utilized extensively throughout plant and marine piping.

As a wide range of models is available, the most common models have been selected and described below.

General Construction & Features



No.	Parts Name	Pcs.	Materials
1	Middle Ring	1	Hot Rolled Steel (SS41) or Ductile Iron (FCD45)
2	Follower	2	Hot Rolled Steel (SS41) or Ductile Iron (FCD45)
3	Gasket	2	NBR, CR, Viton, etc.
4	Bolt & Nut	2 and over	Steel Galvanized (SS41)
5	Stop Bolt	2	Stainless Steel (SUS304)

1. Construction

As illustrated above, the most common models consist of a middle ring (1), two followers (2), two wedge gaskets (3), four bolts & nuts (4), and two stop bolts (5). Both the middle ring and the followers are made of hot rolled steel, and the wedge gaskets are made of natural or synthetic rubber.

When the bolts are tightened, the followers press the gaskets against the spherical surface of the pipes and the tapered surface of the middle rings providing a leak-tight connection. When the expansion force of the pipes exceeds the wedging force, the pipes slide and deflect within the gaps between the outer surface of the pipes and the inner surface of the middle ring and followers.

2. Features

The structural design of these flexible pipe couplings offers easy and economical pipe jointing. Pipes can be jointed easily with the use of a spanner. Centering of the pipes and finish-grinding of the pipe sections is not required.

Compared with flanged pipe joints, these pipe couplings assure economical pipe jointing without the need for costly welding or any other additional procedures.

Usually absorbs 65 – 135 mm of pipe linear expansion (specially available models absorb more than 200 mm of linear expansion) and a considerable degree of pipe vibration as well. Also, they allow for joint deflection up to 6 degrees and can join pipes of different material and/or diameter.

3. How to order

When ordering, please specify the following points.

1. Kind of pipes to be connected (steel, cast iron, vinyl, etc).
2. Pipe outside diameter.....mm.
3. Working pressure.....kgf/cm^2.
4. Kind of liquid or gas of the line content. (desired gasket material)
5. Rust preventive treatments (paint).

Flexible Pipe Couplings for Plain End Pipes

Acoplamientos elásticos para tubos lisos
プレーンエンドパイプ用伸縮管継手
用于平头管道的柔性管接头

1. Hot Rolled Steel Middle Ring & Follower

These products are all formed from special section steel. As it is designed and built to withstand severe operating conditions on board, no special care is necessary for any applications.



Specifications

Amount of Expansion & Constraction	L = 134/160/180/210
Angular Deflection	1° - 8°
Working Pressure	20 - 50 kg/cm²
Working Temperature	- 70° - 100°C - Standard -100° - 350°C - Special
Manufacturing Dimensions	Nominal Diam. 40 - 4,000 mm
Applications	Piping for ships, water and gas supply, plant etc.

How to order: CODE

Flexible pipe coupling, hot rolled steel, MIDDLE RING LENGTH, STYLE NO., NOMINAL SIZE

Unit Per Set

CODE	Nominal Size in	Nominal Size mm	Pipe O.D. mm	Follower O.D. mm	Face to Face L mm	Test Press. kgf/cm²
Middle Ring L 178 mm (Style 10)						
73 50 01	6	150	165.2	262	213	
02	8	200	216.3	321	213	
03	10	250	267.4	373	214	32
04	12	300	318.5	425	214	
05	14	350	355.6	473	214	
73 50 06	16	400	406.4	524	218	
07	18	450	457.2	575	218	
08	20	500	508.0	626	218	32
09	22	550	558.8	677	218	
10	24	600	609.6	728	220	
73 50 11	26	650	660.4	779	220	
12	28	700	711.2	830	220	32
13	30	750	762.0	881	223	
14	32	800	812.8	932	223	
Middle Ring L 204 mm (Style 11)						
73 49 41	6	150	165.2	262	239	
42	8	200	216.3	321	239	
43	10	250	267.4	373	240	32
44	12	300	318.5	425	240	
45	14	350	355.6	473	240	
73 49 46	16	400	406.4	524	244	
47	18	450	457.2	575	244	
48	20	500	508.2	626	244	32
49	22	550	558.8	677	244	
50	24	600	609.6	728	246	
73 49 51	26	650	660.4	779	246	
52	28	700	711.2	830	246	32
53	30	750	762.0	881	249	
54	32	800	812.8	932	249	

(to be continued)

Middle Ring L224 mm (Style 11)						
73 49 61	6	150	165.2	262	259	
62	8	200	216.3	321	259	
63	10	250	267.4	373	260	32
64	12	300	318.5	425	260	
65	14	350	355.6	473	260	
73 49 66	16	400	406.4	524	264	
67	18	450	457.2	575	264	
68	20	500	508.2	626	264	32
69	22	550	558.8	677	264	
70	24	600	609.6	728	266	
73 49 71	26	650	660.4	779	266	
72	28	700	711.2	830	266	32
73	30	750	762.0	881	269	
74	32	800	812.8	932	269	
Middle Ring L 254 mm (Style 11)						
73 49 81	6	150	165.2	262	289	
82	8	200	216.3	321	289	
83	10	250	267.4	373	290	32
84	12	300	318.5	425	290	
85	14	350	355.6	473	290	
73 49 86	16	400	406.4	524	294	
87	18	450	457.2	575	294	
88	20	500	508.2	626	294	32
89	22	550	558.8	677	294	
90	24	600	609.6	728	296	
73 49 91	26	650	660.4	779	296	
92	28	700	711.2	830	296	32
93	30	750	762.0	881	299	
94	32	800	812.8	932	299	

Name of Mfr.: Daido Kinzoku Kogyo k.k.

Couplings of sizes other than those listed above are also available upon request.

Seawater resistant couplings made of a special alloy steel are also available upon request. The seawater couplings have the same dimensions and shape as those listed above.

When ordering, please specify the nominal size.

2. Ductile Cast Iron Middle Ring & Follower

These couplings are mainly used for oil loading pipes, ballast pipes, digester pipes and other conduits on board. These couplings are made of ductile cast iron. Couplings made of cast steel are also available upon request.



Specifications

Amount of Expansion & Contraction	L = 134
Working Pressure	20 kgf/cm²
Manufacturing Dimensions	Nominal Diam. 50 - 1,200 mm

How to order: CODE

Flexible pipe coupling, ductile cast iron, NOMINAL SIZE

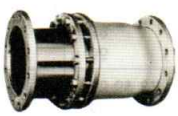
Unit Per Set

CODE	Nominal Size mm	Pipe O.D. mm	Middle Ring L mm	Follower O.D. mm	Face to Face L mm	Test P kgf/cm²
73 50 21	150	165.2	178	262	212	32
22	200	216.3		321	212	
23	250	267.4		373	214	
24	300	318.4		425	214	
25	350	355.6		465	214	
73 50 26	400	406.4		516	222	
27	450	457.2		573	222	
28	500	508.0		626	222	
29	550	558.8		673	228	
30	600	609.6		731	228	

Couplings of sizes other than those listed above are also available upon request.

Slide (Sleeve) Type Expansion Joints for Flanged Pipes

Juntas de dilatación de tipo deslizante (manguito) para tuberías embridadas
スライド（スリーブ）式伸縮継手 フランジ管用
滑动（套筒）式膨胀节 用于法兰管道



These expansion joints are designed to absorb quick expansion and contraction of pipes resulting from the high temperature of fluids such as exhaust gas, high-temperature water, etc.

A variety of packing materials can be used based upon the temperature and the materials contained in the pipes.

Specifications

Working Pressure	Max. 30 kgf/cm²
Working Temperature	Max. 450°C
Manufacturing Dimensions	Nominal Diam. 40 - 350 mm
Material	Sleeve: Stainless Steel SUS 304 Body: Grey Iron Casting FC20, Carbon Steel Casing SC46, or Ductile Cast Iron FCD45
Amount of Expansion-Contraction	120 - 160 mm

Guide of how to order

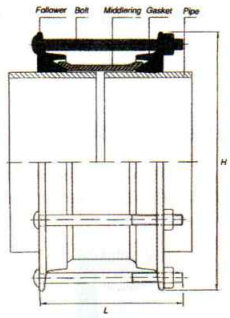
CODE **73 50 31**
Name ..... Slide type expansion joint
Material of Sleeve and Body.... Sleeve: Stainless Steel
Body: Grey iron casting
Size ..... 40 mm
Working Pressure ..... 30 kgf/cm²

Anti-corrosive Coated Flexible Pipe Couplings

Acoplamients Flexibles para Tuberia Revestido con Anti-corosivo
防錆塗装型伸縮継手 防锈镀膜伸缩管接头

These couplings are also resistant, and will not be changed by mechanical vibration of the pipes.

Suitable for low and high pressure, and can be used on steel or PVC pipe materials that can withstand the gasket pressure. Couplings suitable for ductile iron pipes are also available if required.



For Steel or PVC Pipes

How to order: CODE

Pipe coupling, flexible, anti-corrosive coated, PIPE O.D. mm, Material of PIPE to be connected

Unit Per Set

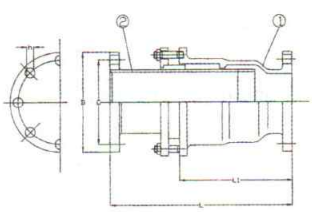
CODE	Pipe O.D. mm	Pipe O.D. Inch	H in mm	No. of Bolts	Working Pressure Bar	Weight kg
73 50 41	57.0	2.250	135	2	44	2.0
42	60.3	2.375	138	2	42	2.1
43	70.0	2.750	148	2	37	2.7
44	76.1	3.000	154	2	35	2.9
45	82.5	3.250	167	2	32	3.4
73 50 46	88.9	3.500	167	3	45	3.8
47	101.6	4.000	179	3	40	3.6
48	108.0	4.250	186	3	38	3.8
49	114.3	4.500	192	3	36	3.9
50	133.0	5.250	216	4	42	5.1
73 50 51	139.7	5.500	222	4	40	5.3
52	159.0	6.250	254	4	34	7.9
53	165.1	6.500	260	4	33	8.5
54	168.3	6.625	264	4	32	8.5
55	193.7	7.625	290	4	28	10.1
73 50 56	219.1	8.625	315	5	31	11.2
57	244.5	9.625	341	5	34	12.6
58	273.0	10.750	369	6	31	13.8
59	323.9	12.750	420	6	26	15.9
60	355.6	14.000	447	6	20	20.2
73 50 61	406.4	16.000	498	8	20	25.2
62	457.2	18.000	549	8	20	25.7
63	508.0	20.000	600	10	28	28.8
64	558.8	22.000	651	10	25	33.8

Name of Mfr.: Helden Couplings B.V.

Sleeve Type Expansion Joints

JIS 5 kgf/cm² / 10 kgf/cm² or 16 kgf/cm²

Juntas de Expansión Tipo Camisa 伸縮管継手 伸缩管接头



Part No.	Material	Code
1. Body	Ductile Iron	FCD 45
2. Sleeve	Stainless Steel	SUS 304

Nominal Pressure kgf/cm²	The Pressure MPa [kgf/cm²]	
	Body	Seal
5	0.98 [10]	0.78 [8]
10	1.96 [20]	1.57 [16]
16	3.92 [40]	3.14 [32]

JIS 5 kgf/cm²

Unit Per Pc.

CODE	Size	Size mm					
		L	L1	D	C	No.	h
73 50 71	50	345	208	130	105	4	15
72	65	350	213	155	130	4	15
73	80	385	243	180	145	4	19
74	100	390	249	200	165	8	19
75	125	390	249	235	200	8	19
73 50 76	150	400	254	265	230	8	19
77	200	420	282	320	280	8	23
78	250	435	292	385	345	12	23
79	300	455	305	430	390	12	23
80	350	465	310	480	435	12	25

JIS 10 kgf/cm²

Unit Per Pc.

CODE	Size	Size mm					
		L	L1	D	C	No.	h
73 50 81	50	368	229	155	120	4	19
82	65	382	236	175	140	4	19
83	80	415	277	185	150	8	19
84	100	415	277	210	175	8	19
85	125	432	282	250	210	8	23
73 50 86	150	439	287	280	240	8	23
87	200	458	306	330	290	12	23
88	250	475	311	400	355	12	25
89	300	510	338	445	400	16	25
90	350	517	343	490	445	16	25

JIS 16 kgf/cm²

Unit Per Pc.

CODE	Size	Size mm					
		L	L1	D	C	No.	h
73 50 91	50	432	251	155	120	8	19
92	65	456	259	175	140	8	19
93	80	469	295	200	160	8	23
94	100	476	295	225	185	8	23
95	125	520	300	270	225	8	25
73 50 96	150	522	305	305	260	12	25
97	200	544	327	350	305	12	25
98	250	576	332	430	380	12	27
99	300	588	362	480	430	16	27
73 51 00	350	612	367	540	480	16	33

Gaskets for Flexible Pipe Coupling

Jntas para Acoplamietos Flexibles de Tuberia

伸縮継ぎ手用ガスケット　　伸缩管接头用衬垫



When ordering spare gaskets for the flexible pipe couplings, please specify the manufacturer's name, model and the size of the flexible coupling currently in use, along with the name, temperature, and pressure of the line content, etc.

How to order: 73 - 50 - 36

Gasket for flexible pipe coupling, NAME, MODEL, SIZE of the flexible coupling, NAME, TEMPERATURE, PRESSURE of the line content

Rubber Expansion Joints

Compensadores de Dilatación

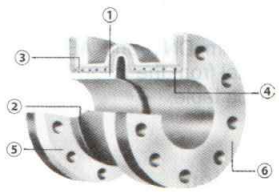
ゴム製エキスパンションジョイント　　橡胶伸缩接头



Single Arch Spool Type



Double Arch Spool Type



1. Inner Lining Rubber
   Acid and Chemical Proof Rubber (NR of Synthetic)
2. Outside Rubber
   Oil Abrasion Heat Proof Rubber of Chloroplene Rubber
3. Insertion Cloth for Reinforcement
4. Iron Wire for Reinforcement
5. Retaining Ring
6. Flange

Single Arch Spool Rubber Expansion Joint JIS 10 kgf/cm² Flanged

Specifications

Unit Per Pc.

CODE	Nominal Size mm	Flange mm			Amount. of mm		Max. working Pressure kgf/cm²
		I.D.	O.D.	F to F	Expansion	Contraction	
73 51 01	50	51	155	150	6	12	12
02	65	64	175	150	6	12	12
03	75	76	185	150	6	12	10
04	100	102	210	150	6	12	9
05	125	127	250	150	6	12	8
73 51 06	150	152	280	200	8	18	8
07	175	178	305	200	8	18	7
08	200	203	330	200	8	18	7
09	225	225	350	200	8	18	6
10	250	253	400	200	8	18	6
73 51 11	300	303	445	200	9	20	6

Double Arch Spool Rubber Expansion Joint JIS 10 kgf/cm² Flanged

Specifications

Unit Per Pc.

CODE	Nominal Size mm	Flange mm			Amount. of mm		Max. working Pressure kgf/cm²
		I.D.	O.D.	F to F	Expansion	Contraction	
73 51 21	50	51	155	250	12	24	12
22	65	64	175	250	12	24	12
23	75	76	185	250	12	24	10
24	100	102	210	250	12	24	9
25	125	127	250	250	12	24	8
73 51 26	150	152	280	300	16	24	8
27	175	178	305	300	16	36	7
28	200	203	330	300	16	36	7
29	225	225	350	300	16	36	6
30	250	253	400	300	16	36	6
73 51 31	300	303	445	300	18	40	6

Rubber Bellow Expansion Joints

with DIN Flanges

Junta de Dilatación de Goma con Brida DIN
DIN 型ゴム製エキスパンションジョイント
橡膠伸縮接頭附 DIN 法蘭



Flexible expansion joints for absorbing thermal expansion, the reduction of vibrations and preventing stress in pipe systems. The expansion joints have a type approval from DNV and ABS. Bellows are optional from the following materials listed in the material information table.

Material Information

Color Code	DN	L	Below Material		Max.Temp. Deg. C
	mm		Inernal	External	
Yellow	25-600	130-200	Nitrile	Chloroprene	90
Red	25-600	130-200	EPDM	EPDM	90
Green	25-600	130-200	Hypalon	Chloroprene	90
White	25-600	130-200	White nitrile	Chloroprene	90
Blue	25-600	130-200	SBR	Chloroprene	90
Double red	25-600	130-200	EPDM	EPDM	130

Remark: EPDM denotes Ethylene Propylene Diene Monomer, SBR denotes Styrene-butadiene Rubber.

Max. Operating Pressure and Temperature

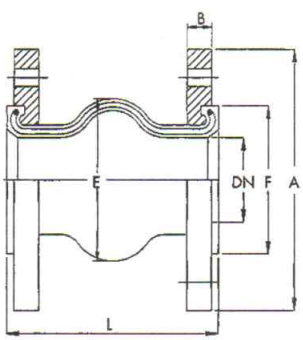
DN	Max. Pressure and Temperature		Model
25 thru 300	16 bar at 70 deg. C	10 bar at 90 deg. C	Yellow, Red, Green, White, Blue
350 thru 600	10 bar at 70 deg. C	8 bar at 90 deg. C	
25 thru150	16 bar at 100 deg. C	10 bar at 130 deg. C	Double red
200 thru 600	10 bar at 100 deg. C	6 bar at 130 deg. C	

Among the various types of bellow materials, we introduce the specifications of the most standard type for your ordering guidance as follows.

How to order: CODE

Rubber bellow expansion joints with DIN flange, Internal/External bellow material, SIZE(DN), LENGTH

Bellow Material: Internal – Nitrile,
External – Chloroprene



Unit Per Pc.

CODE	ND	Size mm L	A	F	B	Max. Permitted Movement mm	Weight kg
73 51 41	25	130	115	72			2.8
42	32		140	72			2.8
43	40	130-150	150	80	14	-30/+20	3.3
44	50		165	90			3.7
45	65		185	105			4.8
73 51 46	80		200	120	15		5.3
47	100		220	140	15		6.2
48	125	130-150	250	165	16	-30/+20	8.2
49	150		285	190	18		11
50	200		340	240	20		17
73 51 51	250	130-150	395	290	23		22
52	300		445	340	27		30
53	350		505	425	24	-30/+20	32
54	400	200	565	470	28		45
55	450		615	510	28		52
73 51 56	500	200	670	560	30	-30/+20	63
57	600		780	655	30		95

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PIPE THREADS

BRITISH STANDARD THREADS

British Engineering Standard Association Reports No. 21-1938
Forms of British Standard Pipe Threads

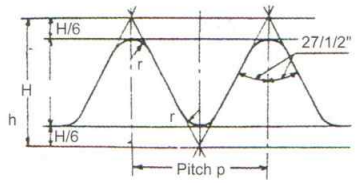


Fig.1.(Parallel)
H=0.960491 x p
h=0.640327 x p
r=0.137329 x p

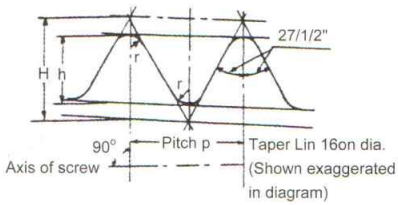


Fig.2.(Taper)
H=0.960237 x p
h=0.640327 x p
r=0.137278 x p

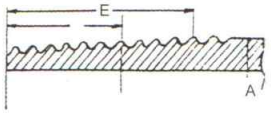


Fig.3.(Taper)

Table 1 Basic Sizes

Dimensions,in Inches

Nominal Bore of Pipe	Approximate Outside Diameter of Black Pipe	Number of Threads per Inch	Pitch	Depth of Thread	Diameter at Gauge Plane (Gauge Dia.)	Distance of GaugeDiameter from End (Gauge Length)	Length of Useful Thread
	A		p	h	B	F	E
1/8	0.400	28	0.03571	0.0229	0.383	0.1563	0.2545
1/4	0.538	19	0.05263	0.0337	0.518	0.2367	0.3814
3/8	0.676	19	0.05263	0.0337	0.656	0.2500	0.3947
1/2	0.847	14	0.07143	0.0457	0.825	0.3214	0.5178
3/4	1.063	14	0.07143	0.0457	1.041	0.3750	0.5714
1	1.336	11	0.09091	0.0582	1.309	0.4091	0.6591
1-1/4	1.677	11	0.09091	0.0582	1.650	0.5000	0.7500
1-1/2	1.909	11	0.09091	0.0582	1.882	0.5000	0.7500
2	2.381	11	0.09091	0.0582	2.347	0.6250	0.9204
2-1/2	2.996	11	0.09091	0.0582	2.960	0.6875	1.0511
3	3.499	11	0.09091	0.0582	3.460	0.8125	1.1761
3-1/2	3.991	11	0.09091	0.0582	3.950	0.8750	1.2386
4	4.494	11	0.09091	0.0582	4.450	1.0000	1.4091
5	5.493	11	0.09091	0.0582	5.450	1.1250	1.5795
6	6.501	11	0.09091	0.0582	6.450	1.1250	1.5795

AMERICAN STANDARD THREADS

Apporoved by American Standard Association B2.11945
Forms of American Standard Pipe Threads

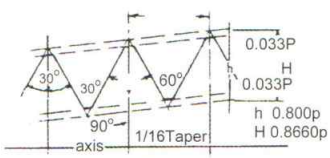


Fig.4.(Taper)
H=0.8660 x p
h=0.8000 x p

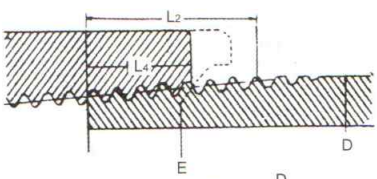


Fig.5.(Taper)
$L_2=(0.8D + 6.8)1/n$

Straight Pipe Threads : the pitch, angle, and depth of thread are the same as the corresponding dimensions of the taper pipe threads.

Table 2 Basic Sizes Dimensions

Dimensions, in Inches

Nominal Pipe Size	Outside Diameter of Pipe	Threads per Inch	Pitch of Thread	Hand-Tight Engagement		Effective Thread Length External	Depth of Thread
	D	n	p	L_1	E_1	L_2	h
1/8	0.405	27	0.03704	0.180	0.37476	0.2639	0.02963
1/4	0.540	18	0.05556	0.200	0.48989	0.4018	0.04444
3/8	0.675	18	0.05556	0.240	0.62701	0.4078	0.04444
1/2	0.840	14	0.07143	0.320	0.77843	0.5337	0.05714
3/4	1.050	14	0.07143	0.339	0.98887	0.5457	0.05714
1	1.315	11-1/2	0.08696	0.400	1.23863	0.6828	0.06957
1-1/4	1.660	11-1/2	0.08696	0.420	1.58338	0.7068	0.06957
1-1/2	1.900	11-1/2	0.08696	0.420	1.82234	0.7235	0.06957
2	2.375	11-1/2	0.08696	0.436	2.29627	0.7565	0.06957
2-1/2	2.875	8	0.12500	0.682	2.76216	1.1375	0.10000
3	3.500	8	0.12500	0.766	3.38850	1.2000	0.10000
3-1/2	4.000	8	0.12500	0.821	3.88881	1.2500	0.10000
4	4.500	8	0.12500	0.844	4.38712	1.3000	0.10000
5	5.563	8	0.12500	0.937	5.44929	1.4063	0.10000
6	6.625	8	0.12500	0.958	6.50597	1.5121	0.10000

Conversion Table

[Length]	m	km	in	ft	yd	mile
m	1	1×10^{-3}	39.37	3.28	1.093	6.214×10^{-4}
km	1×10^{3}	1	3.937×10^{4}	3,280	1,093	0.621
in	0.0254	2.54×10^{-5}	1	1/12	1/36	1.58×10^{-5}
ft	0.305	3.048×10^{-4}	12	1	1/3	1.894×10^{-4}
yd	0.914	9.144×10^{-4}	36	3	1	5.682×10^{-4}
mile	1,609	1.609	63,360	5,280	1,760	1

[Mass (Weight)]	g	kg	t	lb	oz
g	1	1×10^{-3}	1×10^{-6}	2.204×10^{-3}	0.0352
kg	1×10^{3}	1	1×10^{-3}	2.204	35.27
t	1×10^{6}	1×10^{3}	1	2,204	35,270
lb	453.6	0.4536	4.536×10^{-4}	1	16
oz	28.35	0.02835	2.835×10^{-5}	1/16	1

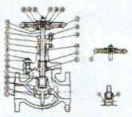
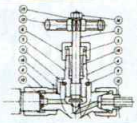
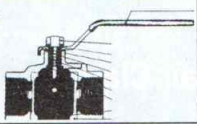
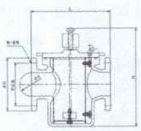
[Volume]	cm^3 (cc or ml)	m^3	l	in^3	qt	pt	fl-oz	ft^3	gal
cm^3 (cc or ml)	1	0.000001	0.001	0.061	0.00088	0.0018	0.035	-	0.00022
m^3	1,000,000	1	1,000	61,024	880	1,760	35,195	35.314	220
l	1,000	0.001	1	61.024	0.880	1.760	35.195	0.035	0.220
in^3	16.387	0.000016	0.016	1	0.014	0.029	0.577	0.00058	0.0036
qt	1,136.52	0.0011	1.137	69.355	1	2	40	0.033	0.25
pt	568	0.00057	0.568	34.677	0.5	1	20	0.017	0.125
fl-oz	28.413	0.000028	0.028	1.734	0.025	0.05	1	0.0008	0.00625
Ft^3	28,316	0.0283	28.316	1,728	29.922	59.844	958	1	7,481
gal	4,546	0.0045	4.546	277	4	8	160	0.134	1

[Pressure]	bar	kgf/cm^2	lbf/cm^2	mmHg (0°C)	Pa (SI)
bar	1	1.020	14.50	750.1	100,000
kgf/cm^2	0.9807	1	14.22	753.6	98,066
lbf/cm^2	0.0689	0.0703	1	51.72	6,895
mmHg (0°C)	0.00133	0.0013	0.0193	1	133.3
Pa (SI)	1×10^{-5}	1.02×10^{-5}	1.45×10^{-4}	10.2×10^{-4}	1

[Stress]	Pa (SI)	MPa	kgf/mm^2	kgf/cm^2
Pa (SI)	1	1×10^{-6}	1.01972×10^{-7}	1.01972×10^{-5}
MPa	1×10^{6}	1	1.01972×10^{-1}	1.01972×10
kgf/mm^2	9.80665×10^{6}	9.80665	1	1×10^{2}
kgf/cm^2	9.80665×10^{4}	9.80665×10^{-2}	1×10^{-2}	1

[Force]	kW	kgf · m/sec	HP
kW	1	102.0	1.341
kgf · m/sec	0.009807	1	0.01315
HP	0.7457	76.04	1

75
Valves & Cocks

JIS Valves P. 75-1 ~ 3	(a) Ordinary Globe & Angle Valves P. 75-3 ~8 	(b) Union Bonnet Type Valves P. 75-8 ~ 9 	(c) Screw or Union End Valves P. 75-9 ~ 11 
(d) Compressed Air Valves P. 75-11 ~ 12 	(e) Pressure Gauge & Stop Valves P. 75-12 ~ 13 	(f) Gate Valves P. 75-13 ~ 15 	(g) Screw Down Check Valves P. 75-16 ~ 20 
(h) Lift Check Valves P. 75-20 ~ 21 	(i) Swing Check Valves P. 75-21 ~ 22 	(j) Marine Cocks P. 75-22~ 23 	(k) Hose Valves P. 75-23 ~ 26 
Emergency Shut-off Valves P. 75-26 ~ 29 	Screwed Valves P. 75-29 ~ 31 	Air & Oil Cocks P. 75-32 	Needle Valves P. 75-32 ~ 33 
Butterfly Valves P. 75-33 ~ 36 	Diaphragm Valves P. 75-36 ~ 37 	Ball Valves P. 75-37 	Y-Strainers P. 75-37 ~ 38 
Marine Can Water Filters P. 75-38~ 39 	Steam Traps P. 75-39 ~ 40 	Flow Indicators P. 75-41 ~ 43 	Storm Valves P. 75-43 ~ 45 
DIN Standard Valves Introduction P. 75-45 ~ 49	DIN Globe Valves P. 75-50 ~ 57 	DIN Gate Valves P. 75-57 ~ 61 	DIN Check Valves P. 75-62 ~ 66 
DIN Fire and Deckwash Valves P. 75-66 ~ 69 	DIN Cocks P. 75-69 ~ 70 	DIN Needle Valves P. 75-70 ~ 71 	DIN Butterfly Valves P. 75-71 ~ 79 
DIN Diaphragm Valves P. 75-79 ~ 80 	DIN Pressure Reducing Valves P. 75-80 ~ 85 	DIN Ball Valaves P. 75-85 ~ 90 	DIN Strainers P. 75-90 ~ 91 
DIN Mud Box P. 75-91 ~ 92 	DIN Sight Glasses P. 75-92 	DIN Overflow Valves P. 75-92 ~ 96 	DIN Safety Valves P. 75-96 ~ 110 
ANSI Valves - Introduction P. 75-111	ANSI Globe Valves P. 75-112 	ANSI Gate Valves P. 75-112 ~ 114 	ANSI Check Valves P. 75-114 ~ 115 
ANSI Strainers P. 75-115 ~ 116 			

JIS Valves

Application Table for JIS Valves

Tabla de Aplicación para Válvulas según la Norma JIS
JIS バルブ申請表　JIS 阀申请表

The tables below are provided to help determine the valves and cocks which are suitable for use under the material, pressure, and temperature conditions of the pipes listed below.

1. In steam piping and boiler circulating water piping

Globe valves and angle valves
Nominal diameter 15 – 40 mm

Max. Working Pressure	Max. Working Temperature	Applicable JIS F Valve No.
1.57 MPa (16 kgf/cm²)	205°C	F-7301, F-7302, F-7303, F-7304, F-7346, F-7347, F-7348, F-7349, F-7351, F-7352, F-7411, F-7412, F-7413, F-7414
3.04 MPa (31 kgf/cm²)	400°C	F-6313, F-7314, F-7421, F-7422, F-7473, F-7474
5.59 MPa (57 kgf/cm²)	425°C	F-7317, F-7318, F-7320, F-7330

Nominal diameter 50 – 200 mm

0.49 MPa (5 kgf/cm²)	205°C	F-7301, F-7302, F-7305, F-7306, F-7353, F-7354
0.98 MPa (10 kgf/cm²)		F-7307, F-7308, F-7375, F-7376
1.57 MPa (16 kgf/cm²)		F-7309, F-7310, F-7377, F-7378
1.18 MPa (12 kgf/cm²)	300°C	F-7319, F-7320, F-7471, F-7472
3.04 MPa (31 kgf/cm²)	400°C	F-7313, F-7314, F-7473, F-7474
4.22 MPa (43 kgf/cm²)	425°C	F-7317, F-7318, F-7315, F-7316
5.59 MPa (57 kgf/cm²)		F-7317, F-7318

Nominal diameter 250 – 400 mm

0.49 MPa (5 kgf/cm²)	100°C	F-7307, F-7308
1.18 MPa (12 kgf/cm²)	300°C	F-7319. F-7320
3.04 MPa (31 kgf/cm²)	400°C	F-7313, F-7314, F-7473, F-7474

2. In feed water piping general non-shock sea water, bilge and ballast sea water piping

Globe valves and angle valves

Max. Working Pressure	Nominal Diameter mm	Applicable JIS F Valve No.
0.49 MPa (5 kgf/cm²)	450 • 500	F-7354
0.60 MPa (6 kgf/cm²)	300 - 400	F-7305, F-7306 F-7354
0.69 MPa (7 kgf/cm²)	15 - 40	F-7301, F-7302, F-7346, F-7347, F-7351, F-7352, F-7356, F-7411, F-7412, F-7415, F-7416
	50 - 150	F-7305, F-7306, F-7353, F-7354, F-7358, F-7359
	200 • 250	F-7305, F-7306, F-7353, F-7354
0.98 MPa (10 kgf/cm²)	250 • 300	F-7307, F-7308
	350 • 400	F-7308
1.37 MPa (14 kgf/cm²)	50 - 200	F-7307, F-7308, F-7375, F-7376
2.16 MPa (22 kgf/cm²)	15 - 40	F-7307, F-7304, F-7348, F-7349, F-7413, F-7414, F-7417, F-7418
	50 - 150	F-7309, F-7310, F-7377, F-7378,
	200	F-7309, F-7310
2.75 MPa (28 kgf/cm²)	6 • 10	F-7388, F-7389
3.33 MPa (34 kgf/cm²)	6 - 25	F-7421, F-7422
	32 - 250	F-7313, F-7314, F-7473, F-7474
4.51 MPa (46 kgf/cm²)	100 - 150	F-7315, F-7316
6.08 MPa (62 kgf/cm²)	6 - 25	F-7329, F-7330
	32 -150	F-7317, F-7318

3. In feed water piping for non-shock water at temperatures 120°C or less, general non-shock sea waterpiping, bilge and ballast sea water piping

Globe valves

Max. Working Pressure	Nominal Diameter mm	Applicable JIS F Valve No.
0.69 MPa (7 kgf/cm²)	15 - 400	F-7367
	50 - 400	F-7363
1.37 MPa (14 kgf/cm²)	15 - 40	F-7368
	50 - 400	F-7364
1.57 MPa (16 kgf/cm²)	300 - 400	F-7369

Swing check valves

Max. Working Pressure	Nominal Diameter mm	Applicable JIS F Valve No.
0.69 MPa (7 kgf/cm²)	25 - 40	F-7371
	50 - 250	F-7372
1.37 MPa (14 kgf/cm²)	50 - 200	F-73673

4. Cocks in feed water piping for non-shock water at temperature 120°C or less

Max. Working Pressure	Nominal Diameter mm	Applicable JIS F Valve No.
0.49 MPa (5 kgf/cm²)	25 - 65	F-7381
1.57 MPa (16 kgf/cm²)	6 - 20	F-7387

(to be continued)

5. In pulsating water piping, fuel oil piping, lubricating oil piping and cargo oil piping

Globe and angle valves

Max. Working Pressure	Nominal Diameter mm	Applicable JIS F Valve No.
0.49 MPa (5 kgf/cm²)	15 - 40	F-7301, F-7302, F-7346, F-7347, F-7351, F-7352, F-7356, F-7411, F-7412, F-7415, F-7416
	50 - 150	F-7305, F-7306, F-7353, F-7354, F-7358, F-7359
	200 • 250	F-7305, F-7306, F-7353, F-7354
	300 - 400	F-7305, F-7306
0.98 MPa (10 kgf/cm²)	50 - 200	F-7307, F-7308, F-7375, F-7376
	250 • 300	F-7307, F-7308
	350 • 400	F-7308
1.57 MPa (16 kgf/cm²)	15 - 40	F-7307, F-7304, F-7348, F-7349, F-7413, F-7414, F-7417, F-7418
	50 - 150	F-7309, F-7310, F-7377, F-7378,
	200	F-7309, F-7310
1.96 MPa (20 kgf/cm²)	6 • 10	F-7388, F-7389
2.94 MPa (31 kgf/cm²)	6 - 25	F-7421, F-7422
	32 - 250	F-7313, F-7314, F-7473, F-7474
4.51 MPa (46 kgf/cm²)	100 - 150	F-7315, F-7316
6.08 MPa (62 kgf/cm²)	6 - 25	F-7329, F-7330
	32 -150	F-7317, F-7318

Gate valves

Max. Working Pressure	Nominal Diameter mm	Applicable JIS F Valve No.
0.49 MPa (5 kgf/cm²)	15 - 40	F-7367
	50 - 600	F-7363
0.98 MPa (10 kgf/cm²)	15 - 40	F-7368
	50 - 600	F-7364
1.57 MPa (16 kgf/cm²)	300 - 400	F-7369

Swing check valves

Max. Working Pressure	Nominal Diameter mm	Applicable JIS F Valve No.
0.49 MPa (5 kgf/cm²)	25 - 40	F-7371
	50 - 250	F-7372
0.98 MPa (10 kgf/cm²)	50 - 200	F-73673

Cocks

Max. Working Pressure	Nominal Diameter mm	Applicable JIS F Valve No.
0.49 MPa (5 kgf/cm²)	25 - 65	F-7381
	6 - 20	F-7387

6. In compressed air piping and control air piping

Globe and angle valves

Max. Working Pressure	Nominal Diameter mm	Applicable JIS F Valve No.
0.49 MPa (5 kgf/cm²)	15 - 40	F-7301, F-7302, F-7346, F-7347, F-7351, F-7352, F-7411, F-7412
	50 - 200	F-7305, F-7306, F-7353, F-7354
0.98 MPa (10 kgf/cm²)	50 - 200	F-7307, F-7308, F-7375, F-7376
1.57 MPa (16 kgf/cm²)	15 - 40	F-7307, F-7304, F-7348, F-7349, F-7413, F-7414
	50 - 150	F-7309, F-7310, F-7377, F-7378,
	200	F-7309, F-7310
1.96 MPa (20 kgf/cm²)	6 • 10	F-7388, F-7389
3.04 MPa (31 kgf/cm²)	6 - 25	F-7421, F-7422, F-7336, F-7337
	32 - 250	F-7313, F-7314, F-7473, F-7473, F-7474, F-7475
	200	F-7313, F-7314, F-7473, F-7474, F-7475
4.51 MPa (46 kgf/cm²)	6 - 25	F-7336, F-7337
	32 -150	F-7340, F-7475
	200	F-7475

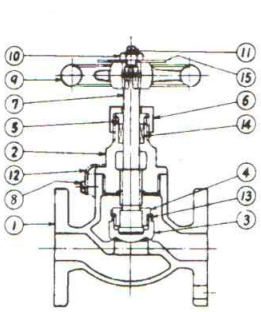
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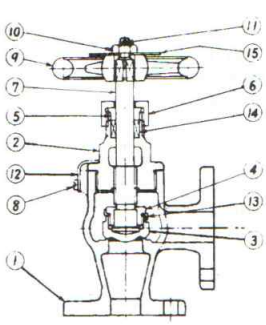
JIS F No. / CODE Reference Table

JIS No.	CODE	Page	JIS No.	CODE	Page	JIS No.	CODE	Page
F-7301	**75 01 21-27**	75- 3	F-7336	**75 07 31-43**	75-12	F-7376	**75 11 41-47**	75-17
F-7302	**75 01 31-37**	75- 3	F-7337	**75 07 51-58**	75-12	F-7377	**75 11 51-57**	75-18
F-7303	**75 01 41-45**	75- 4	F-7340	**75 07 01-08**	75-11	F-7378	**75 11 61-66**	75-18
F-7304	**75 01 51-55**	75- 4	F-7341	**75 07 66-69**	75-12	F-7379	**75 07 76-88**	75-13
F-7305	**75 02 01-11**	75- 4	F-7343	**75 16 51-54**	75-23	F-7381	**75 16 01-15**	75-22
F-7306	**75 02 16-26**	75- 4	F-7346	**75 05 01-05**	75- 8	F-7387	**75 16 31-36**	75-22
F-7307	**75 02 31-39**	75- 5	F-7347	**75 05 11-15**	75- 8	F-7388	**75 05 51-57**	75- 9
F-7308	**75 02 46-56**	75- 5	F-7348	**75 05 21-25**	75- 9	F-7389	**75 05 61-62**	75- 10
F-7309	**75 02 61-67**	75- 5	F-7349	**75 05 31-35**	75- 9	F-7390	**75 16 61-64**	75-23
F-7310	**75 02 71-77**	75- 5	F-7351	**75 10 51-55**	75-16	F-7409	**75 10 71-75**	75-16
F-7311	**75 04 01-02**	75- 6	F-7352	**75 10 61-65**	75-16	F-7410	**75 10 81-85**	75-16
F-7312	**75 04 06-07**	75- 6	F-7353	**75 11 01-11**	75-17	F-7411	**75 12 61-65**	75-19
F-7313	**75 04 31-40**	75- 7	F-7354	**75 11 16-29**	75-17	F-7412	**75 12 66-70**	75-19
F-7314	**75 04 41-50**	75- 7	F-7356	**75 13 01-03**	75-20	F-7413	**75 12 81-85**	75-19
F-7315	**75 04 61-63**	75- 8	F-7358	**75 13 11-16**	75-20	F-7414	**75 12 86-90**	75-19
F-7316	**75 04 66-68**	75- 8	F-7359	**75 13 21-26**	75-20	F-7415	**75 13 41-45**	75-20
F-7317	**75 04 71-78**	75- 8	F-7363	**75 08 01-15**	75-13	F-7416	**75 13 46-50**	75-20
F-7318	**75 04 81-88**	75- 8	F-7364	**75 08 21-35**	75-14	F-7417	**75 13 61-65**	75-21
F-7319	**75 04 11-19**	75- 7	F-7366	**75 09 01-11**	75-14	F-7418	**75 13 66-70**	75-21
F-7320	**75 04 21-29**	75- 7	F-7367	**75 09 51-55**	75-15	F-7421	**75 06 01-13**	75- 10
F-7321	**75 03 01-05**	75- 5	F-7368	**75 09 61-65**	75-15	F-7422	**75 06 21-28**	75-10
F-7322	**75 03 11-15**	75- 6	F-7369	**75 08 41-43**	75-14	F-7471	**75 12 01-12**	75-18
F-7329	**75 06 41-63**	75-10	F-7371	**75 14 01-03**	75-21	F-7472	**75 12 16-27**	75-18
F-7330	**75 06 71-83**	75-11	F-7372	**75 14 21-28**	75-21	F-7473	**75 12 31-41**	75-19
F-7333	**75 17 31-37**	75-25	F-7373	**75 14 31-37**	75-22	F-7474	**75 12 46-56**	75-19
F-7334	**75 17 01-23**	75-23	F-7375	**75 11 31-37**	75-17	F-7475	**75 07 16-24**	75-12

(a) Ordinary Globe & Angle Valves

CODE	JIS No.	Material	Pressure kgf/cm²	Shape
75 01 21 - 27 **31 - 37**	F-7301 F-7302	Bronze	5	Globe Angle
75 01 41 - 45 **51 - 55**	F-7303 F-7304		16	Globe Angle
75 02 01 - 11 **16 - 26**	F-7305 F-7306	Cast Iron	5	Globe Angle
75 02 31 - 39 **46 - 56**	F-7307 F-7308		10	Globe Angle
75 02 61 - 67 **71 - 77**	F-7309 F-7310		16	Globe Angle
75 04 01 - 02 **06 - 07**	F-7311 F-7312	Cast Steel	5	Globe Angle
75 04 11 - 19 **21 - 29**	F-7319 F-7320		10	Globe Angle
75 04 31 - 40 **41 - 50**	F-7313 F-7314		20	Globe Angle
75 04 61 - 63 **66 - 68**	F-7315 F-7316		30	Globe Angle
75 04 71 - 78 **81 - 88**	F-7317 F-7318		40	Globe Angle





No.	Component	No.	Component
1	Body	9	Handwheel
2	Bonnet	10	Hexagon nut
3	Disc	11	Split pin
4	Valve disc nut	12	Lock plate
5	Packing gland	13	Disc lock washer
6	Gland nut	14	Packing
7	Stem	15	Name plate
8	Cross recessed pan head machine screw		

Marine Bronze 5 kgf/cm² Globe Valves F-7301 Angle Valves F-7302

Válvulas de Globo,Paso Recto y en Escuadra en Bronce Marino
船用青銅玉形及びアングル弁　船用青铜球阀及角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 205°C or less	0.49 [5]
Air, gas, oil ' pulsation water	
Non-spark water of 120°C or less	0.69 [7]

Hydraulic Inspection

Watertight inspection for valve seat	0.76 MPa [7.7 kgf/cm²]
Hydraulic inspection for body	1.03 MPa [10.5kgf/cm²]



F-7301



F-7302

How to order: CODE

GLOBE or ANGLE valve, bronze, 5 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7301							
75 01 21	15	100	80	60	4	12	2.02
22	20	110	85	65	4	12	2.86
23	25	120	95	75	4	12	3.54
24	32	140	115	90	4	15	5.00
25	40	160	120	95	4	15	6.48
75 01 26	50	210	130	105	4	15	11.7
27	65	250	155	130	4	15	17.0
Angle Valve F-7302							
75 01 31	15	55	80	60	4	12	1.98
32	20	60	85	65	4	12	2.73
33	25	65	95	75	4	12	3.44
34	32	80	115	90	4	15	4.77
35	40	85	120	95	4	15	5.99
75 01 36	50	100	130	105	4	15	10.1
37	65	115	155	130	4	15	15.6

Marine Bronze 16 kgf/cm²
Globe Valves F-7303
Angle Valves F-7304

Válvulas de Globo,Paso Recto y en Escuadra en Bronce Marino

船用青銅玉形及びアングル弁　船用青铜球阀及角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 205oC or less	1.57 [16]
Air, gas, oil & pulsation water	
Non-shock water of 120°C or less	2.16 [22]

Hydraulic Inspection

Watertight inspection for valve seat	2.37 MPa [24.2 kgf/cm²]
Hydraulic inspection for body	3.24 MPa [33.0 kgf/cm²]

How to order: CODE

GLOBE or ANGLE valve, bronze, 16 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7303							
75 01 41	15	100	95	70	4	15	2.76
42	20	120	100	75	4	15	3.72
43	25	130	125	90	4	19	5.20
44	32	160	135	100	4	19	6.91
45	40	180	140	105	4	19	8.43
Angle Valve F-7304							
75 01 51	15	70	95	70	4	15	2.73
52	20	75	100	75	4	15	3.65
53	25	85	125	90	4	19	5.16
54	32	95	135	100	4	19	6.72
55	40	100	140	105	4	19	8.13

Marine Cast Iron 5 kgf/cm²
Globe Valves F-7305
Angle Valves F-7306

Válvulas de Globo,Paso Recto y en Escuadra en Hierro Fundido

船用鋳鉄玉形及びアングル弁　船用铸球阀及角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]			
	Nominal dia. 200 mm or less		Nominal dia. 250, 300 mm	Nominal dia 350, 400 mm
	Class B	Class S	Class B	
Steam of 230°C or less	-	0.49 [5]	-	
Steam of 205°C or less	0.49 [5]			
All & gas	0.49 [5]			-
Oil & pulsation water				0.49 [5]
Non-shock water of 120°C or less	0.69 [7]			0.59 [6]

Hydraulic Inspection

Nominal Dia. mm	Test pressure MPa [kgf/cm²]	
	Watertight inspection for valve seat	Hydraulic inspection for body
300 or less	0.76 [7.7]	1.03 [10.5]
350 & 400	0.65 [6.6]	0.88 [9]



F-7305



F-7306

How to order: CODE

GLOBE or ANGLE valve, cast iron, 5 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7305							
75 02 01	50	210	130	105	4	15	14.7
02	65	250	155	130	4	15	21.3
03	80	280	180	145	4	19	27.7
04	100	340	200	165	8	19	40.8
05	125	410	235	200	8	19	57.6
75 02 06	150	480	265	230	8	19	80.3
07	200	570	320	280	8	23	139
08	250	740	385	345	12	23	246
09	300	840	430	390	12	23	377
10	350	940	480	435	12	25	462
75 02 11	400	1,050	540	495	16	25	647
Angle Valve F-7306							
75 02 16	50	100	130	105	4	15	12.9
17	65	115	155	130	4	15	18.2
18	80	130	180	145	4	19	23.4
19	100	150	200	165	8	19	33.7
20	125	170	234	200	8	19	46.2
75 02 21	150	190	265	230	8	19	63.4
22	200	220	320	280	8	23	105
23	250	275	385	345	12	23	176
24	300	310	430	390	12	23	243
25	350	360	180	435	12	25	327
75 02 26	400	395	540	495	16	25	459

Marine Cast Iron 10 kgf/cm² Globe Valves F-7307 Angle Valves F-7308

Válvulas de Globo,Paso Recto y en Escuadra en Hierro Fundido
船用鋳鉄玉形及びアングル弁　船用铸球阀及角阀

Pressure Raring

Fluid condition	Maximum working pressure MPa [kgf/cm²]			
	Nominal dia. 200 mm or less		Nominal dia. 250 mm or more	
	Class B	Class S	Class B	Class S
Steam or 230°C or less	-	0.98 [10]	-	
Steam of 205 °C or less	0.98 [10]			
Saturated steam			0.49 [5]	
Air & gas			-	
Oil & pulsation water			0.98 [10]	
Non-shock water of 120°C or less	1.37 [14]			

Hydraulic Inspection

Nominal dia. mm	Test pressure MPa [kgf/cm²]	
	Watertight inspection for valve seat	Hydraulic inspection for body
200 or less	1.51 [15.4]	2.06 [21]
250 or more	1.08 [11]	1.47 [15]

How to order: CODE

GLOBE or ANGLE valve, cast iron, 10 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7307							
75 02 31	50	220	155	120	4	19	19.9
32	65	270	175	140	4	19	28.7
33	80	300	185	150	8	19	32.4
34	100	350	210	175	8	19	48.7
35	125	420	250	210	8	23	73.1
75 02 36	150	490	280	240	8	23	104
37	200	570	330	290	12	23	162
38	250	740	400	355	12	25	304
39	300	840	445	400	16	25	458
Angle Valve F-7308							
75 02 46	50	120	155	120	4	19	18.2
47	65	130	175	140	4	19	25.4
48	80	140	185	150	8	19	27.4
49	100	160	210	175	8	19	40.6
50	125	180	250	210	8	23	69.9
75 02 51	150	205	280	240	8	23	81.0
52	200	230	330	290	12	23	125
53	250	290	400	355	12	25	211
54	300	320	445	400	16	25	293
55	350	360	490	445	16	25	386
75 02 56	400	420	560	510	16	25	544

Marine Cast Iron 16 kgf/cm², Globe Valves F-7309 Angle Valves F-7310

Válvulas de Globo,Paso Recto y en Escuadra en Hierro Fundido
船用鋳鉄玉形及びアングル弁　船用铸球阀及角阀

Pressure Rating

Fluid condition	Maximum working pressur MPa [kgf/cm²]	
	Class B	Class S
Steam of 230°C or less	-	1.57 [16]
Steam of 205°C or less	1.57 [16]	
Air, gas, oil & pulsation water	1.57 [16]	
Non-shock water of 120°C or less	2.16 [22]	

Hydraulic Inspection

Watertight inspection for valve seat	2.38 MPa [24.2 kgf/cm²]
Hydraulic inspection for body	3.24 MPa [33.0 kgf/cm²]

How to order: CODE

GLOBE or ANGLE valve, cast iron, 16 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7309							
75 02 61	50	220	155	120	8	19	19.6
62	65	270	175	140	8	19	28.3
63	80	300	200	160	8	23	40.4
64	100	350	225	185	8	23	56.9
65	125	430	270	225	8	25	89.5
75 02 66	150	500	300	260	12	25	123
67	200	570	350	305	12	25	188
Angle Valve F-7310							
75 02 71	50	120	155	120	8	19	18.0
72	65	130	175	140	8	19	25.0
73	80	150	200	160	8	23	35.7
74	100	170	225	185	8	23	49.2
75	125	200	270	225	8	25	76.1
75 02 76	150	225	305	260	12	25	103
77	200	250	350	305	12	25	155

Marine Malleable Iron 5 kgf/cm² Globe Valves/Angle Valves

Hierro naval maleable válvulas esféricas/válvulas de ángulo
船用可鍛鋳鉄玉形及びアングル弁　船用铸铁球阀和直角

Previously listed in JIS standard and abolished in 1999, but still in demand and available in marine industry.

Globe Valve – ex JIS F-7321
Angle Valve – ex JIS F-7322

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]	
	Class B	Class S
Steam of 300°C	-	0.49 [5]
Steam of 220°C or less	-	0.59 [6]
Steam of 205°C or less	0.49 [5]	
Air, gas, oil & pulsation water		
Non-shock water of 120°C or less	0.69 [7]	

Hydraulic Inspection

Watertight inspection for valve seat	0.76 MPa [7.7 kgf/cm²]
Hydraulic inspection for body	1.04 MPa [10.5 kgf/cm²]

How to order: CODE

GLOBE or ANGLE valve, cast iron, 5 kgf/cm², SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve (ex JIS F-7321)							
75 03 01	15	100	80	60	4	12	1.98
02	20	110	85	65	4	12	2.80
03	25	120	95	75	4	12	4.18
04	32	140	115	90	4	15	5.53
05	40	160	120	95	4	15	7.08

(to be continued)

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Angle Valve (ex JIS F-7322)							
75 03 11	15	55	80	60	4	12	1.88
12	20	60	85	65	4	12	2.65
13	25	65	95	75	4	12	3.85
14	32	80	115	90	4	15	5.29
15	40	85	120	95	4	15	6.86

Marine Malleable Iron 16 kgf/cm² Globe Valves/Angle Valves

Hierro naval maleable válvulas esféricas/válvulas de ángulo
舶用可鍛鋳鉄玉形及びアングル弁　船用铸铁球阀和直角

Previously listed in JIS standard and abolished in 1999, but still in demand and available in marine industry.

Globe Valve – ex JIS F-7323
Angle Valve – ex JIS F-7324

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]	
	Class B	Class S
Steam or 350°C or less	-	1.57 [16]
Steam of 300°C or less		1.57 [18]
Steam of 220°C or less	1.57 [16]	1.96 [20]
Steam of 205°C or less		
Air, gas, oil & pulsation water		
Non-shock water of 120°C or less	2.16 [22]	

Hydraulic Inspection

Watertight inspection for valve seat	2.38 MPa [24.2 kgf/cm²]
Hydraulic inspection for body	3.24 MPa [33.0 kgf/cm²]

How to order: CODE
GLOBE or ANGLE valve, cast iron, 16 kgf/cm², SIZE mm

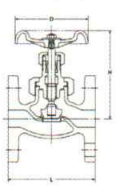
Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve (ex JIS F-7323)							
75 03 21	15	100	95	70	4	15	2.91
22	20	120	100	75	4	15	3.85
23	25	130	125	90	4	19	5.57
24	32	160	135	100	4	19	7.40
25	40	180	140	105	4	19	9.29
Angle Valve (ex JIS F-7324)							
75 03 31	15	70	95	70	4	15	2.85
32	20	75	100	75	4	15	3.75
33	25	85	125	90	4	19	5.36
34	32	95	135	100	4	19	7.05
35	40	100	140	105	4	19	8.80

Ductile Iron 10K Globe Valves B-2051

Válvula de bola 10K de hierro dúctil
ダクタイル鋳鉄10K玉形弁　球墨铸铁 10K 球阀





Temperature & Pressure Rating

Fluid Condition	Temperature	Pressure Rating MPa [kgf/cm²]
Static Water	120°C	1.4
Steam, Air, Gas, Oil	220°C	1.0

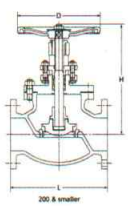
Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 03 41	10	85	90	65	4	15	1.7
42	15	85	95	70	4	15	2.1
43	20	95	100	75	4	15	2.6
44	25	110	125	90	4	19	4.0
45	32	130	135	100	4	19	5.4
75 03 46	40	150	140	105	4	19	6.8
47	50	180	155	120	4	19	9.2

Ductile Iron 10K Globe Valves
Bolted Bonnet Outside Screw & Yoke B-2051

Válvula de bola 10K de hierro dúctil
ダクタイル鋳鉄10K玉形弁
球墨铸铁 10K 球阀





Temperature & Pressure Rating

Fluid Condition	Temperature	Pressure Rating MPa [kgf/cm²]
Static Water	120°C	1.4
Steam, Air, Gas, Oil	220°C	1.2
Steam, Air, Gas, Oil	300°C	1.0

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 03 51	50	203	155	120	4	4	15.1
52	65	216	175	140	4	4	21.1
53	80	241	185	150	8	8	27.4
54	100	292	210	175	8	8	37.0
55	125	356	250	210	8	8	58.3
75 03 56	150	406	280	240	8	8	83.5
57	200	495	330	290	12	12	124.0

Marine Cast Steel 5 kgf/cm² Globe Valves F-7311 Angle Valves F-7312

Válvulas de Globo,Paso Recto y en Acero Fundido
船用鋳鋼玉形及びアングル弁　船用铸钢球阀及角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Oil & pulsation water	0.49 [5]
Non-shock water of 120°C or less	0.69 [7]

Hydraulic Inspection

Watertight inspection for valve seat	0.76 MPa [7.7 kgf/cm²]
Hydraulic inspection for body	1.04 MPa [10.5 kgf/cm²]



F-7311



F-7312

How to order: CODE

GLOBE or ANGLE valve, cast steel, 5 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7311							
75 04 01	250	740	385	345	12	23	230
02	300	840	430	390	12	23	309
Angle Valve F-7312							
75 04 06	250	275	385	345	12	23	178
07	300	310	430	390	12	23	275

Marine Cast Steel 10 kgf/cm²
Globe Valves F-7319
Angle Valves F-7320

Válvulas de Globo,Paso Recto y en Acero Fundido

船用鋳鋼玉形及びアングル弁　　船用铸钢 球阀及角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 300°C	0.98 [10]
Steam of 220°C or less	1.18 [12]
Air, gas, oil & pulsation water	
Non-shock water of 120°C or less	1.37 [14]

Hydraulic Inspection

Watertight inspection for valve seat	1.51 MPa [15.4 kgf/cm²]
Hydraulic inspection for body	2.06 MPa [21.0 kgf/cm²]

How to order: CODE

GLOBE or ANGLE valve, cast steel, 10 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7319							
75 04 11	50	220	155	120	4	19	17.9
12	65	270	175	140	4	19	26.0
13	80	300	185	150	8	19	29.8
14	100	350	210	175	8	19	44.7
15	125	420	250	210	8	23	70.3
75 04 16	150	490	280	240	8	23	96.4
17	200	570	330	290	12	23	159
18	250	740	400	355	12	25	257
19	300	840	445	400	16	25	370

(to be continued)

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7320							
75 04 21	50	120	155	120	4	19	16.3
22	65	130	175	140	4	19	23.0
23	80	140	185	150	8	19	25.3
24	100	160	210	175	8	19	37.0
25	125	180	250	210	8	23	57.1
75 04 26	150	205	280	240	8	23	77.2
27	200	230	330	290	12	23	116
28	250	290	400	355	12	25	188
29	300	320	445	400	16	25	256

Marine Cast Steel 20 kgf/cm²
Globe Valves F-7313
Angle Valves F-7314

Válvulas de Globo,Paso Recto y en Acero Fundido

船用鋳鋼玉形及びアングル弁　　船用铸钢球阀及角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 400°C	2.26 [23]
Steam of 350°C	2.55 [26]
Steam of 300°C	2.84 [29]
Steam of 220°C or less	3.04 [31]
Air, gas, oil & pulsation water	
Non-shock water of 120°C or less	3.33 [34]

Hydraulic Inspection

Watertight inspection for valve seat	3.67 MPa [37.4 kgf/cm²]
Hydraulic inspection for body	5.0 MPa [51 kgf/cm²]

How to order: CODE

GLOBE or ANGLE valve, cast steel, 20 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7313							
75 04 31	32	190	135	100	4	19	14.4
32	40	200	140	105	4	19	16.0
33	50	230	155	120	8	19	21.6
34	65	270	175	140	8	19	30.4
35	80	300	200	160	8	23	43.5
75 04 36	100	350	225	185	8	23	62.3
37	125	430	270	225	8	25	95.7
38	150	500	305	260	12	25	133.3
39	200	560	350	305	12	25	296.1
40	250	660	430	380	12	27	339.1
Angle Valve F-7314							
75 04 41	32	100	135	100	4	19	13.0
42	40	110	140	105	4	19	15.2
43	50	125	155	120	8	19	20.0
44	65	135	175	140	8	19	26.9
45	80	150	200	160	8	23	38.9
75 04 46	100	170	225	185	8	23	54.4
47	125	200	270	225	8	25	80.7
48	150	225	305	260	12	25	112.3
49	200	280	350	305	12	25	183.0
50	250	310	430	380	12	27	285.9

Marine Cast Steel 30 kgf/cm² Globe Valves F-7315 Angle Valves F-7316

Válvulas de Globo,Paso Recto y en Acero Fundido
船用鋳鋼玉形及びアングル弁　船用铸钢 球阀及角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]	
	Carbon steel	Molybdenum steel
Steam of 450°C	-	3.33 [34]
Steam of 425°C	2.94 [30]	3.53 [36]
Steam of 400°C	3.33 [34]	3.73 [38]
Steam of 350°C	3.82 [39]	
Steam of 300°C or less	4.22 [43]	
Air, gas, oil & pulsation water	4.51 [46]	

Hydraulic Inspection

Watertight inspection for valve seat	4.96 MPa [50.6 kgf/cm²]
Hydraulic inspection for body	6.76 MPa [59 kgf/cm²]

How to order: CODE

GLOBE or ANGLE valve, cast steel, 30 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7315							
75 04 61	100	410	240	195	8	25	115
62	125	460	275	230	8	25	168
63	150	500	325	275	12	27	242
Angle Valve F-7316							
75 04 66	100	205	240	195	8	25	106
67	125	230	275	230	8	25	154
68	150	250	325	275	12	27	223

Marine Cast Steel 40 kgf/cm² Globe Valves F-7317 Angle Valves F-7318

Válvulas de Globo,Paso Recto y en Acero Fundido
船用鋳鋼玉形及びアングル弁　船用铸钢 球阀及角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]		
	Carbon steel	Molybdenum steel	Chromium molybdenum steel
Steam of 490°C	-	-	3.92 [40]
Steam of 475°C	-	3.92 [40]	4.12 [42]
Steam of 450°C	-	4.41 [45]	
Steam of 425°C	3.92 [40]	4.71 [48]	
Steam of 400°C	4.51 [46]	5.00 [51]	
Steam of 350°C	5.10 [52]		
Steam of 300°C or less	5.59 [57]		
Air, gas, oil & pulsation water	6.08 [62]		

Hydraulic Inspection

Watertight Inspection for valve seat	6.69 MPa [68.2 kgf/cm²]
Hydraulic inspection for body	9.12 MPa [93 kgf/cm²]

How to order: CODE

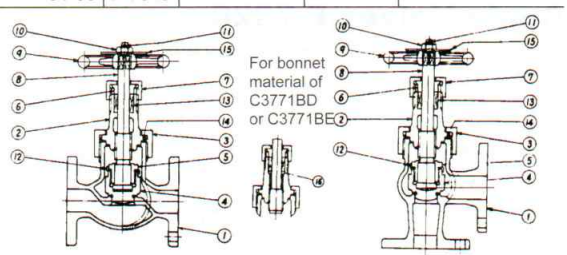
GLOBE or ANGLE valve, cast steel, 40 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7317							
75 04 71	32	229	140	105	4	19	25.4
72	40	241	160	120	4	23	30.2
73	50	292	165	130	8	19	41.0
74	65	330	200	160	8	23	62.3
75	80	356	210	170	8	23	79.0
75 04 76	100	432	250	205	8	25	140
77	125	508	300	250	8	27	197
78	150	559	355	295	12	33	298
Angle Valve F-7318							
75 04 81	32	114	140	105	4	19	24.9
82	40	121	160	120	4	23	29.4
83	50	146	165	130	8	19	40.0
84	65	165	200	160	8	23	60.3
85	80	178	210	170	8	23	76.2
75 04 86	100	216	250	205	8	25	135
87	125	254	300	250	8	27	189
88	150	279	355	295	12	33	284

(b) Union Bonnet Type Valves

CODE	JIS No.	Material	Pressure kgf/cm²	Shape
75 05 01-05 **11-15**	F-7346 F-7347	Bronze	5	Globe, Angle
75 05 21-25 **31-35**	F-7348 F-7349		16	Globe, Angle



No.	Component	No.	Component
1	Body	9	Handwheel
2	Bonnet	10	Hexagon nut
3	Bonnet nut	11	Split pin
4	Disc	12	Disc lock washer
5	Disc nut	13	Packing
6	Packing gland	14	Gasket
7	Gland nut	15	Name plate
8	Stem	16	Seat ring

Marine Bronze Union Bonnet Type 5 kgf/cm² Globe Valves F-7346 Angle Valves F-7347

Válvulas de Globo,Paso Recto y en Escuadra de Bronce Marino Tipo tapa Roscada
船用青銅ユニオンボンネット型玉形及びアングル弁
船用青铜活接头阀盖式球形阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 205°C or less	0.49 [5]
Air, gas, oil pulsation water	
Non-shock water of 120°C or less	0.69 [7]

Hydraulic Inspection

Watertight inspection for valve seat	0.76 MPa [7.7 kgf/cm²]
Hydraulic inspection for body	1.04 MPa [10.5 kgf/cm²]



F-7346



F-7347

How to order: CODE

Union bonnet type GLOBE or ANGLE valve, bronze, 5 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole Pitch	Number	Hole	
Globe Valve F-7346							
75 05 01	15	100	80	60	4	12	2.21
02	20	110	85	65	4	12	3.04
03	25	120	95	75	4	12	3.97
04	32	140	115	90	4	15	5.23
05	40	160	120	95	4	15	6.94
Angle Valve F-7347							
75 05 11	15	55	80	60	4	12	2.15
12	20	60	85	65	4	12	2.94
13	25	65	95	75	4	12	3.82
14	32	80	115	90	4	15	4.99
15	40	85	120	95	4	15	6.40

Marine Bronze Union Bonnet Type 16 kgf/cm² Globe Valves F-7348 Angle Valves F-7349

Válvulas de Globo,Paso Recto y en Escuadra de Bronce Marino Tipo tapa Roscada

船用青銅ユニオンボンネット型玉形及びアングル弁

船用青铜活接头阀盖式球形阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 205°C or less	1.57 [16]
Air, gas, oil & pulsation water	
Non-shock water of 120°C or less	2.16 [22]

Hydraulic Inspection

Watertight inspection for valve seat	2.38 MPa [24.2 kgf/cm²]
Hydraulic inspection for body	3.24 MPa [33 kgf/cm²]

How to order: CODE

Union bonnet type GLOBE or ANGLE valve, bronze, 16 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

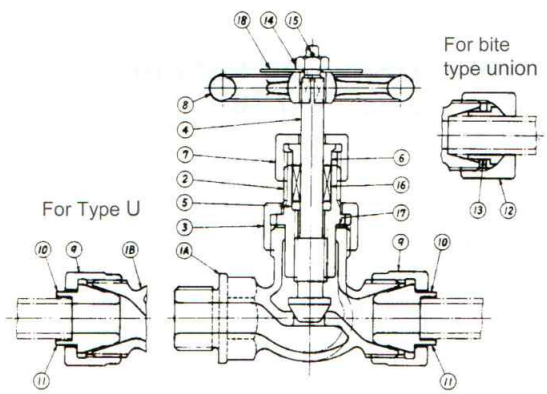
CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole Pitch	Number	Hole	
Globe Valve F-7348							
75 05 21	15	110	95	70	4	15	2.96
22	20	120	100	75	4	15	3.92
23	25	130	125	90	4	19	5.65
24	32	160	135	100	4	19	7.24
25	40	180	140	105	4	19	9.12

(to be continued)

Angle Valve F-7349							
75 05 31	15	70	95	70	4	15	2.94
32	20	75	100	75	4	15	3.88
33	25	85	125	90	4	19	5.53
34	32	95	135	100	4	19	6.98
35	40	100	140	105	4	19	8.57

(c) Screw or Union End Valves

CODE	JIS No.	Material	Pressure kgf/cm²	Shape
75 05 51-57 **61-62**	F-7388 F-7389	Bronze	20	Globe, Angle
75 06 01-13 **21-28**	F-7421 F-7422	Forged Steel	20	Globe, Angle
75 06 41-63 **71-83**	F-7329 F-7330		40	Globe, Angle



No.	Component	No.	Component
1A	Body (Type S)	10	Nipple for copper pipe
1B	Body (Type U)	11	Nipple for steel pipe
2	Bonnet	12	Union nut
3	Bonnet nut	13	Sleeve
4	Stem	14	Hexagon nut
5	Stem ring	15	Split pin
6	Packing gland	16	Packing
7	Gland nut	17	Gasket
8	Handwheel	18	Name plate
9	Unit nut		

Marine Bronze 20 kgf/cm² Globe Valves F-7388

Válvulas de Globo de Bronce Marino

船用青銅玉形弁　船用青铜球阀



F-7388

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 205°C or less	1.57 [16]
Air, gas, oil & pulsation water	1.96 [20]
Non-shock water of 120°C or less	2.75 [29]

Hydraulic Inspection

Watertight inspection for valve seat	3.02 MPa [30.8 kgf/cm²]
Hydraulic inspection for body	4.12 MPa [42 kgf/cm²]

How to order: CODE

Globe valve, bronze, 20 kgf/cm², JIS F-7388, TYPE of CONNECTION, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm			Weight Kg
		Pipe Out. Diam.		Thread	
		Copper	Steel		
Type S (Screwed)					
75 05 51	6	8 & 10	10.5	M20×1.5	0.81
52	10	15	17.3	M24×2	1.22
Type U (Union)					
75 05 56	6	8 & 10	10.5	-	0.85
57	10	15	17.3	-	1.37

Note: When copper pipe is applied, a valve with bite type union may be used.

Marine Bronze 20 kgf/cm² Angle Valves F-7389

Válvulas de Angulo de Bronce Marino

船用青銅アングル弁　船用青铜角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 205°C or less	1.57 [16]
Air, gas, oil & pulsation water	1.96 [20]
Non-shock water of 120°C or less	2.75 [28]

Hydraulic Inspection

Watertight Inspection for valve seat	3.02 MPa [30.8 kgf/cm²]
Hydraulic inspection for body	4.12 MPa [42 kgf/cm²]

How to order: CODE

Angle valve, bronze, 20 kgf/cm², JIS F-7389, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm			Weight Kg
		Pipe Out. Diam.		Thread	
		Copper	Steel		
75 05 61	6	8 & 10	10.5	M20×1.5	0.83
62	10	15	17.3	M24×2	1.19

Note:When copper pipe is applied, a valve with bite type union may be used.

Marine Forged Steel 20 kgf/cm² Globe Valves F-7421

Válvulas de Globo de Acero Forjado Marino

船用鍛鋼玉形弁　船用锻钢球阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 400°C	2.16 [22]
Steam of 350°C	2.55 [26]
Steam of 300°C	2.84 [29]
Steam of 220°C or less	3.04 [31]
Air, gas, oil pulsation water	
Non-shock water of 120°C or less	3.33 [34]

Hydraulic Inspection

Watertight Inspection for valve seat	3.67 MPa [37.4 kgf/cm²]
Hydraulic inspection for body	5.0 MPa [51 kgf/cm²]

How to order: CODE

Globe valve, forged steel, 20 kgf/cm², JIS F-7421, TYPE of CONNECTION, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm			Weight Kg
		Pipe Out. Diam.		Thread	
		Copper	Steel		
Type S (Screwe Thread Type)					
75 06 01	6	8 & 10	10.5	M20×1.5	1.47
02	10	15	17.3	M24×2	1.75
Type U (Union Type)					
75 06 06	6	8 & 10	10.5	-	1.55
07	10	15	17.3	-	1.85

Type F (Flange Type)

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 06 11	15	140	95	70	4	15	4.4
12	20	160	100	75	4	15	5.9
13	25	180	125	90	4	19	7.7

Marine Forged Steel 20 kgf/cm² Angle Valves F-7422

Válvulas de Angulo de Bronce Marino

船用青銅アングル弁　船用青铜角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 400°C	2.16 [22]
Steam of 350°C	2.55 [26]
Steam of 300°C	2.84 [29]
Steam of 220°C or less	3.04 [31]
Air, gas, oil & pulsation water	
Non-shock water of 120°C or less	3.33 [34]

Hydraulic Inspection

Watertight inspection for valve seat	3.67 MPa [37.4 kgf/cm²]
Hydraulic inspection for body	5.0 MPa [51 kgf/cm²]

How to order: CODE

Angle valve, forged steel, 20 kgf/cm², JIS F-7422, TYPE of CONNECTION, SIZE mm

Type S (Screw Thread Type)

Unit Per Pc.

CODE	Size mm	Dimensions mm			Weight Kg
		Pipe Out. Diam.		Thread	
		Copper	Steel		
75 06 21	6	8 & 10	10.5	M20 × 1.5	1.47
22	10	15	17.3	M24 × 2	1.75

Type F (Flange Type)

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 06 26	15	75	95	70	4	15	4.2
27	20	80	100	75	4	15	5.6
28	25	95	125	90	4	19	7.2

Marine Forged Steel 40 kgf/cm² Globe Valves F-7329

Válvulas de Globo de Acero Forjado Marino

船用鍛鋼玉形弁　船用锻钢球阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 425°C	3.92 [40]
Steam of 400°C	4.51 [46]
Steam of 350°C	5.10 [52]
Steam of 300°C or less	5.59 [57]
Air, gas, oil & pulsation water	6.08 [62]

Hydraulic Inspection

Watertight inspection for valve seat	6.69 MPa [68.2 kgf/cm²]
Hydraulic inspection for body	9.12 MPa [93 kgf/cm²]

How to order: CODE

Globe valve, forged steel, 40 kgf/cm², JIS F-7329,
TYPE of CONNECTION, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm			Weight Kg
		Length End to End	Thread	Hight Fully Opened	
Type S (Screw Thread Type)					
75 06 41	6	89	M20 ×1.5	152	1.6
42	10	108	M24 ×2	152	2.0
Type U (Union Type)					
75 06 46	6	102	-	152	1.8
47	10	126	-	152	2.3
Type W (Socket Weld Type)					
75 06 51	6	84	-	152	1.5
52	10	102	-	152	2.0
53	15	130	-	205	3.6
54	20	150	-	230	5.2
55	25	170	-	255	7.5

Type F (Flanged Type)

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 06 61	15	150	115	80	4	19	5.2
62	20	170	120	85	4	19	6.8
63	25	200	130	95	4	19	8.9

Marine Forged Steel 40 kgf/cm² Angle Valves F-7330

Válvulas de Angulo de Bronce Marino
船用鍛鋼アングル弁　船用青铜角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 425°C	3.92 [40]
Steam of 400°C	4.51 [46]
Steam of 350°C	5.10 [52]
Steam of 300°C or less	5.59 [57]
Air, gas, oil & pulsation water	6.08 [62]

Hydraulic Inspection

Watertight inspection for valve seat	6.69 MPa [68.2 kgf/cm²]
Hydraulic inspection for body	9.12 MPa [93 kgf/cm²]

How to order: CODE

Angle valve, forged steel, 40 kgf/cm², JIS F-7330,
TYPE of CONNECTION, SIZE mm

Unit Per Pc.

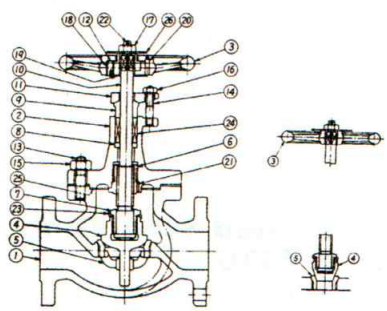
CODE	Size mm	Dimensions mm			Weight Kg
		Length End to End	Thread	Hight Fully Opened	
Type S (Screw Thread Type)					
75 06 71	6	51	M20 ×1.5	136	1.6
72	10	51	M24 ×2	136	1.9
Type W (Socket Weld Type)					
75 06 76	15	75	-	205	3.6
77	20	80	-	230	5.0
78	25	95	-	255	7.1

Type F (Flanged Type)

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 06 81	15	90	115	80	4	19	5.2
82	20	95	120	85	4	19	6.8
83	25	100	130	95	4	19	8.5

(d) Compressed Air Valves

CODE	JIS No.	Material	Shape
75 07 01-08 **16-24**	F-7340 F-7475	Cast Steel	Globe, Angle
75 05 31-43 **51-58**	F-7336 F-7337	Forged Steel	Globe, Angle



No.	Component	No.	Component
1	Body	14	Stud
2	Bonnet	15	Hexagon nut
3	Hand wheel	16	Hexagon nut
4	Disc	17	Hexagon nut
5	Valve seat	18	Pounding piece
6	Screwed bush	19	Pounding piece holder
7	Disc unit	20	Straight pin
8	Seat ring	21	Straight pin
9	Packing gland ring	22	Split pin
10	Stem	23	Disc lock washer
11	Packing gland	24	Packing
12	Pounding receiver piece	25	Gasket
13	Stud	26	Name plate

Marine Cast Steel Globe Air Valves F-7340

Válvulas de Globo de Acero Fundido Marino
船用鑄鋼空気玉形弁　船用锻钢球形气阀

Pressure Rating

Maximum working pressure	4.51 MPa [46 kgf/cm2]

Hydraulic Inspection

Watertight Inspection for valve seat	4.96 MPa [50.6 kgf/cm2]
Hydraulic inspection for body	6.76 MPa [69 kgf/cm2]

How to order: CODE

Globe air valve, cast steel, JIS F-7340, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 07 01	32	220	140	105	4	19	16.7
02	40	240	160	120	4	23	21.1
03	50	260	165	130	8	19	28.8
04	65	310	200	160	8	23	48.7
05	80	340	210	170	8	23	60.9
75 07 06	100	390	240	195	8	25	86.0
07	125	470	275	230	8	25	139
08	150	540	325	275	12	27	199

Marine Cast Steel Angle Air Valves F-7475

Válvulas de Ángulo Aire de Acero Fundido Marino

船用鋳鋼空気アングル弁　船用鍛钢角形气阀

Pressure Rating	
Maximum working pressure	4.51 MPa [46 kg/cm^2]
Hydraulic Inspection	
For body	6.76 MPa [69 kg/cm^2]

How to order: CODE

Angle air valve, cast steel, JIS F-7475, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 07 16	32	114	140	105	4	19	16.6
17	40	121	160	120	4	23	20.3
18	50	146	165	130	8	19	27.6
19	65	165	200	160	8	23	46.6
20	80	178	210	170	8	23	55.6
75 07 21	100	205	240	195	8	25	80.9
22	125	230	275	230	8	25	126
23	150	250	325	275	12	27	177
24	200	300	370	320	12	27	258

Marine Forged Steel Globe Air Valves F-7336

Válvulas de Globo Aire de Acero Forjado Marino

船用鍛鋼空気玉形弁　船用鍛钢球形气阀

Pressure Rating	
Maximum working pressure	4.51 MPa [46 kgf/cm^2]
Hydraulic Inspection	
Watertight Inspection for valve seat	4.96 MPa [50.6kgf/cm^2]
Hydraulic inspection for body	6.76 MPa [69 kgf/cm^2]

How to order: CODE

Globe air valve, forged steel, JIS F-7336, TYPE of CONNECTION, SIZE mm

Unit Per Pc.

CODE	Size mm	Pipe Out. Diam.		Thread	Weight Kg
		Copper	Steel		
Type S (Union Nut and Thread Type)					
75 07 31	6	8 & 10	10.5	M20 × 1.5	1.26
32	10	15	17.3	M24 × 2	1.80
Type U (Both Side Union Nut Type)					
75 07 36	6	8 & 10	10.5	-	1.30
37	10	15	17.3	-	1.94

Type F (Flange Type)

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 07 41	15	150	115	80	4	19	5.60
42	20	170	120	85	4	19	7.09
43	25	200	130	95	4	19	9.46

Marine Forged Steel Angle Air Valves F-7337

Válvulas de Ángulo para Aire de Acero Forjado Marino

船用鍛鋼空気アングル弁　船用鍛钢角形气阀

Pressure Rating	
Maximum working pressure	4.51 MPa [46 kgf/cm^2]
Hydraulic Inspection	
Watertight Inspection for valve seat	4.96 MPa [50.6 kgf/cm^2]
Hydraulic inspection for body	6.76 MPa [69 kgf/cm^2]

How to order: CODE

Angle air valve, forged steel, JIS F-7337, TYPE of CONNECTION, SIZE mm

Unit Per Pc.

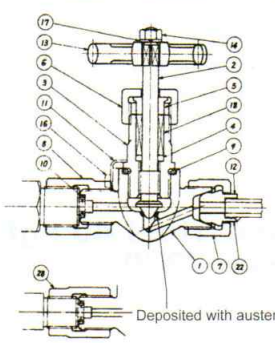
CODE	Size mm	Dimensions mm			Weight Kg
		Pipe Out. Diam.		Thread	
		Copper	Steel		
Type S (Union Nut Type)					
75 07 51	6	8 & 10	10.5	M20 × 1.5	1.23
52	10	15	17.3	M24 × 2	1.75

Type F (Flange Type)

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 07 56	15	90	115	80	4	19	5.59
57	20	95	120	85	4	19	7.00
58	25	100	130	95	4	19	9.11

(e) Pressure Gauge & Stop Valves

CODE	JIS No.	Material	Pressure kgf/cm^2	For
75 07 66-69	F-7341	Forged Steel	100	Pressure gauge
75 07 76-88	F7379	Brass	30	Stop



Deposited with austenite stainless steel

No.	Component	No.	Component
1	Body	11	Bonnet look plate
2	Stem	12	Nipple for steel pipe
3	Bonnet	13	Handwheel
4	Set ring	14	Hexagon nut
5	Gland	16	Cross recessed pan head machine screw
6	Gland nut	17	Spring washer
7	Union nut	18	Stem packing
8	PF 1/2 union nut	22	Nipple for copper pipe
9	Gasket	28	PF 3/8 union nut
10	Gasket		

Marine Forged Steel 100 kgf/cm^2 Pressure Gauge Valves F-7341

Válvulas de Manometro de Acero Forjado

船用鍛鋼圧力形弁　船用鍛钢压力计阀

Pressure Rating	
Maximum working pressure	10.40 MPa [106 kgf/cm²]

Hydraulic Inspection	
Watertight Inspection for valve seat	11.44 MPa [116.6 kgf/cm²]
Hydraulic inspection for body	15.60 MPa [159 kgf/cm²]

How to order: CODE

Pressure gauge valve, forged steel, 100 kgf/cm², JIS F-7341, SIZE mm

Unit Per Pc.

CODE	Size	Thread	Length End to End mm	Connecting Pipe	Weight kg
75 07 66	3/8 C	PF 3/8	96.0	Copper pipe	0.68
67	3/8 S	PF 3/8	96.0	Steel pipe	0.68
68	1/2 C	PF 1/2	96.0	Copper pipe	0.71
69	1/2 S	PF 1/2	96.0	Steel pipe	0.71

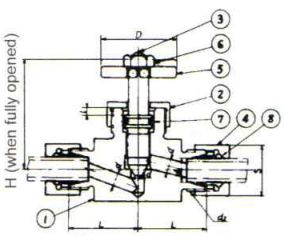
Marine Brass 30 kgf/cm² Stop Valves with Bite Joint F-7379

Válvulas de Cierre (Stop) con Mordaza Marino

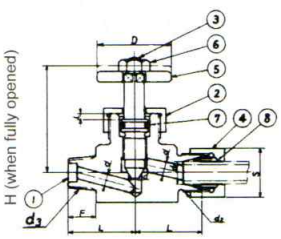
船用黄銅くい込形止め弁　船用黄铜 截止阀

Pressure Rating	
Fluid condition	Maximum working pressue MPa [kgf/cm²]
Non-shock fluid of 80°C or less	2.94 [30]

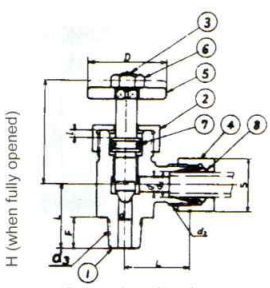
Hydraulic Inspection	
Watertight Inspection for valve seat	3.23 MPa [33.0 kgf/cm²]
Hydraulic inspection for body	4.41 MPa [45.0 kgf/cm²]



Globe valve with both bite joints



Screwed globe valve with bite joint



Screwed angle valve with bite joint

No.	Component
1	Body
2	Cap nut
3	Stem
4	Union nut
5	Handwheel
6	Hexagon nut
7	O-ring
8	Sleeve

How to order: CODE

Stop valve, brass, 30 kgf/cm², JIS F-7379, TYPE of CONNECTION, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm			
		Pipe out Diam.	"L" for Stop Valve	"L" for Angle Valve	d Thread PT
Globe valve with both bite joint (GBB)					
75 07 76	4	6	24	-	-
77	6	8 & 10	28	-	-
78	10	15	35	-	-

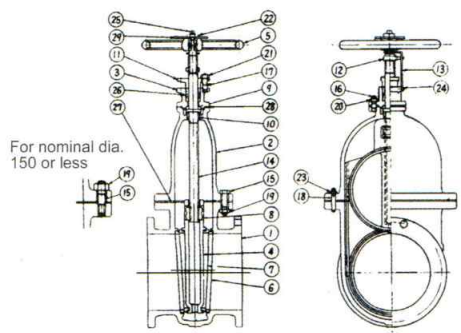
(to be continued)

Unit Per Pc.

CODE	Size mm	Dimensions mm			
		Pipe out Diam.	"L" for Stop Valve	"L" for Angle Valve	d Thread PT
Screwed globe valve with bite joint (GBS)					
75 07 81	4	6	24	-	PT 1/8
82	6	8 & 10	28	-	PT 1/4
83	10	15	35	-	PT 3/8
Screwed angle valve with bite joint (LBS)					
75 27 86	4	6	-	22	PT 1/8
87	6	8 & 10	-	25	PT 1/4
88	10	15	-	31	PT 3/8

(f) Gate Valves

CODE	JIS No.	Material	Pressure kgf/cm²
75 08 01-15	F-7363	Cast Iron	5
21-35	F-7364		10
41-43	F-7369		16
75 09 01-11	F-7366	Cast Steel	10
75 09 51-55	F-7367	Bronze	5
61-65	F-7368		10



No.	Component	No.	Component
1	Body	16	Stud
2	Bonnet	17	Stud
3	Stuffing box	18	Taper pin with thread
4	Disc	19	Hexagon nut
5	Hand wheel	20	Hexagon nut
6	Valve seat for body	21	Hexagon nut
7	Vlave set of disc	22	Hexagon nut
8	Screwed piece	23	Hexagon nut
9	Guide bush	24	Cross recessed pan head machine
10	Guide bush		Screw
11	Packing gland	25	Split pin
12	Indicator	26	Packing
13	Indicator plate	27	Gasket
14	Stem	28	Gasket
15	Stud/Hexagon head bolt	29	Name plate

Marine Cast Iron 5 kgf/cm² Gate Valves F-7363

Válvulas de Compuerta de Hierro Fundido Marino

船用鋳鉄仕切弁

船用铸铁 闸阀



F-7363

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]		
	Nominal dia. 200 mm or less	Nominal dia. 250 mm to 400 mm	Nominal dia. 450 mm to 600 mm
Saturated seam	0.29 [3]	0.20 [2]	
Oil & pulsation water	0.49 [5]		
Non-shock water of 120°C or less	0.69 [7]		0.49 [5]

Hydraulic Inspection

Nominal Dia. mm	Test pressure MPa [kgf/cm²]	
	Watertight inspection for valve seat	Hydarulic inspection for body
400 or less	0.76 [7.7]	1.03 [10.5]
450 to 600	0.54 [5.5]	0.74 [7.5}

How to order: CODE

Gate valve, cast iron, 5 kgf/cm², JIS F-7363, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 08 01	50	180	130	105	4	15	13.5
02	65	190	155	130	4	15	19.0
03	80	200	180	145	4	19	24.2
04	100	230	200	165	8	19	35.3
05	125	250	235	200	8	19	48.1
75 08 06	150	270	265	230	8	19	65.3
07	200	290	320	280	8	23	103
08	250	330	385	345	12	23	164
09	300	370	430	390	12	23	236
10	350	410	480	435	12	25	307
75 08 11	400	470	540	495	16	25	405
12	450	500	605	555	16	25	556
13	500	550	655	605	20	25	700
14	550	600	720	665	20	27	878
15	600	660	770	715	20	27	1,120

Marine Cast Iron 10 kgf/cm² Gate Valves F-7364

Válvulas de Compuerta de Hierro Fundido Marino

船用铸铁仕切弁　船用铸铁 闸阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]		
	Nominal dia. 200 mm or less	Nominal dia. 250 mm to 400 mm	Nominal dia. 450 mm to 600 mm
Saturated seam	0.49 [5]	0.29 [3]	
Oil & pulsation water	0.98 [10]		
Non-shock water of 120°C or less	1.37 [14]		1.18 [12]

Hydraulic Inspection

Nominal Dia. mm	Test pressure MPa [kgf/cm²]	
	Watertight inspection for valve seat	Hydarulic inspection for body
400 or less	1.57 [15.4]	2.06 [21]
450 to 600	1.29 [13.2]	1.77 [18}

How to order: CODE

Gate valve, cast iron, 10 kgf/cm2, JS F-7364, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 08 21	50	200	155	120	4	19	19.4
22	65	220	175	140	4	19	27.6
23	80	230	185	150	8	19	33.0
24	100	250	210	175	8	19	45.8
25	125	270	250	210	8	23	65.9
75 08 26	150	290	280	240	8	23	86
27	200	320	330	290	12	23	136
28	250	380	400	355	12	25	230
29	300	440	445	400	16	25	331
30	350	500	490	445	16	25	433
75 08 31	400	590	560	510	16	27	597
32	450	640	620	565	20	27	704
33	500	710	675	620	20	27	901
34	550	780	745	680	20	33	1,192
35	600	850	795	730	24	33	1,490

Marine Cast Iron 16 kgf/cm² Gate Valves F-7369

Válvulas de Compuerta de Hierro Fundido Marino

船用铸铁仕切弁　船用铸铁 闸阀

Pressure Rating

Maximum working pressure	1.57 MPa [16 kg/cm²]

Hydraulic Inspection

Waterlight inspection for valve seat	1.73 MPa [17.6 kg/cm²]
Hydarulic inspection for body	2.36 MPa [24 kg/cm²]

How to order: CODE

Gate valve, cast iron, 16 kgf/cm², JIS F-7369, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 08 41	300	490	480	430	16	27	430
42	350	540	540	480	16	33	580
43	400	610	605	540	16	33	780

Marine Cast Steel 10 kgf/cm² Gate Valves F-7366

Válvulas de Compuerta de Acero Fundido Marino

船用铸鋼仕切弁　船用锻钢 闸阀



F-7366

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]	
	Nominal dia. 200 mm or less	Nominal dia. 250 mm or less
Saturated steam	0.69 [7]	0.49 [5]
Oil & pulsation water	0.981 [10]	
Non-shock water of 120°C or less	1.37 [14]	

Hydraulic Inspection

Watertight Inspection for valve seat	1.51 MPa [15.4 kgf/cm²]
Hydraulic inspection for body	2.06 MPa [21 kgf/cm²]

How to order: CODE

Gate valve, cast steel, 10 kgf/cm², JIS F-7366, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 09 01	50	200	155	120	4	19	17.1
02	65	220	175	140	4	19	26.5
03	80	230	185	150	8	19	31.5
04	100	250	210	175	8	19	44.9
05	125	270	250	210	8	23	63.2
75 09 06	150	290	280	240	8	23	82.3
07	200	310	330	290	12	23	130
08	250	340	400	355	12	25	203
09	300	380	445	400	16	25	291
10	350	420	490	445	16	25	368
75 09 11	400	480	560	510	16	27	507

Marine Bronze 5 kgf/cm² Rising Stem Type Gate Valves F-7367

Válvulas de Compuerta Tipo Husillo Exterior Ascendente de Bronce Marino
船用青銅上昇式仕切弁　船用黄铜升杆式闸阀



F-7367

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Oil & pulsation water	0.49 [6]
Saturated steam	0.20 [2]
Non-shock water of 120°C or less	0.69 [7]

Hydraulic Inspection

Watertight Inspection for valve seat	0.76 MPa [7.7 kgf/cm²]
Hydraulic inspection for body	1.04 MPa [10.5 kgf/cm²]

How to order: CODE

Gate valve, rising stem type, bronze, 5 kgf/cm², JIS F-7367, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 09 51	15	90	80	60	4	12	2.29
52	20	100	85	65	4	12	2.98
53	25	110	95	75	4	12	4.10
54	32	130	115	90	4	15	5.79
55	40	140	120	95	4	15	7.78

Marine Bronze 10 kgf/cm² Rising Stem Type, Gate Valves F-7368

Válvulas de Compuerta Tipo Husillo Exterior Ascendente de Bronce Marino
船用青銅上昇式仕切弁　船用黄铜升杆式闸阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Oil & pulsation water	0.98 [10]
Saturated steam	0.20 [2]
Non-shock water of 120°C or less	1.37 [14]

Hydraulic Inspection

Watertight Inspection for valve seat	1.51 MPa [15.4 kgf/cm²]
Hydraulic inspection for body	2.06 MPa [21 kgf/cm²]

How to order: CODE

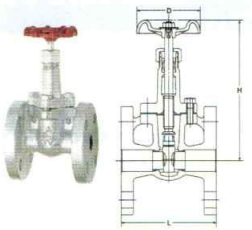
Gate valve, rising stem type, bronze, 10 kgf/cm², JIS F-7368, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 09 61	15	100	95	70	4	15	2.96
62	20	110	100	75	4	15	3.89
63	25	120	125	90	4	19	5.82
64	32	140	135	100	4	19	7.52
65	40	150	140	105	4	19	9.71

Ductile Iron 10K Gate Valves B-2051

Válvulas de compuerta de hierro dúctil 10K B-2051
ダクタイル鋳鉄10K仕切弁
球墨铸铁10K分流阀



Temperature & Pressure Rating

Fluid Condition	Temperature	Pressure Rating MPa [kgf/cm²]
Static Water	120°C	1.4
Steam, Air, Gas, Oil	220°C	1.2
Steam, Air, Gas, Oil	300°C	1.0

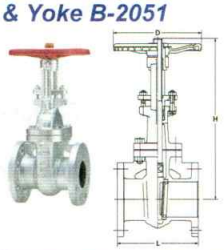
Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 09 71	15	90	95	70	4	15	2.1
72	20	100	100	75	4	15	2.5
73	25	110	125	90	4	19	3.6
74	32	120	135	100	4	19	5.15
75	40	130	140	105	4	19	5.6
75 09 76	50	140	155	120	4	19	7.7

Ductile Iron 10K Gate Valves

Bolted Bonnet Outside Screw & Yoke B-2051

Válvulas de compuerta de hierro dúctil 10K bonete atornillado tornillo exterior y yugo
ダクタイル鋳鉄 10K 仕切弁
球墨铸铁 10K 闸阀 螺栓阀盖
外螺纹和轭型 B-2051



Temperature & Pressure Rating

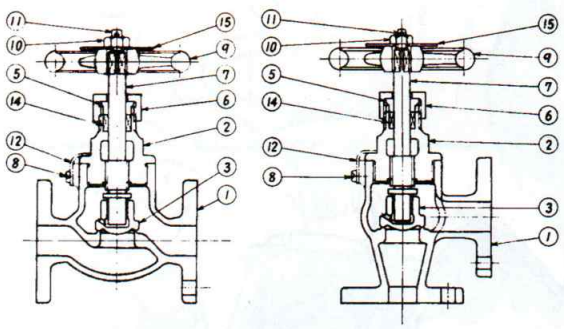
Fluid Condition	Temperature	Pressure Rating MPa [kgf/cm²]
Static Water	120°C	1.4
Steam, Air, Gas, Oil	220°C	1.2
Steam, Air, Gas, Oil	300°C	1.0

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 09 81	40	165	140	105	4	19	7.4
82	50	178	155	120	4	19	14.6
83	65	190	175	140	4	19	18.4
84	80	203	185	150	8	19	23.5
85	100	229	210	175	8	19	33.4
75 09 86	125	254	250	210	8	23	46.5
87	150	267	280	240	8	23	49.0
88	200	292	330	290	12	23	104.0
89	250	330	400	355	12	25	175.0
90	300	356	445	400	16	25	226.0

(g) Screw Down Check Valves

CODE	JIS No.	Material	Pressure kgf/cm²	Shape
75 10 51-55 61-65	F-7351 F-7352	Bronze	5	Globe Angle
75 10 71-75 81-85	F-7409 F-7410	Bronze	16	Globe Angle
75 11 01-11 16-29	F-7353 F-7354	Cast Iron	5	Globe Angle
75 11 31-37 41-47	F-7375 F-7376	Cast Iron	10	Globe Angle
75 11 51-57 61-66	F-7377 F-7378	Cast Iron	16	Globe Angle
75 12 01-12 16-27	F-7471 F-7472	Cast Steel	10	Globe Angle
75 12 31-41 46-56	F-7473 F-7474	Cast Steel	20	Globe Angle
75 12 61-65 66-70	F-7411 F-7412	Bronze	5	Globe Angle
75 12 81-85 86-90	F-7413 F-7414	Bronze	16	Globe Angle



No.	Component	No.	Component
1	Body	9	Hand wheel
2	Bonnet	10	Hexagon nut
3	Disc	11	Split pin
5	Packing gland	12	Bonnet lock plate
6	Glad nut	14	Packing
7	Stem	15	Name plate
8	Cross recessed pan head machine screw		

Marine Bronze 5 kgf/cm² Screw Down Check Globe Valves F-7351 Angle Valves F-7352

Válvulas de Cierre y Retención Paso Recto y Anglar de Bronce Marino
船用青銅ねじ締め逆止め式玉形及びアングル弁　船用青铜升杆式闸阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 205°C or less	0.49 [5]
Air, gas, oil & pulsation water	
Non-shock water of 120°C or less	0.69 [7]

Hydraulic Inspection

Watertight Inspection for valve seat Inlet side Outlet side	 0.76 MPa [7.7 kgf/cm²] 0.76 MPa [7.7 kgf/cm²] to 0.39 MPa [4 kgf/cm²]
Hydraulic inspection for body	1.03 MPa [10.5 kgf/cm²]



F-7351



F-7352

How to order: CODE

Screw down check valve, GLOBE or ANGLE, bronze, 5 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole Pitch	Number	Hole	
Globe Valve F-7351							
75 10 51	15	100	80	60	4	12	1.96
52	20	110	85	65	4	12	2.77
53	25	120	95	75	4	12	3.41
54	32	140	115	90	4	15	4.86
55	40	160	120	95	4	15	6.30
Angle Valve F-7352							
75 10 61	15	55	80	60	4	12	1.92
62	20	60	85	65	4	12	2.64
63	25	65	95	75	4	12	3.30
64	32	80	115	90	4	15	4.63
65	40	85	120	95	4	15	5.81

Marine Bronze 16 kgf/cm² Screw Down Check Globe Valves F-7409 Angle Valves F-7410

Válvulas de Cierre y Retención Paso Recto y Anglar de Bronce Marino
船用青銅ねじ締め逆止め式玉形及びアングル弁　船用青铜升杆式闸阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 205°C or less	1.57 [6]
Air, gas, oil & pulsation water	
Non-shock water of 120°C or less	2.16 [22]

Hydraulic Inspection

Watertight Inspection for valve seat Inlet side Outlet side	 2.37 MPa [24.2 kgf/cm²] 2.37 MPa [24.2 kgf/cm²] to 0.39 MPa [4 kgf/cm²]
Hydraulic inspection for body	3.23 MPa [33 kgf/cm²]

How to order: CODE

Screw down check valve, GLOBE or ANGLE, bronze, 16 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc..

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole Pitch	Number	Hole	
Globe Valve F-7409							
75 10 71	15	100	95	70	4	15	2.70
72	20	120	100	75	4	15	3.63
73	25	130	125	90	4	19	5.09
74	32	160	135	100	4	19	6.77
75	40	180	140	105	4	19	8.25
Angle Valve F-7410							
75 10 81	15	70	95	70	4	15	2.67
82	20	75	100	75	4	15	3.56
83	25	85	125	90	4	19	5.02
84	32	95	135	100	4	19	6.58
85	40	100	140	105	4	19	7.95

Marine Cast Iron 5 kgf/cm Screw Down Check Globe Valves F-7353


F-7353

Válvulas de Cierre y Retención Paso Recto Hierro Fundido Marino
船用鋳鉄ねじ締め逆止め式玉形弁
船用铸铁 拧紧检查球阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]			
	Nominal dia. 200 mm or less		Nominal dia. 250 and 300	Nominal dia. 350 and 400
	Class B	Class S	Class B	
Steam of 230°C or less	-	0.49 [5]	-	-
Steam of 205°C or less	0.49 [4]			
Air & gas	0.49 [5]			
Oil & pulsation water			0.49 [5]	
Non-shock water of 120°C or less	0.69 [7]			0.59 [6]

Hydraulic Inspection

Nominal dia. mm	Test Pressure MPa [kgf/cm²]		
	Watertight inspection for valve seat		Hydraulic inspection for body
	Inlet Side	Outlet Side	
300 or less	0.76 [7.7]	0.76 [7.7] to 0.39 [4]	1.03 [10.5]
350, 400	0.65 [6.6]	0.65 [6.6] to 0.29 [3]	0.88 [9]

How to order: CODE

Screw down check globe valve, cast iron, 5 kgf/cm², JIS F-7353, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole Pitch	Number	Hole	
75 11 01	50	210	130	105	4	15	14.8
02	65	250	155	130	4	15	21.3
03	80	280	180	145	4	19	27.6
04	100	340	200	165	8	19	40.4
05	125	410	235	200	8	19	57.9
75 11 06	150	480	265	230	8	19	80.9
07	200	570	320	280	8	23	139
08	250	740	385	345	12	23	243
09	300	840	430	390	12	23	377
10	350	940	480	435	12	25	463
75 11 11	400	1,050	540	495	16	25	643

Marine Cast Iron 5 kgf/cm² Screw Down Check Angle Valves F-7354


F-7354

Válvulas de Cierre y Retención Paso Angular Hierro Fundido Marino
船用鋳鉄ねじ締め逆止め式アングル弁
船用铸铁 拧紧检查角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]				
	Nominal dia. 200 mm or less		Nominal dia. 250 and 300	Nominal dia. 350 and 400	Nominal dia. 450 or more
	Class B	Class S	Class B		
Steam of 230°C or less	-	0.49 [5]	-	-	-
Steam of 205°C or less	0.49 [5]				
Air & gas	0.49 [5]				
Oil & pulsation water			0.49 [5]		0.39 [4]
Non-shock water of 120°C or less	0.69 [7]			0.59 [6]	0.49 [5]

Hydraulic Inspection

Nominal dia. mm	Test Pressure MPa [kgf/cm²]		
	Watertight inspection for valve seat		Hydraulic inspection for body
	Inlet Side	Outlet Side	
300 or less	0.76 [7.7]	0.76 [7.7] to 0.39 [4]	1.03 [10.5]
350, 400	0.65 [6.6]	0.65 [6.6] to 0.29 [3]	0.88 [9]
450 or more	0.54 [5.5]	0.54 [5.5] to 0.20 [2]	0.74 [7.5]

How to order: CODE

Screw down check angle valve, cast iron, 5 kgf/cm², JIS F-7354, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole Pitch	Number	Hole	
75 11 16	50	100	130	105	4	15	13.0
17	65	115	155	130	4	15	18.2
18	80	130	180	145	4	19	23.3
19	100	150	200	165	8	19	33.5
20	125	170	235	200	8	19	46.5
75 11 21	150	190	265	230	8	19	64
22	200	220	320	280	8	23	104
23	250	275	385	345	12	23	175
24	300	310	430	390	12	23	243
25	350	360	480	435	12	25	336
75 11 26	400	395	540	495	16	25	455
27	450	440	605	555	16	25	618
28	500	485	655	605	20	25	800
29	550	530	720	665	20	27	1,161

Marine Cast Iron 10 kgf/cm² Screw Down Check Globe Valves F-7375 Angle Valves F-7376

Válvulas de Cierre y Retención Paso y Angular Hierro Fundido Marino
船用鋳鉄ねじ締め逆止め玉形及びアングル弁
船用铸铁 拧紧检查球阀及角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]	
	Class B	Class S
Steam of 230°C or less	-	0.98 [10]
Steam of 205°C or less	0.98 [10]	
Air, gas, oil & pulsation water	0.98 [10]	
Non-shock water of 120°C or less	1.37 [14]	

Hydraulic Inspection

Watertight Inspection for valve seat	
Inlet side	1.51 MPa [15.4 kgf/cm²]
Outlet side	1.51 MPa [15.4 kgf/cm²] to 0.39 MPa [4 kgf/cm²]
Hydraulic inspection for body	2.06 MPa [21 kgf/cm²]

How to order: CODE

Screw down check valve, GLOBE or ANGLE, cast iron 10 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole Pitch	Number	Hole	
Globe Valve F-7375							
75 11 31	50	220	155	120	4	19	19.9
32	65	270	175	140	4	19	28.6
33	80	300	185	150	4	19	32.5
34	100	350	210	175	8	19	48.7
35	125	420	250	210	8	23	73.0
75 11 36	150	490	280	240	8	23	104
37	200	570	330	290	12	23	161

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Angle Valve F-7376							
75 11 41	50	120	155	120	4	19	18.2
42	65	130	175	140	4	19	25.3
43	80	140	185	150	8	19	27.5
44	100	160	210	175	8	19	40.6
45	125	180	250	210	8	23	69.8
75 11 46	150	205	280	240	8	23	81.2
47	200	230	330	290	12	23	124

Marine Cast Iron 16 kgf/cm² Screw Down Check Globe Valves F-7377 Angle Valves F-7378

Válvulas de Cierre y Retención Paso y Angular Hierro Fundido Marino
船用鋳鉄ねじ締め逆止め玉形及びアングル弁
船用铸铁 拧紧检查球阀及角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]	
	Class B	Class S
Steam of 230°C or less	-	1.57 [16]
Steam of 205°C or less	1.57 [16]	
Air, gas, oil & pulsation water	1.57 [16]	
Non-shock water of 120°C or less	2.16 [22]	

Hydraulic Inspection

Watertight Inspection for valve seat	
Inlet side	2.37 MPa [24.2 kgf/cm²]
Outlet side	2.37 MPa [24.2 kgf/cm²] to 0.39 MPa [4 kgf/cm²]
Hydraulic inspection for body	3.24 MPa [33 kgf/cm²]

How to order: CODE

Screw down check valve, GLOBE or ANGLE, cast iron, 16 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7377							
75 11 51	50	220	155	120	8	19	19.6
52	65	270	175	140	8	19	28.2
53	80	300	200	160	8	23	40.5
54	100	350	225	185	8	23	56.9
55	125	430	270	225	8	25	59.5
75 11 56	150	500	305	260	12	25	123
57	200	570	350	305	12	25	188
Angle Valve F-7378							
75 11 61	50	120	155	120	8	19	18.0
62	65	130	175	140	8	19	24.9
63	80	150	200	160	8	23	35.8
64	100	170	225	185	8	23	49.2
65	125	200	270	225	8	25	76.1
75 11 66	150	225	305	260	12	25	103

Marine Cast Steel 10 kgf/cm² Screw Down Check Globe Valves F-7471

Válvulas de Cierre y Retención Paso Recto y Fundido Marino
船用鋳鋼ねじ締め逆止め式玉形　船用锻钢 拧紧检查球阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 300°C	0.98 [10]
Steam of 220°C or less	1.18 [12]
Air, gas, oil & pulsation water	
Non-shock water of 120°C or less	1.37 [14]

Hydraulic Inspection

Watertight Inspection for valve seat	
Inlet side	1.51 MPa [15.4 kgf/cm²]
Outlet side	1.51 MPa [15.4 kgf/cm²] to 0.39 MPa [4 kgf/cm²]
Hydraulic inspection for body	2.06 MPa [21 kgf/cm²]

How to order: CODE

Screw down check globe valve, cast steel, 10 kgf/cm², JIS F-7471, TYPE of GUIDE, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Stem-Guide Type							
75 12 01	50	220	155	120	4	19	17.9
02	65	270	175	140	4	19	26.1
03	80	300	185	150	8	19	29.8
04	100	350	210	175	8	19	44.8
05	125	420	250	210	8	23	69.8
75 12 06	150	490	280	240	8	23	96.3
07	200	570	330	290	12	23	158
Piston-Guide Type							
75 12 11	150	490	280	240	8	23	100
12	200	570	330	290	12	23	165

Marine Cast Steel 10 kgf/cm² Screw Down Check Angle Valves F-7472

Válvulas de Cierre y Retención Paso Recto y Fundido Marino
船用鋳鋼ねじ締め逆止め式アングル弁　船用锻钢 拧紧检查球阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 300°C	0.98 [10]
Steam of 220°C or less	1.18 [12]
Air, gas, oil & pulsation water	
Non-shock water of 120°C or less	1.37 [14]

Hydraulic Inspection

Watertight Inspection for valve seat	
Inlet side	1.51 MPa [15.4 kgf/cm²]
Outlet side	1.51 MPa [15.4 kgf/cm²] to 0.39 MPa [4 kgf/cm²]
Hydraulic inspection for body	2.06 MPa [21 kgf/cm²]

How to order: CODE

Screw down check angle valve, cast steel, 10 kgf/cm², JIS F-7472, TYPE of GUIDE, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Stem-Guide Type							
75 12 16	50	120	155	120	4	19	16.3
17	65	130	175	140	4	19	23.1
18	80	140	185	150	8	19	25.3
19	100	160	210	175	8	19	37.0
20	125	180	250	210	8	23	56.6
75 12 21	150	205	280	240	8	23	77.1
22	200	230	330	290	12	23	116

(to be continued)

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Piston-Guide Type							
75 12 26	150	205	280	240	8	24	81
27	200	230	330	290	12	23	123

Marine Cast Steel 20 kgf/cm² Screw Down Check Globe Valves F-7473 Angle Valves F-7474

Válvulas de Cierre y Retención Paso Recto y Angular Hierro Fundido Marino
船用鋳鋼ねじ締め逆止め式玉形及びアングル弁
船用鍛鋼 拧紧检查球阀及角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 350°C	2.55 [26]
Steam of 300°C	2.84 [29]
Steam of 220°C or less	3.04 [31]
Air, gas, oil & pulsation water	
Non-shock water of 120°C or less	3.33 [34]
Hydraulic Inspection	
Watertight inspection for valve seat Inlet side Outlet side at stem fully raised	3.66 MPa [37.4 kgf/cm²] 3.66 MPa [37.4 kgf/cm²] to 0.98 MPa [10 kgf/cm²]
Hydraulic inspection for body	5.00 MPa [51.0 kgf/cm²]

How to order: CODE

Screw down check valve, GLOBE or ANGLE, cast steel, 20 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7473							
75 12 31	32	190	135	100	4	19	14.4
32	40	200	140	105	4	19	16.0
33	50	230	155	120	8	19	21.6
34	65	270	175	140	8	19	30.1
35	80	300	200	160	8	23	43.5
75 12 36	90	320	210	170	8	23	52.1
37	100	350	225	185	8	23	62.1
38	125	430	270	225	8	25	97.0
39	150	500	305	260	12	25	136
40	200	560	350	305	12	25	212
75 12 41	250	660	430	380	12	27	349
Angle Valve F-7374							
75 12 46	32	100	135	100	4	19	13.0
47	40	110	140	105	4	19	15.1
48	50	125	155	120	8	19	19.9
49	65	135	175	140	8	19	26.7
50	80	150	200	160	8	23	38.8
75 12 51	90	160	210	170	8	23	46.2
52	100	170	225	185	8	23	54.2
53	125	200	270	225	8	25	83
54	150	225	305	260	12	25	115
55	200	280	350	305	12	25	189
75 12 56	250	310	430	380	12	27	296

Marine Bronze 5 kgf/cm² Screw Down Check Globe Valves Union Bonnet Type F-7411 Angle Valves Union Bonnet Type F-7412

Válvulas de Cierre y Retención con Tapa Roscada Bronce Marino
船用青銅ユニオンボンネット型ねじ締め逆止め玉形及びアングル弁
船用铸铁 拧紧检查角阀



F-7411



F-7412

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 205°C or less	0.49 [5]
Air, gas, oil & pulsation water	
Non-shock water of 120°C or less	0.69 [7]
Hydraulic Inspection	
Watertight inspection for valve seat Inlet side Outlet side	0.76 MPa [7.7 kgf/cm²] 0.76 MPa [7.7 kgf/cm²] to 0.39 MPa [4 kgf/cm²]
Hydraulic inspection for body	1.04 MPa [10.5 kgf/cm²]

How to order: CODE

Screw down check valve, union bonnet type, GLOBE or ANGLE, bronze, 5 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7411							
75 12 61	15	100	80	60	4	12	2.12
62	20	110	85	65	4	12	2.91
63	25	120	95	75	4	12	3.82
64	32	140	115	90	4	15	5.09
65	40	160	120	95	4	15	6.71
Angle Valve F-7412							
75 12 66	15	55	80	60	4	12	2.07
67	20	60	85	65	4	12	2.81
68	25	65	95	75	4	12	3.67
69	32	80	115	90	4	15	4.85
70	40	85	120	95	4	15	6.17

Marine Bronze 16 kgf/cm² Screw Down Check Globe Valves Union Bonnet Type F-7413 Angle Valves Union Bonnet Type F-7414

Válvulas de Cierre y Retención con Tapa Roscada Bronce Marino
船用青銅ユニオンボンネット型ねじ締め逆止め玉形及びアングル弁
船用铸铁 拧紧检查角阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Steam of 205°C	1.57 [16]
Air, gas, oil & pulsation water	
Non-shock water of 120°C or less	2.16 [22]

(to be continued)

Hydraulic Inspection	
Watertight inspection for valve seat Inlet side Outlet side	 2.38 MPa [24.2 kgf/cm²] 2.38 MPa [24.2 kgf/cm²] to 0.39 MPa [4 kgf/ cm²]
Hydraulic inspection for body	3.24 MPa [33.0 kgf/cm²]

How to order: CODE

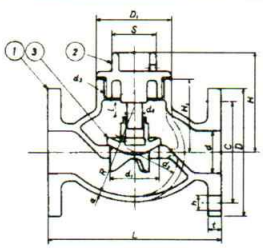
Screw down check valve, union bonnet type, GLOBE or ANGLE, bronze, 16 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7413							
75 12 81	15	110	95	70	4	15	2.87
82	20	120	100	75	4	15	3.79
83	25	130	125	90	4	19	5.44
84	32	160	135	100	4	19	7.04
85	40	180	140	105	4	19	8.89
Angle Valve F-7414							
75 12 86	15	70	95	70	4	15	2.86
87	20	75	100	75	4	15	3.75
88	25	85	125	90	4	19	5.38
89	32	95	135	100	4	19	6.84
90	40	100	140	105	4	19	8.34

(h) Lift Check Valves

CODE	JIS No.	Material	Pressure kgf/cm²	Shape
75 13 01-03	F-7356	Bronze	5	-
75 13 11-16 **21-26**	F-7358 F-7359	Cast Iron	5	Globe Angle
75 13 41-45 **46-50**	F-7415 F-7416	Bronze	5	Globe Angle
75 13 61-65 **66-70**	F-7417 F-7418	Bronze	16	Globe Angle



No.	Component
1	Body
2	Bonnet
3	Disk

Marine Bronze 5 kgf/cm² Lift Check Valves F-7356

Válvulas de Retención, Paso Recto de Bronce Marino

船用青銅リフト逆止め弁　船用青铜提升止回阀



Pressure Rating	
Fluid condition	Maximum working pressure MPa [kgf/cm²]
Oil & pulsation water	0.49 [5]
Non-shock water of 120°C or less	0.69 [7]

Hydraulic Inspection	
Watertight Inspection for valve seat	0.76 MPa [7.7 kgf/cm²] to 0.39 MPa [4 kgf/cm²]
Hydraulic inspection for body	1.03 MPa [10.5 kgf/cm²]

How to order : CODE

Lift check valve, bronze, 5 kgf/cm², JIS F-7356, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 13 01	25	120	95	70	4	12	2.39
02	32	140	115	90	4	15	3.80
03	40	160	120	95	4	15	4.95

Marine Cast Iron 5 kgf/cm² Lift Check Globe Valves F-7358 Angle Valves F-7359

Válvulas de Retención, Paso Recto y Angular (Lift) de Bronce Marino

船用鋳鉄リフト逆止め玉形及びアングル弁

船用铸铁 提升球阀及角阀

Pressure Rating	
Fluid condition	Maximum working pressure MPa [kgf/cm²]
Oil & pulsation water	0.49 [5]
Non-shock water of 120°C or less	0.69 [7]

Hydraulic Inspection	
Watertight Inspection for valve seat	0.76 MPa [7.7 kgf/cm²] to 0.39 MPa [4 kgf/cm²]
Hydraulic inspection for body	1.03 MPa [10.5 kgf/cm²]



F-7358



F-7359

How to order: CODE

Lift check valve, GLOBE or ANGLE, cast iron, 5 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7358							
75 13 11	50	210	130	105	4	15	11.3
12	65	250	155	130	4	15	16.8
13	80	280	180	145	4	19	23.2
14	100	340	200	165	8	19	32.5
15	125	410	235	200	8	19	48.1
16	150	480	265	230	8	19	67.9
Angle Valve F-7359							
75 13 21	50	100	130	105	4	15	9.5
22	65	115	155	130	4	15	13.8
23	80	130	180	145	4	19	18.9
24	100	150	200	165	8	19	25.6
25	125	170	235	200	8	19	36.7
26	150	190	265	230	8	19	50.9

Marine Bronze 5 kgf/cm² Lift Check Union Bonnet Type Globe Valves F-7415 Angle Valves F-7416

Válvulas de Retención, Paso Recto y Angular con Tapa Atornillada de Bronce Marino

船用青銅ユニオンボンネット型リフト逆止め玉形及びアングル弁

船用黄铜帽式提升阀接头

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Air, gas, oil & pulsation water	0.49 [5]
Non-shock water of 120°C or less	0.69 [7]

Hydraulic Inspection

Watertight Inspection upper side for valve seat	0.76 MPa [7.7 kgf/cm²] to 0.39 MPa [4 kgf/cm²]
Hydraulic inspection for body	1.04 MPa [10.5 kgf/cm²]



F-7415



F-7416

How to order: CODE

Lift check valve, union bonnet type, GLOBE or ANGLE, bronze, 5 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7415							
75 13 41	15	100	80	60	4	12	1.62
42	20	110	85	65	4	12	2.17
43	25	120	95	75	4	12	2.80
44	32	140	115	90	4	15	3.92
45	40	160	120	95	4	15	5.49
Angle Valve F-7416							
75 13 46	15	55	80	60	4	12	1.57
47	20	60	85	65	4	12	2.07
48	25	65	95	75	4	12	2.65
49	32	80	115	90	4	15	3.68
50	40	85	120	95	4	15	4.95

Marine Bronze 16 kgf/cm² Lift Check Union Bonnet Type Globe Valves F-7417 Angle Valves F-7418

Válvulas de Retención, Paso Recto y Angular con Tapa Atornillada de Bronce Marino

船用青銅ユニオンボンネット型リフト逆止め玉形及びアングル弁

船用黄铜帽式提升阀接头

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Air, gas, oil & pulsation water	1.57 [16]
Non-shock water of 120°C or less	2.16 [22]

Hydraulic Inspection

Watertight Inspection upper side for valve seat	2.38 MPa [24.2 kgf/cm²] to 0.39 MPa [4 kgf/cm²]
Hydraulic inspection for body	3.24 MPa [33.0 kgf/cm²]

How to order: CODE

Lift check valve, union bonnet type, GLOBE or ANGLE, bronze, 16 kgf/cm², JIS F NO., SIZE mm

Unit Per Pc.

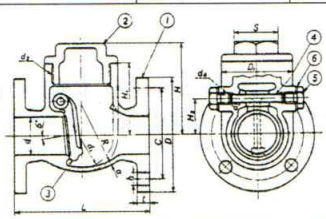
CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Globe Valve F-7417							
75 13 61	15	110	95	70	4	15	2.37
62	20	120	100	75	4	15	3.05
63	25	130	125	90	4	19	4.42
64	32	160	135	100	4	19	5.87
65	40	180	140	105	4	19	7.67

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Angle Valve F-7418							
75 13 66	15	70	95	70	4	15	2.36
67	20	75	100	75	4	15	3.01
68	25	85	125	90	4	19	4.36
69	32	92	135	100	4	19	5.67
70	40	100	140	105	4	19	7.12

(i) Swing Check Valves

CODE	JIS No.	Material	Pressure kgf/cm²
75 14 01-03	F-7371	Bronze	5
75 14 21-28	F-7372	Cast Iron	5
31-37	F-7373		10



No.	Component	No.	Component
1	Body	4	Hinge pin
2	Bonnet	5	Plug
3	Disc	6	Gasket

Marine Bronze 5 kgf/cm² Swing Check Valves F-7371



F-7371

Válvulas de Retención de Charnela de Bronce Marino

船用青銅スウィング逆止め弁　船用黄铜 回转止回阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Oil pulsation water	0.49 [5]
Non-shock water of 120°C or less	0.69 [7]

Hydraulic Inspection

Watertight Inspection for valve seat	0.76 MPa [7.7 kgf/cm²] to 0.39 MPa [4 kgf/cm²]
Hydraulic inspection for body	1.04 MPa [10.5 kgf/cm²]

How to order: CODE

Swing check valve, bronze, 5 kgf/cm², JIS F-7371, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 14 01	25	110	95	75	4	12	2.24
02	32	130	115	90	4	15	3.07
03	40	140	120	95	4	15	4.34

Marine Cast Iron 5 kgf/cm² Swing Check Valves F-7372



F-7372

Válvulas Retenciones de Charnela de Hierro Fundido Marino

船用鋳鉄スウィング逆止め弁　船用铸铁 回转止

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Oil & pulsation water	0.49 [5]
Non-shock water of 120°C or less	0.69 [7]

Hydraulic Inspection	
Watertight Inspection for valve seat outlet side	0.76 MPa [7.7 kgf/cm²] to 0.39 MPa [4 kgf/cm²]
Hydraulic inspection for body	1.03 MPa [10.5 kgf/cm²]

How to order: CODE

Swing check valve, cast iron, 5 kgf/cm², JIS F-7372, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 14 21	50	190	130	105	4	15	9.06
22	65	220	155	130	4	15	13.9
23	80	250	180	145	4	19	19.1
24	100	280	200	165	8	19	27.1
25	125	330	235	200	8	19	39.0
75 14 26	150	380	265	230	8	19	53.7
27	200	460	320	280	8	23	94.4
28	250	550	385	345	12	23	150

Marine Cast Iron 10 kgf/cm² Swing Check Valves F-7373

Válvulas Retenciones de Charnela de Hierro Fundido Marino

船用鋳鉄スウィング逆止め弁　船用铸铁 回转止

Pressure Rating	
Fluid condition	Maximum working pressure MPa [kgf/cm²]
Oil pulsation water	0.98 [10]
Non-shock water of 120°C or less	1.37 [14]

Hydraulic Inspection	
Watertight Inspection for valve seat outlet side	1.51 MPa [15.4 kgf/cm²] to 0.39 MPa [4 kgf/cm²]
Hydraulic inspection for body	2.06 MPa [21.0 kgf/cm²]

How to order: CODE

Swing check valve, cast iron, 10 kgf/cm², JIS F-7373, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
75 14 31	50	210	155	120	4	19	13.6
32	65	240	175	140	4	19	19.6
33	80	270	185	150	8	19	22.6
34	100	300	210	175	8	19	30.9
35	125	350	250	210	8	23	49.2
75 14 36	150	400	280	240	8	23	64.9
37	200	480	330	290	12	23	103

Spare Hand Wheels for Valve

Manubrios de repuesto para válvulas

バルブ用開閉ハンドル　阀门用开关把手



Made of cast iron to be used for the JIS bronze, cast iron, or cast steel valves. This can be fixed to DIN or ANSI valves as long as the square hole size meets to the spindle of the valves.

Unit Per Pc.

CODE	Size mm Outside Diam x Square Hole	Alligator No.
75 15 01	60 × 7	AD340006
02	80 × 8	AD340008
03	100 × 10	AD340010
04	125 × 10	AD340012
05	140 × 12	AD340014
75 15 06	160 × 14	AD340016
07	180 × 14	AD340018
08	200 × 17	AD340020
09	224 × 19	AD340022
10	250 × 22	AD340025

(to be continued)

75 15 11	280 × 22	AD340028
12	315 × 22	AD340031
13	315 × 27	AD340032
14	355 × 27	AD340035
15	400 × 30	AD340040
75 15 16	450 × 36	AD340045

Name of Mfr.: Alligator

(j) Marine Cocks

CODE	JIS No.	Material	Pressure kgf/cm²
75 16 01-15	F-7381	Bronze	5
31-36	F-7387		16
51-54	F-7343		20
61-64	F-7390		w/Lock

Marine Bronze 5 kgf/cm² Flanged Cocks F-7381

Grifos Embridados de Bronce Marino

船用青銅フランジ形コック

船用青铜法兰旋塞



F-7381

Pressure Rating	
Fluid condition	Maximum working pressure MPa [kgf/cm²]
Water & Oil	0.49 [5]

Hydraulic Inspection	
Watertight Inspection for plug	0.54 MPa [5.5 kgf/cm²]
Hydraulic inspection for body	0.74 MPa [7.5 kgf/cm²]

How to order: CODE

Flanged cock, bronze, 5 kgf/cm², JIS F-7381, TYPE, SIZE mm

Unit Per Pc.

CODE	Size mm	Dimensions mm					Weight Kg
		Face to Face	Flange Diam.	Flange Bolt Hole			
				Pitch	Number	Hole	
Two-Way							
75 16 01	25	130	95	75	4	12	3.13
02	32	160	115	90	4	15	5.02
03	40	170	120	95	4	15	6.66
04	50	190	130	105	4	15	10.0
05	65	220	155	130	4	15	16.7
L-Type Three-Way							
75 16 06	25	130	95	75	4	12	3.81
07	32	160	115	90	4	15	6.13
08	40	170	120	95	4	15	7.93
09	50	190	130	105	4	15	11.8
10	65	220	155	130	4	15	19.0
T-Type Three-Way							
75 16 11	25	130	95	75	4	12	3.81
12	32	160	115	90	4	15	6.13
13	40	170	120	95	4	15	7.93
14	50	190	130	105	4	15	11.8
15	65	220	155	130	4	15	19.0

Marine Bronze 16 kgf/cm² Cocks, F-7387

Bronce marino 16 kgf/cm2 Grifos

船用青銅 16 kgf/cm2 コック

海洋青铜 16 kgf/cm2 螺塞



F-7387

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]	
	Nominal dia. 6 mm & 10 mm	Nominal dia. 10 mm & 20 mm
Saturated steam	0.98 [10]	0.49 [5]
Oil & pulsation water	1.57 [16]	1.27 [13]
Non-shock water of 120°C or less	1.96 [20]	1.57 [16]

Hydraulic Inspection

Nominal Dia. mm	Test pressure MPa [kgf/cm²]	
	Watertight inspection for plug	Body
6 & 10	2.16 [22]	2.94 [30]
15 & 20	1.73 [17.6]	2.36 [24]

How to order: CODE

Cock, bronze, 16 kgf/cm², JIS F-7387, TYPE of CONNECTION, SIZE mm

Unit Per Pc.

CODE	Size mm	Pipe Out. Diam.		Thread	Weight kg
		Copper	Steel		
Type S (Screwed Type)					
75 16 31	6	8 & 10	10.5	M20×1.5	0.46
32	10	15	17.3	M24×2	0.85
33	15	20	21.7	M30×2	1.46
34	20	25	27.2	M36×2	2.09
Type U (Union Type)					
75 16 35	6	8 & 10	10.5	M24×2	0.50
36	10	15	17.3	M30×2	1.00

Marine Bronze 20 kgf/cm² Pressure Gauge Cocks F-7343

Grifos de Manómetro de Bronce Marino

船用青銅圧力計コック　船用青铜 压力计旋塞



F-7343

Pressure Rating

Maximum working pressure	1.96 MPa [20 kgf/cm²]

Hydraulic Inspection

Watertight Inspection for plug	2.16 MPa [22.0 kgf/cm²]
Hydraulic inspection for body	2.94 MPa [30.0 kgf/cm²]

How to order: CODE

Pressure gauge cock, bronze, 20 kgf/cm², JIS F-7343, TYPE of CONNECTION, SIZE mm

Unit Per Pc.

CODE	Type	Union Nut Thread	For Copper Pipe	Weight Kg
75 16 51	3/8	3/8 PF	Union	0.41
52			Bite Type Union	
53	1/2	1/2 PF	Union	0.44
54			Bite Type Union	

Marine Bronze Cocks with Lock F-7390

Grifos de Cierre de Bronce Marino

船用青銅錠付きコック　　带锁的船用黄铜旋塞



7390

Marine cocks with lock used for lubricating oil, daily service tanks, etc.

Hydraulic Inspection

Watertight Inspection for cock plug	0.20 MPa [2 kgf/cm²]
Hydraulic inspection for body	

Unit Per Pc.

CODE	JIS No.	Threads	Weight Kg
75 16 61	10	M24×2	0.32
62	15	M30×2	0.61
63	20	M36×2	0.99
64	25	M42×2	1.50

(k) Hose Valves

CODE	JIS No.	Material	Pressure kgf/cm²
75 17 01-23	F-7334	Bronze	5·10
75 17 31-37	F-7333	Cast Iron	5·10

Marine Bronze Hose Valves F-7334

Válvulas para Conexión de Manguera de Bronce Marino

船用青銅ホース弁　　船用青铜水带阀



Pressure Rating

Fluid Condition	Maximum working pressure MPa [kgf/cm²]					
	Nominal pressure 5 kgf/cm²			Nominal pressure 10 kgf/cm²		
	Nominal diameter mm			Nominal diameter mm		
	15	25	40/50	15	25	40~65
Steam of 205°C or less	0.49 [5]	-	-	0.981 [10]	-	-
Air		0.49 [5]			0.981 [10]	
Pulsation water			0.49 [5]			0.981 [10]
Non-shock water of 120°C or less	0.69 [7]			1.37 [14]		

Hydraulic Inspection

Nominal pressure kgf/cm²	Test pressure MPa [kgf/cm²]		
	Watertight inspection for valve seat	Hydraulic inspection for body	Hydraulic inspection for base connection
5	0.75 [7.7]	1.03 [10.5]	0.69 [7]
10	1.51 [15.4]	2.06 [21]	1.37 [14]

Classification

Class		Shape		Application
Nominal pressure kgf/cm²	Nominal Dia. mm			
5	15	Globe valve		Steam for cleaning sea chest strainer, boiler and machinery, and for soda boiling
		Angle valve		
	25	Globe valve		For air motor
		Angle valve		
	40	Globe valve		Fire extinguishing, deck washing, reserve water shifting, draining of boiler water, etc.
		Angle valve		
	50	Globe valve		
		Angle valve		
10	15	Globe valve		Steam for cleaning sea chest strainer, boiler and machinery, and for soda boiling
		Angle valve		
	25	Globe valve		For air motor
		Angle valve		
	40	Globe valve		Fire extinguishing, deck washing, reserve water shifting, draining of boiler water, etc.
		Angle valve		
	50	Globe valve		
		Angle valve		
	65	Globe valve		Fire extinguishing, deck washing, etc.
		Angle valve		
10	15	Screwed type	Globe valve	Steam or other fluid for cleaning boiler and machinery, and for soda boiling
			Angle valve	



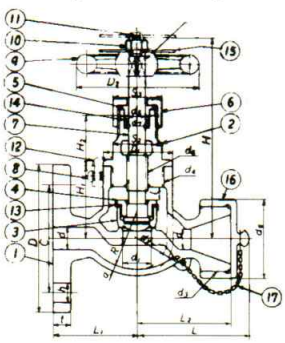
F-7334 Globe



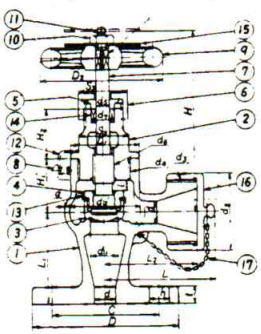
F-7334 Angle

Globe & Angle Valve diam. 15/25 mm

S (between laces)



S (between laces)



How to order: CODE

Hose valve, GLOBE or ANGLE, bronze, PRESSURE, JIS F-7334, SIZE mm

Unit Per Pc.

Globe Hose Valve

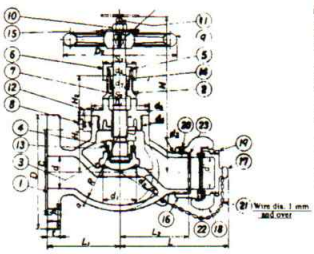
CODE			75 17 01	75 17 02	75 17 03	75 17 04
Dimensions	Size		15 mm		25 mm	
	Pressure		5 kgf/cm²	10 kgf/cm²	5 kgf/cm²	10 kgf/cm²
	Threads		M42 x 2	M42 x 2	M42 x 2	M42 x 2
	L		73 mm	73 mm	78 mm	83 mm
	D		80 mm	95 mm	95 mm	125 mm
	Bolts	Pitch	60 mm	70 mm	75 mm	90 mm
		Number	4	4	4	4
		Hole	12 mm	15 mm	12 mm	19 mm
	L_1		50 mm	55 mm	60 mm	65 mm
	L_2		60 mm	60 mm	65 mm	70 mm
	Weight		2.51 kg	2.76 kg	3.55 kg	4.15 kg

Angle Hose Valve

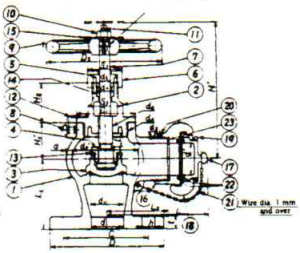
CODE			75 17 06	75 17 07	75 17 08	75 17 09
Dimensions	Size		15 mm		25 mm	
	Pressure		5 kgf/cm²	10 kgf/cm²	5 kgf/cm²	10 kgf/cm²
	Threads		M42 x 2	M42 x 2	M42 x 2	M42 x 2
	L		68 mm	73 mm	78 mm	83 mm
	D		80 mm	95 mm	95 mm	125 mm
	Bolts	Pitch	60 mm	70 mm	75 mm	90 mm
		Number	4	4	4	4
		Hole	12 mm	15 mm	12 mm	19 mm
	L_1		55 mm	70 mm	65 mm	85 mm
	L_2		55 mm	60 mm	65 mm	70 mm
	Weight		2.41 kg	2.72 kg	3.44 kg	4.04 kg

Globe & Angle Valve diam. 40 mm

S (between laces)



S (between laces)



How to order: CODE

Hose valve, GLOBE or ANGLE, bronze, PRESSURE, JIS F-7334, 40 mm

Unit Per Pc.

Valve Type			Globe		Angle	
CODE			75 17 11	75 17 12	75 17 13	75 17 14
Dimensions	Size		40 mm		40 mm	
	Pressure		5 kgf/cm²	10 kgf/cm²	5 kgf/cm²	10 kgf/cm²
	Coupling		Nakajima System Coupling			
	L		128.5 mm	133.5 mm	123.5 mm	123.5 mm
	D		120 mm	140 mm	120 mm	140 mm
	Bolts	Pitch	95 mm	105 mm	95 mm	105 mm
		Number	4	4	4	4
		Hole	15 mm	19 mm	15 mm	19 mm
	L_1		80 mm	90 mm	85 mm	100 mm
	L_2		80 mm	85 mm	75 mm	75 mm
	Weight		6.26 kg	8.43 kg	5.91 kg	8.19 kg

Globe & Angle Valve diam. 50/65 mm

How to order: CODE

Hose valve, GLOBE or ANGLE, bronze, PRESSURE, JIS F-7334, SIZE mm

Unit Per Pc.

Globe Hose Valve

CODE			75 17 16	75 17 17	75 17 18
Dimensions	Size		50 mm		65 mm
	Pressure		5 kgf/cm²	10 kgf/cm²	10 kgf/cm²
	Coupling		Nakajima System Coupling		
	L		159.8 mm	164.8 mm	199.8 mm
	D		130 mm	155 mm	175 mm
	Bolts	Pitch	105 mm	120 mm	140 mm
		Number	4	4	4
		Hole	15 mm	19 mm	19 mm
	L_1		105 mm	110 mm	135 mm
	L_2		105 mm	110 mm	140 mm
	Weight		12.9 kg	15.4 kg	27.8 kg

Angle Hose Valve

CODE			75 17 21	75 17 22	75 17 23
Dimensions	Size		50 mm		65 mm
	Pressure		5 kgf/cm²	10 kgf/cm²	10 kgf/cm²
	Coupling		Nakajima System Coupling		
	L		154.8 mm	159.8 mm	179.8 mm
	D		130 mm	155 mm	175 mm
	Bolts	Pitch	105 mm	120 mm	140 mm
		Number	4	4	4
		Hole	15 mm	19 mm	19 mm
	L_1		100 mm	120 mm	130 mm
	L_2		100 mm	105 mm	120 mm
	Weight		11 kg	14.3 kg	23.0 kg

Marine Cast Iron Hose Valves F-7333

Válvulas para Conexión de Manguera de Hierro Fundido Marino
船用鋳鉄ホース弁　船用铸铁水带阀门

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]	
	Nominal pressure 5 kgf/cm	Nominal pressure 10 kgf/cm
Pulsation water	0.49 [5]	0.98 [10]
Non-shock water of 120°C or less	0.69 [7]	1.37 [14]

Hydraulic Inspection

Nominal pressure kgf/cm²	Test pressure MPa [kgf/cm²]		
	Watertight inspection for valve seat	Hydraulic inspection for body	Hydraulic inspection for base connection
5	0.76 [7.7]	1.03 [10.5]	0.69 [7]
10	1.51 [15.4]	2.06 [21]	1.37 [14]

Classification

Class			Application
Nominal pressure kgf/cm²	Nominal Dia. mm	Shape	
5	50	Globe valve	Fire extinguishing, deck washing, water shifting etc.
		Angle valve	
10		Globe valve	
		Angle valve	
10	65	Globe valve	
		Angle valve	





How to order: CODE

Hose valve, GLOBE or ANGLE, cast iron, PRESSURE JIS F-7333, SIZE mm

Unit Per Pc.

Globe Hose Valve

CODE			75 17 31	75 17 32	75 17 33
Dimensions	Size		50 mm		65 mm
	Pressure		5 kgf/cm²	10 kgf/cm²	10 kgf/cm²
	Coupling		Nakajima System Coupling		
	L		165 mm	170 mm	200 mm
	D		130 mm	155 mm	175 mm
	Bolts	Pitch	105 mm	120 mm	140 mm
		Number	4	4	4
		Hole	15 mm	19 mm	19 mm
	L_1		105 mm	110 mm	135 mm
	L_2		110 mm	115 mm	140 mm
	Weight		14.7 kg	18.9 kg	28.2 kg

Angle Hose Valve

Unit Per Pc.

CODE			75 17 35	75 17 36	75 17 37
Dimensions	Size		50 mm		65 mm
	Pressure		5 kgf/cm²	10 kgf/cm²	10 kgf/cm²
	Coupling		Nakajima System Coupling		
	L		155 mm	170 mm	185 mm
	D		130 mm	155 mm	175 mm
	Bolts	Pitch	105 mm	120 mm	140 mm
		Number	4	4	4
		Hole	15 mm	19 mm	19 mm
	L_1		100 mm	120 mm	130 mm
	L_2		100 mm	115 mm	125 mm
	Weight		12.8 kg	17.0 kg	24.3 kg

Marine Hose Valves

with ANSI Screw Threads (ANSI-NFPA 1963)

Válvulas para Conexión de Manguera con Roscas ANSI Marinas
船用アメリカねじホース弁　船用水带阀

Pressure Rating

Fluid condition	Maximum working pressure MPa [kgf/cm²]
Pulsation water	0.98 [10]
Non-shock water of 120°C or less	1.37 [14]

Test Pressure

Nominal pressure kgf/cm²	Watertight inspection for valve seat	Hydraulic inspection for body
10	1.47 MPa [15 kgf/cm²]	2.35 MPa [24 kgf/cm²]

Classification

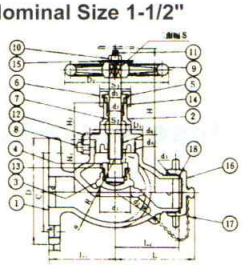
Type	Main material	Nominal diameter inch	Nominal pressure kgf/cm²	Fluid	Application
Globe	Bronze	1-1/2	10	Water	Fire Extinguishing
Angle					
Globe		2-1/2			
Angle					Deck Washing
Globe	Cast Iron	2-1/2			
Angle					

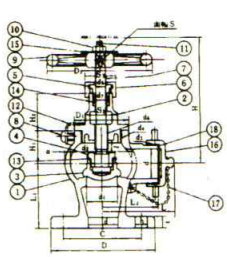
Marine Bronze Hose Valves

with ANSI Screw Threads ANSI-NFPA 1963 JMS7305–10 kgf/cm²

Válvulas para Conexión de Manguera con Roscas ANSI de Bronce Marino
船用青銅アメリカねじホース弁　船用青铜水带阀门

1. Nominal Size 1-1/2"





* JMS denotes Japan Marine Standards.

No.	Component	No.	Component
1	Body	10	Hexagon nut
2	Bonnet	11	Split pin
3	Disc	12	Bonnet lock plate
4	Disc nut	13	Disc lock plate
5	Packing gland	14	Packing
6	Gland nut	15	Name plate
7	Stem	16	Cap
8	Cross recessed pan head screw	17	Chain
9	Hand wheel	18	Gasket

How to order: CODE

Hose valve, with ANSI screw thread, GLOBE or ANGLE, bronze, 10 kgf/cm², 1-1/2"

Unit Per Pc.

CODE			75 17 51	75 17 52
Type			Globe	Angle
Nominal Size			1-1/2"	
Nominal Pressure			10 kgf/cm²	
Thread (d3)	Size		1-1/2"	ANSI-NFPA 1963
	Per inch		9	
L			105 mm	95 mm
L_1			90 mm	100 mm
L_2			85 mm	75 mm
Flange	Diam (D)		140 mm	
	Bolt Hole	Pitch	105 mm	
		Number	4	
		Hole	19 mm	
Height Opened			190 mm	165 mm
Weight			8.22 kg	7.98 kg

* ANSI-NFPA denotes the Screw Threads and Gasket for the Fire Hose Connection.

2. Nominal Size 2-1/2"

How to order: CODE

Hose valve, with ANSI screw thread, GLOBE or ANGLE, bronze, 10 kgf/cm², 2-1/2"

Unit Per Pc.

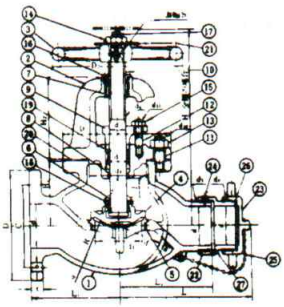
CODE			75 17 53	75 17 54
Type			Globe	Angle
Nominal Size			2-1/2"	
Nominal Pressure			10 kgf/cm²	
Thread (d3)	Size		2-1/2"	ANSI-NFPA 1963
	Per inch		7.5	
L			165 mm	145 mm
L_1			135 mm	130 mm
L_2			140 mm	120 mm
Flange	Diam (D)		175 mm	
	Bolt Hole	Pitch	140 mm	
		Number	4	
		Hole	19 mm	
Height Opened			295 mm	255 mm
Weight			28.1 kg	23.3 kg

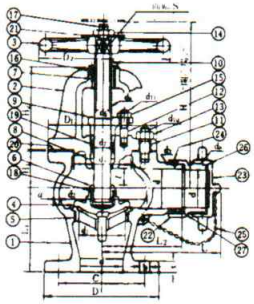
Marine Cast Iron Hose Valves

with ANSI Screw Threads
ANSI-NFPA 1963
JMS 7305–10 kgf/cm²

Válvulas para Conexión de Manguera con Roscas ANSI de Hierro Fundido Marino

船用鑄鉄アメリカねじホース弁　　船用铸铁水带阀门





No.	Component	No.	Component
1	Body	15	Hex nut
2	Bonnet	16	Lock pin
3	Hand wheel	17	Split pin
4	Disc	18	Disc lock washer
5	Valve seat	19	Packing
6	Disc nut	20	Gasket
7	Screwed bonnet bush	21	Name plate
8	Seat ring	22	Hose base connection
9	Packing gland	23	Cap
10	Stem	24	Set screw
11	Stud	25	Chain
12	Stud	26	Gasket
13	Hex nut	27	Gasket
14	Hex nut		

How to order: CODE

Hose valve, with ANSI screw thread, GLOBE or ANGLE, cast iron, 10 kgf/cm², 2-1/2"

Unit Per Pc.

CODE			75 17 56	75 17 57
Type			Globe	Angle
Nominal Size			2-1/2"	
Nominal Pressure			10 kgf/cm²	
Thread (d3)	Size		2-1/2"	ANSI-NFPA 1963
	Per inch		7.5	
L			200 mm	185 mm
L_1			135 mm	130 mm
L_2			140 mm	125 mm
Flange	Diam (D)		175 mm	
	Bolt Hole	Pitch	140 mm	
		Number	4	
		Hole	19 mm	
Height Opened			310 mm	270 mm
Weight			27.4 kg	23.5 kg

Emergency Shut-off Valves

Emergency Shut-off Valves & Air Reservoirs

Válvulas Cierre de Emergencia　　非常遮断弁　　紧急开闭阀

Every Pipe to suck in oil from Tank located up in the double bottom such as Fuel-oil Tank, Lubricating-oil Tank and Heat-agent-oil Tank must be equipped with Stop Valve or Cock in the way that it is located direct to Tank wall.
This Stop Valve or Cock has to be of function and structure so that it can shut off oil-flow direct at the installed position and also can be remote-controlled for shut-off from a safe place out of the area. This is a Device fit for such purpose.

Shut-off Operation

Air operating type:

Only open the compressed air supply valve connected from air reservoir. Air reservoir should be kept certain pressure between 0.39 MPa and 0.89 MPa.
*If there is insufficient pressure in the tank, there is a risk of inadequate air supply causing malfunction.

Wire operating:

Only pull the lever connected with wire. For manual shut, these valves can close with handle wheel by rotating in clockwise direction.

Reset after Shut-off

1. Rotate clockwise until a head of piston is set in the grooving on spindle, and then rotate counterclockwise the handle to set valve in full open condition.
2. In an emergency, the valves can be manually reset by lifting the handle upward.

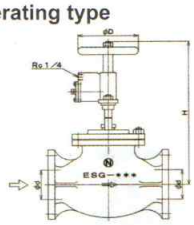
*Regarding Air operating type, 1 or 2 should be applied after air supply valve is closed.

JIS Flanged End Globe Type

JIS 5K

***Shut-off Operation: Air operating type**





Unit Per Pc.

CODE	Type	Size mm				Weight
		d	L	H	D	kg
87 45 01	ESG-005-025	25	120	265	100	7
02	ESG-005-040	40	160	270	100	11
03	ESG-005-050	50	210	270	100	15
04	ESG-005-065	65	250	320	125	20
05	ESG-005-080	80	280	325	125	25
87 45 06	ESG-005-100	100	340	410	160	35
07	ESG-005-125	125	410	430	160	45
08	ESG-005-150	150	480	460	160	65
09	ESG-005-200	200	570	615	315	100
10	ESG-005-250	250	740	655	315	135

Name of Mfr.: Niikura Kogyo Co., Ltd.

***Shut-off Operation: Wire operating type**

Unit Per Pc.

CODE	Type	Size mm				Weight
		d	L	H	D	kg
87 45 11	ESG-005-025-W	25	120	265	100	7
12	ESG-005-040-W	40	160	270	100	11
13	ESG-005-050-W	50	210	270	100	15
14	ESG-005-065-W	65	250	320	125	20
15	ESG-005-080-W	80	280	325	125	25

Name of Mfr.: Niikura Kogyo Co., Ltd.

JIS 10K

***Shut-off Operation: Air operating type**

Unit Per Pc.

CODE	Type	Size mm				Weight
		d	L	H	D	kg
87 45 41	ESG-010-025	25	130	265	100	9
42	ESG-010-040	40	170	270	100	12
43	ESG-010-050	50	220	270	100	16.5
44	ESG-010-065	65	270	320	125	22
45	ESG-010-080	80	300	325	125	27
87 45 46	ESG-010-100	100	350	410	160	41
47	ESG-010-125	125	420	430	160	58
48	ESG-010-150	150	490	460	160	68
49	ESG-010-200	200	570	615	315	110
50	ESG-010-250	250	740	655	315	150

Name of Mfr.: Niikura Kogyo Co., Ltd.

***Shut-off Operation: Wire operating type**

Unit Per Pc.

CODE	Type	Size mm				Weight
		d	L	H	D	kg
87 45 51	ESG-010-025W	25	130	265	100	8
52	ESG-010-040W	40	170	270	100	12
53	ESG-010-050W	50	220	270	100	16.5
54	ESG-010-065W	65	270	320	125	22
55	ESG-010-080W	80	300	325	125	27

Name of Mfr.: Niikura Kogyo Co., Ltd.

JIS 16K

***Shut-off Operation: Air operating type**

Unit Per Pc.

CODE	Type	Size mm				Weight
		d	L	H	D	kg
87 45 71	ESG-016-025	25	130	265	100	8
72	ESG-016-040	40	170	270	100	12
73	ESG-016-050	50	220	270	100	16.5
74	ESG-016-065	65	270	320	125	22
75	ESG-016-080	80	300	325	125	27

Name of Mfr.: Niikura Kogyo Co., Ltd.

***Shut-off Operation: Wire operating type**

Unit Per Pc.

CODE	Type	Size mm				Weight
		d	L	H	D	kg
87 45 76	ESG-016-025W	25	130	265	100	8
77	ESG-016-040W	40	170	270	100	12
78	ESG-016-050W	50	220	270	100	16.5
79	ESG-016-065W	65	270	320	125	22
80	ESG-016-080W	80	300	325	125	27

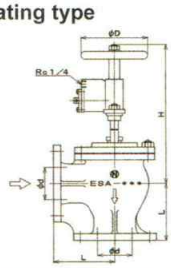
Name of Mfr.: Niikura Kogyo Co., Ltd.

JIS Flanged End Angle Type

JIS 5K

***Shut-off Operation: Air operating type**





Unit Per Pc.

CODE	Type	Size mm				Weight
		d	L	H	D	kg
87 45 21	ESA-005-025	25	120	265	100	7
22	ESA-005-040	40	160	270	100	10
23	ESA-005-050	50	210	270	100	14
24	ESA-005-065	65	250	320	125	18
25	ESA-005-080	80	280	325	125	22
87 45 26	ESA-005-100	100	340	410	160	30
27	ESA-005-125	125	410	430	160	42
28	ESA-005-150	150	480	460	160	50
29	ESA-005-200	200	570	615	315	85
30	ESA-005-250	250	740	655	315	115

Name of Mfr.: Niikura Kogyo Co., Ltd.

***Shut-off Operation: Wire operating type**

Unit Per Pc.

CODE	Type	Size mm				Weight
		d	L	H	D	kg
87 45 31	ESA-005-025-W	25	65	245	100	7
32	ESA-005-040-W	40	80	240	100	9
33	ESA-005-050-W	50	100	240	100	13
34	ESA-005-065-W	65	115	280	125	17
35	ESA-005-080-W	80	130	280	125	21

Name of Mfr.: Niikura Kogyo Co., Ltd.

JIS 10K

***Shut-off Operation: Air operating type**

Unit Per Pc.

CODE	Type	Size mm				Weight
		d	L	H	D	kg
87 45 56	ESA-010-025	25	85	245	100	9
57	ESA-010-040	40	100	240	100	10
58	ESA-010-050	50	120	240	100	13
59	ESA-010-065	65	130	280	125	19
60	ESA-010-080	80	140	280	125	23.5

(to be continued)

Unit Per Pc.

CODE	Type	Size mm				Weight
		d	L	H	D	kg
87 45 61	ESA-010-100	100	160	355	160	32.5
62	ESA-010-125	125	180	370	160	49
68	ESA-010-150	150	205	385	160	66
69	ESA-010-200	200	230	535	315	95
70	ESA-010-250	250	290	560	315	135

Name of Mfr.: Niikura Kogyo Co., Ltd.

***Shut-off Operation: Wire operating type**

Unit Per Pc.

CODE	Type	Size mm				Weight
		d	L	H	D	kg
87 45 63	ESA-010-025-W	25	85	245	100	9
64	ESA-010-040-W	40	100	240	100	10
65	ESA-010-050-W	50	120	240	100	13
66	ESA-010-065-W	65	130	280	125	19
67	ESA-010-080-W	80	140	280	125	23.5

Name of Mfr.: Niikura Kogyo Co., Ltd.

JIS 16K

***Shut-off Operation: Air operating type**

Unit Per Pc.

CODE	Type	Size mm				Weight
		d	L	H	D	kg
87 45 81	ESA-016-025	25	85	245	100	9
82	ESA-016-040	40	100	240	100	10
83	ESA-016-050	50	120	240	100	13
84	ESA-016-060	65	130	280	125	19
85	ESA-016-080	80	140	280	125	23.5
87 45 86	ESA-016-100	100	160	355	160	32.5
87	ESA-016-125	125	180	370	160	49
88	ESA-016-150	150	205	385	160	66
89	ESA-016-200	200	230	535	315	95
90	ESA-016-250	250	290	560	315	135

Name of Mfr.: Niikura Kogyo Co., Ltd.

***Shut-off Operation: Wire operating type**

Unit Per Pc.

CODE	Type	Size mm				Weight
		d	L	H	D	kg
87 45 91	ESA-016-025-W	25	85	245	100	9
92	ESA-016-040-W	40	100	240	100	10
93	ESA-016-050-W	50	120	240	100	13
94	ESA-016-065-W	65	130	280	125	19
95	ESA-016-080-W	80	140	280	125	23.5

Name of Mfr.: Niikura Kogyo Co., Ltd.

Self-Closing Valves

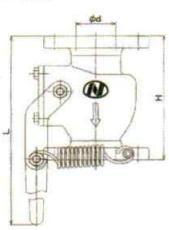
Válvulas de cierre automático 自動閉鎖弁 自关闭阀

Required in the middle of the drainpipe and need to be installed in a handle-operated position when directing the drain water that accumulates at the top of the deep tank to the bilge reservoir.

Regulations also require that a quick-acting self-closing valve be installed in the drainpipe that collects at the top of the deep-water tank. Available in spring type and counter-weight type. Connecting Flange is JIS 5K.

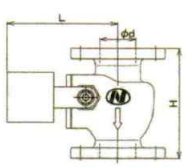


Spring Type





Counter-weight Type



39A-050～100 / 39A-W-050～100

Unit Per Pc.

CODE	Type	Model	d	H	L	Weight Kg
87 46 61	Spring type	39A-50	50	165	375	7
62		39A-65	65	180	375	10
63		39A-80	80	240	470	16
64		39A-100	100	280	465	23
87 46 65	Counter-weight type	39A-A-50	50	165	155	8
66		39A-A-65	65	180	192	12
67		39A-A-80	80	240	228	20
68		39A-A-100	100	280	168	32

Name of Mfr.: Niikura Kogyo Co., Ltd.

Quick-Closing Valves (DIN)

Ductile Cast Iron for Marine Service

Pressure Rating PN 16/10

Válvulas de cierre rápido (DIN)

非常遮断弁（DIN） 快关阀（DIN）

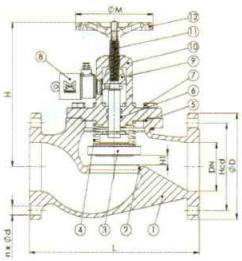
Angle and straight types metal seated quick closing valve made with Nodular Cast Iron. It equipped with universal release cylinder for mechanical, hydraulic or pneumatic closing. Also has an integrated safety feature for fire release and raised face flanges.

Applications:

Fuel oil, Lubricating oil, Flammable hydraulic oil, Cargo oil, Non-flammable hydraulic fluid, Boiler feedwater, Condensate, Sea water, Water.

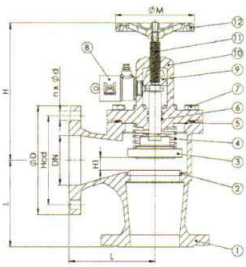


Straight





Angle



Pressure and Temperature Range

Size	Max. Press. At 180°C	Flange Rate
DN 15 - 150	10	PN16
DN 200 - 250	6	PN10

Material Specification

Component	Material	EN and/or DIN
Body	Ductile Cast Iron	EN-GJS400-18-LT
Bonnet	Ductile Cast Iron	EN-GJS400-18-LT
Disc	Stainless Steel	1.4301
Seat	Stainless Steel	1.4301
Stem	Stainless Steel	1.4301
Gasket	Rubber	NBR
O-ring	Rubber	FKM
Screw	Stainless Steel	1.4401
Release Cylinder	Copper Alloy	CW614N
Setting nut	Copper Alloy	CW617N
Handwheel	Cast Iron	GG25

How to order: CODE

Quick-closing valve (DIN), ductile cast iron, pressure rating PN 10, TYPE of OPERATION, STRAIGHT or ANGLE, SIZE DN

Straight Type

Unit Per Pc.

CODE	DN	Size mm					Weight Kg
		Hcd	D	L	H	M	
87 46 01	15	65	95	130	176	120	5.2
02	20	75	105	150	178	120	5.9
03	25	85	115	160	188	120	6.8
04	32	100	140	180	192	120	8.4
05	40	110	150	200	202	140	10.0
87 46 06	50	125	165	230	224	140	14.0
07	65	145	185	290	253	140	19.0
08	80	160	200	310	253	160	26.0
09	100	180	220	350	298	160	46.0
10	125	210	250	400	338	200	54.0
87 46 53	150	240	285	480	410	200	72.0
54	200	295	340	600	575	400	150.0
55	250	350	405	730	615	400	183.0

MESON Model No.: 450.2.4.4.1

Angle Type

Unit Per Pc.

CODE	DN	Size mm					Weight Kg
		Hcd	D	L	H	M	
87 46 11	15	65	95	90	169	120	5
12	20	75	105	95	170	120	5.6
13	25	85	115	100	179	120	6.4
14	32	100	140	105	186	120	8.3
15	40	110	150	115	205	140	9.9
87 46 16	50	125	165	125	204	140	14
17	65	145	185	145	233	140	19
18	80	160	200	155	252	160	26
19	100	180	220	175	278	160	41
20	125	210	250	200	295	200	47
87 46 56	150	240	285	225	335	200	63

MESON Model No.: 451.2.4.4.1

Screwed Valves

Bronze Screwed 5 kgf/cm² Globe Valves B-2011

Bronce Atornillado 5 kgf/cm² , Válvulas de globo B-2011
青銅ねじ込み 5kgf/cm² , 玉形弁 B-2011
青铜螺纹式 5 kgf/cm² 截止阀 B-2011



Temperature & Pressure Rating

Fluid Condition	Temperature	Pressure Rating MPa [kgf/cm²]
Water, Oil & Gas non-shock	-29°C to +120°C (not freezing)	0.7
Saturated steam pressure	159°C	0.5

Note: Do not use for flammable gas or toxic gas.

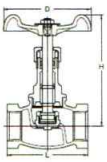
Unit Per Pc.

CODE	Size		Taper Pipe Thread	Distance between Faces mm	Max. Extend Height mm
	Nominal	Diam. mm			
75 18 01	1/4	6	PT 1/4	40	65
02	3/8	10	3/8	50	87
03	1/2	15	1/2	60	90
04	3/4	20	3/4	70	105
05	1	25	1	80	120
75 18 06	1-1/4	32	PT 1-1/4	100	135
07	1-1/2	40	1-1/2	110	145
08	2	50	2	135	175
09	2-1/2	65	2-1/2	160	200
10	3	80	3	190	230

Bronze Screwed 10 kgf/cm² Globe Valves B-2011 Angle Valves B-2011

Válvulas de Globo Paso Recto y Angular con Rosca Ambos Extremos de Bronce 10 kgf/cm²
青銅ねじ込玉形及びアングル弁
青铜旋入式球阀和角阀





Temperature & Pressure Rating

Fluid Condition	Temperature	Pressure Rating MPa [kgf/cm²]
Water, Oil & Gas non-shock	-29°C to +120°C (not freezing)	1.4
Saturated steam pressure	185°C	1.0

Note: Do not use for flammable gas or toxic gas.

How to order: CODE

Screwed valve, GLOBE or ANGLE, bronze, 10 kgf/cm², JIS B-2011, SIZE mm

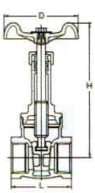
Unit Per Pc.

CODE	Size mm		Taper Pipe Thread	Distance Between Faces mm	Max. Extended Height mm
	Nominal	Diam. mm			
Globe Valves					
75 18 16	1/4	10	PT 1/4	50	90
17	3/8	12	3/8	55	95
18	1/2	15	1/2	65	110
19	3/4	20	3/4	80	125
20	1	25	1	90	140
75 18 21	1-1/4	32	PT 1-1/4	105	170
22	1-1/2	40	1-1/2	120	180
23	2	50	2	140	205
24	2-1/2	65	2-1/2	180	240
25	3	80	3	200	275
75 18 27	4	100	4	260	340
Angle Valves					
75 18 31	1/4	10	PT 1/4	28	90
32	3/8	12	3/8	30	100
33	1/2	15	1/2	32	105
34	3/4	20	3/4	40	130
35	1	25	1	45	145
75 18 36	1-1/4	32	PT 1-1/4	55	175
37	1-1/2	40	1-1/2	60	190
38	2	50	2	70	225
39	2-1/2	65	2-1/2	90	265
40	3	80	3	100	275
75 18 42	4	100	4	125	340

Bronze Screwed 5 kgf/cm² Gate Valves B-2011

Bronce Atornillado 5 kgf/cm² Válvulas de compuerta B-2011
ブロンズねじ込み式 5kgf/cm²、仕切弁 B-2011
青铜螺纹式 5 kgf/cm²、闸阀 B-2011





Temperature & Pressure Rating

Fluid Condition	Temperature	Pressure Rating MPa [kgf/cm²]
Water, Oil & Gas non-shock	-29°C to +120°C (not freezing)	0.7
Saturated steam pressure	134°C	0.5

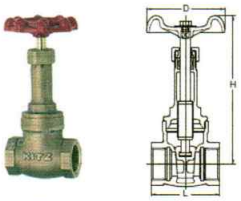
Note: Do not use for flammable gas or toxic gas.

Unit Per Pc.

CODE	Size		Taper Pipe Thread	Distance Between Faces mm	Max. Extend Height mm
	Nominal	Diam. mm			
75 18 52	1/2	15	PT 1/2	50	145
53	3/4	20	3/4	60	165
54	1	25	1	65	190
55	1-1/4	32	1-1/4	75	225
56	1-1/2	40	1-1/2	85	255
75 18 57	2	50	PT 2	95	305
58	2-1/2	65	2-1/2	115	400
59	3	80	3	130	460

Bronze Screwed 10 kgf/cm² Gate Valves B-2011

Bronce Atornillado 10 kgf/cm² , Válvulas de compuerta B-2011
ブロンズねじ込み 10 kgf/cm² 仕切弁 B-2011
青铜螺纹式 10 kgf/cm² 闸阀 B-2011



Temperature & Pressure Rating

Fluid Condition	Temperature	Pressure Rating MPa [kgf/cm²]
Water, Oil & Gas non-shock	-29°C to +120°C (not freezing)	1.4
Saturated steam pressure	171°C	1.0

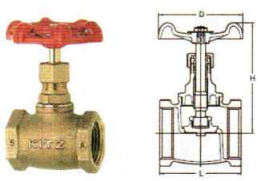
Note: Do not use for flammable gas or toxic gas.

Unit Per Pc.

CODE	Size		Taper Pipe Thread	Distance Between Faces mm	Max. Extend Height mm
	Nominal	Diam. mm			
75 18 71	1/2	15	PT 1/2	55	150
72	3/4	20	3/4	65	175
73	1	25	1	70	205
74	1-1/4	32	1-1/4	80	245
75	1-1/2	40	1-1/2	90	275
75 18 76	2	50	PT 2	100	325
77	2-1/2	65	2-1/2	120	430
78	3	80	3	140	490

Bronze Screwed 100 Psi Globe Valves

Válvulas de globo de bronce roscadas 100 Psi
青銅ねじ込み式 100 Psi 玉形弁　　青铜螺纹 100 Psi 球阀



Temperature & Pressure Rating

Fluid Condition	Temperature	Pressure Rating MPa [kgf/cm²]
Water, Oil & Gas non-shock	-29°C to +100°C (not freezing)	0.98
Saturated steam pressure	174°C	0.78

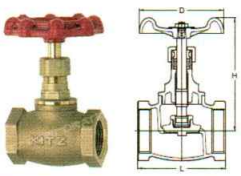
Note: Do not use for flammable gas or toxic gas.

Unit Per Pc.

CODE	Size	Dimensions mm		
		L	H	D
75 19 01	PT 1/2	48	69	55
02	3/4	53	80	60
03	1	63	94	70
04	1-1/4	73	104	80
05	1-1/2	81	127	90
75 19 06	PT 2	94	147	100
07	2-1/2	115	179	115
08	3	131	200	135
09	4	171	250	180

Bronze Screwed 150 Psi Globe Valves

Válvulas de globo de bronce roscadas 150 Psi
青銅ねじ込み式 150 型玉形弁
青铜螺纹 150 Psi 球阀



Temperature & Pressure Rating

Fluid Condition	Temperature	Pressure Rating MPa [kgf/cm²]
Size 1/4" - 2"		
Water, Oil & Gas non-shock	-29°C to +120°C (not freezing)	1.6
Saturated steam pressure	183°C	0.98
Size 2-1/2" - 3"		
Water, Oil & Gas non-shock	-29°C to +120°C (not freezing)	1.37
Saturated steam pressure	183°C	0.98

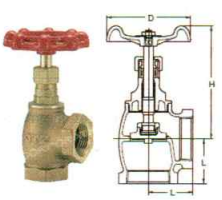
Note: Do not use for flammable gas or toxic gas.

Unit Per Pc.

CODE	Size	Dimensions mm		
		L	H	D
75 19 16	PT 1/4	44	66	50
17	3/8	44	68	50
18	1/2	53	79	60
19	3/4	65	93	70
20	1	77	104	80
75 19 21	PT 1-1/4	85	127	90
22	1-1/2	100	145	100
23	2	119	174	115
24	2-1/2	139	199	135
25	3	158	215	155

Bronze Screwed 150 Psi Angle Valves

Válvulas de ángulo roscadas de bronce 150 Psi
ブロンズねじ込み式 150 型アングル弁
青铜螺纹 150 Psi 角阀



Temperature & Pressure Rating

Fluid Condition	Temperature	Pressure Rating MPa [kgf/cm²]
Size 1/4" - 2"		
Water, Oil & Gas non-shock	-29°C to +120°C (not freezing)	1.6
Saturated steam pressure	183°C	0.98
Size 2-1/2" - 3"		
Water, Oil & Gas non-shock	-29°C to +120°C (not freezing)	1.37
Saturated steam pressure	183°C	0.98

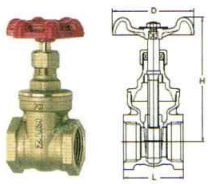
Note: Do not use for flammable gas or toxic gas.

Unit Per Pc.

CODE	Size	Dimensions mm		
		L	H	D
75 19 31	PT 1/4	21	66	50
32	3/8	24	68	50
33	1/2	28	79	60
34	3/4	34	93	70
35	1	40	104	80
75 19 36	PT 1-1/4	47	127	90
37	1-1/2	52	145	100
38	2	61	174	115
39	2-1/2	74	199	135
40	3	85	215	155

Bronze Screwed 125 Psi Gate Valves

Válvulas de compuerta de bronce roscadas 125 Psi
青銅ねじ込み式 125 型 仕切弁
青铜螺纹 125 Psi 闸阀



Temperature & Pressure Rating

Fluid Condition	Temperature	Pressure Rating MPa [kgf/cm²]
Water, Oil & Gas non-shock	-29°C to +120°C (not freezing)	1.18
Saturated steam pressure	179°C	0.88

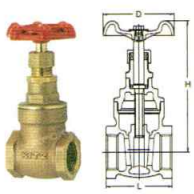
Note: Do not use for flammable gas or toxic gas.

Unit Per Pc.

CODE	Size	Dimensions mm		
		L	H	D
75 19 51	PT 3/8	38	75	50
52	1/2	42	75	50
53	3/4	47	86	55
54	1	50	97	60
55	1-1/4	60	117	70
75 19 56	PT 1-1/2	63	126	80
57	2	72	154	90
58	2-1/2	80	167	100
59	3	90	200	115

Bronze Screwed 150 Psi Gate Valves

Válvulas de compuerta de bronce roscadas 150 Psi
青銅ねじ込み式 150 型 仕切弁
青铜螺纹 150 Psi 闸阀



Temperature & Pressure Rating

Fluid Condition	Temperature	Pressure Rating MPa [kgf/cm²]
Size 3/8" - 2"		
Water, Oil & Gas non-shock	-29°C to +120°C (not freezing)	1.6
Saturated steam pressure	183°C	0.98
Size 2-1/2" - 3"		
Water, Oil & Gas non-shock	-29°C to +120°C (not freezing)	1.4
Saturated steam pressure	183°C	0.98

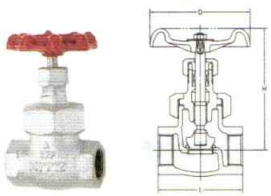
Note: Do not use for flammable gas or toxic gas.

Unit Per Pc.

CODE	Size	Dimensions mm		
		L	H	D
75 19 70	PT 3/8	43	86	50
71	1/2	48	98	55
72	3/4	53	113	60
73	1	62	124	70
74	1-1/4	69	143	80
75 19 75	PT 1-1/2	75	167	90
76	2	86	201	100
77	2-1/2	105	225	115
78	3	116	261	135

Ductile Iron Screwed 10K Globe Valves B-2051

Hierro dúctil roscada 10K , Válvulas de globo B-2051
ダクタイル鋳鉄 10K ねじ玉形弁　球墨铸铁 10K 螺纹球阀



Temperature & Pressure Rating

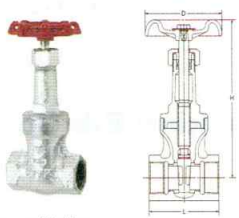
Fluid Condition	Temperature	Pressure Rating MPa [kgf/cm²]
Static water	120°C	1.4
Steam, Air, Gas, Oil	220°C	1.0

Unit Per Pc.

CODE	Size	Dimensions mm			Weight Kg
		L	H	D	
75 19 81	PT 3/8	64	107	60	0.65
82	1/2	70	125	80	0.8
83	3/4	80	125	80	1.04
84	1	90	145	100	1.6
85	1-1/4	110	162	115	2.3
75 19 86	PT 1-1/2	120	180	115	3.2
87	2	140	198	135	5.04

Ductile Iron Screwed 10K Gate Valves B-2051

Hierro dúctil roscada 10K , Válvulas de compuerta B-2051
ダクタイル鋳鉄 10K ねじ込仕切弁　球墨铸铁螺纹 10K 闸阀



Temperature & Pressure Rating

Fluid Condition	Temperature	Pressure Rating MPa [kgf/cm²]
Static water	120°C	1.4
Steam, Air, Gas, Oil	220°C	1.0

Unit Per Pc.

CODE	Size	Dimensions mm			Weight Kg
		L	H	D	
75 19 91	PT 1/2	60	150	60	0.65
92	3/4	70	171	70	0.818
93	1	75	198	80	1.212
94	1-1/4	85	233	90	1.849
95	1-1/2	95	274	110	2.661
75 19 96	2	105	318	115	4.212

Air & Oil Cocks

Bronze Air Cocks
with Lever Handle Male & Hose Ends

Grifos Purga de Bronce 青銅エアコック　青铜气旋塞



Unit Per Pc.

CODE	75 20 41	75 20 42	75 20 43
Nominal Size	PT-1/4	PT-3/8	PT-1/2
Thread Per Inch	9	10.5	14

Bronze Two Way Air Cocks
with Lever Handle Male & Hose Ends

Grifos Purga 2 Vías de Bronce
青銅二又エアコック　青铜两通气旋塞



Unit Per Pc.

CODE	75 20 46	75 20 47
Nominal Size	PT-1/4	PT-3/8
Thread Per Inch	9	10.5

Brass Pee Cocks
with Tee Handle

Grifos Purga de Latón　黄銅ピーコック　黄铜P形旋塞



Unit Per Pc.

CODE	75 20 51	75 20 52	75 20 53	75 20 54	75 20 55
Nominal Size	PT-1/8	PT-1/4	PT-3/8	PT-1/2	PT-3/4

Brass Meter Cocks
with Lever Handle Both Female Ends

Grifos Purga de Latón
黄銅メートルコック 黄铜仪表旋塞



Unit Per Pc.

CODE	75 20 61	75 20 62	75 20 63
Nominal Size	PS-1/4	PS-3/8	PS-1/2

Bronze Drain Cocks
with Lever Handle Male & Female Ends

Grifos de Purga de Bronce
青銅製ドレインコック（アスタップ）　青铜清洗龙头



Unit Per Pc.

CODE	75 20 66	75 20 67	75 20 68	75 20 69	75 20 70
Nominal Size	PT-1/4	PT-3/8	PT-1/2	PT-3/4	PT-1

Bronze Locking Bib Cocks
with Male End

Llave Paso Bronce, Macho
青銅錠前カラン　青铜锁紧弯嘴旋塞



Unit Per Pc.

CODE	75 20 76	75 20 77	75 20 78	75 20 79
Nominal Size	M20	M24	M30	M36

Bronze Union Valves
Male & Female Ends

Grifo Union Macho-Hembra, Bronce
青銅ユニオンバルブ　青铜管阀



Unit Per Pc.

CODE	75 20 81	75 20 82	75 20 83	75 20 84
Nominal Size	PT-3/8	PT-1/2	PT-3/4	PT-1

Needle Valves

Brass Needle Valves
with Ring Joint & Nut for Copper Tubing

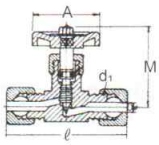
Válvulas de aguja de latón　真鍮ニードルバルブ　黄铜针阀

For controlling flow of liquids or gases requiring close regulating. Made of brass rods and brass except for the gland of "O" rings. Applicable temperature will be –20°C to 100°C and the maximum pressure will be 3.43 MPa [35 kgf/cm^2]. Recommended for use at less than 80% of maximum load pressure at temperatures between 80°C and 100°C.

Brass Needle Straight Valves
with Ring Joint Nut Both Ends

Válvulas rectas de aguja de latón
真鍮ニードルストレートバルブ　黄铜针形直通阀



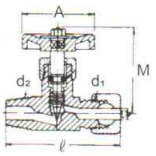


Unit Per Pc.

CODE	Nominal Size	For Tube OD "D" mm	Thread d_1	Length L mm	Height M mm
75 21 01	6 × 1/4	6	PF-1/4	57	37
02	8 × 3/8	8	" 3/8	68	42
03	10 × 3/8	10	" 3/8	85	50
04	12 × 1/2	12	" 1/2	91	50
05	14 × 1/2	14	" 1/2	93	50

Brass Needle Straight Valves
with Ring Joint Nut and Male Thread

Válvulas rectas de aguja de latón
真鍮ニードルストレートバルブ　黄铜针形直通阀



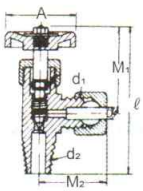
Unit Per Pc.

CODE	Nominal Size	For Tube OD "D" mm	Thread d_1	Thread d_2	Length L mm	Height M mm
75 21 06	6 × 1/8	6	PF-1/4	PT-1/8	57	37
07	6 × 1/4	6	" 1/4	" 1/4	53	37
08	8 × 1/4	8	" 3/8	" 1/4	66	42
09	10 × 3/8	10	" 3/8	" 3/8	77	50
10	12 × 1/2	12	" 1/2	" 1/2	80	50
75 21 11	14 × 1/2	14	PF-1/2	PT-1/2	81	50

Brass Needle Angle Valves
with Ring Joint Nut at Outlet

Ángulo de aguja de latón Válvulas

真鍮ニードルアングル弁　黄铜针型角阀



Unit Per Pc.

CODE	Nominal Size	For Tube OD "D" mm	Thread d_1	Thread d_2	Length L mm	Height M mm
75 21 16	6 × 1/8	6	PF-1/4	PT-1/8	55	27
17	6 × 1/4	6	" 1/4	" 1/4	58	27
18	8 × 1/4	8	" 3/8	" 1/4	65	28
19	10 × 3/8	10	" 3/8	" 3/8	73	34
20	12 × 1/2	12	" 1/2	" 1/2	76	39
75 21 21	14 × 1/2	14	PF-1/2	PT-1/2	76	40

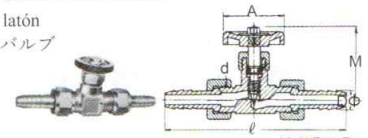
Brass Needle Valves
with Corrugated Hose Ends

Válvulas de aguja de latón　ホース口付真鍮ニードルバルブ　黄铜针阀

For controlling flow of liquids or gases requiring close regulating. Brass rod material made body and bonnet except for the gland "O" rings. The applicable temperature will be –20°C to 100°C and the maximum pressure will be 1.47 MPa[15 kgf/cm^2]. Recommended for use at less than 80% of maximum load pressure at temperatures between 80°C to 100°C.

Brass Needle Straight Valves
with Both Corrugated Hose Ends

Válvulas rectas de aguja de latón
真鍮ニードルストレートバルブ
黄铜针形直通阀

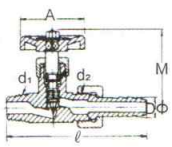


Unit Per Pc.

CODE	Nominal Size	For Hose ID mm	Thread d_1	Wheel Dia.	Length L mm	Height M mm
75 21 36	8 × 1/4	8	PF-1/4	35	95	37
37	9.5 × 3/8	9.5	" 3/8	35	109	42
38	11 × 3/8	11	" 3/8	35	115	42

Brass Needle Straight Valves
with Corrugated Hose End & Male Thread

Válvulas rectas de aguja de latón
真鍮ニードルストレートバルブ　黄铜针形直通阀

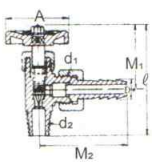


Unit Per Pc.

CODE	Nominal Size	For Hose ID. mm	Thread		Length L mm	Height M mm
			d_1	d_2		
75 21 41	8 × 1/8	8	PF-1/4	PT-1/8	72	37
42	8 × 1/4	8	" 1/4	" 1/4	73	37
43	9.5 × 1/4	9.5	" 3/8	" 1/4	87	42
44	11 × 1/4	11	" 3/8	" 1/4	89	42

Brass Needle Angle Valves
with Corrugated Hose End & Male Thread

Ángulo de aguja de latón Válvulas
真鍮ニードルアングル弁　黄铜针型角阀



Unit Per Pc.

CODE	Nominal Size	For Hose ID. mm	Thread		Length L mm	Height M mm
			d_1	d_2		
75 21 46	8 × 1/8	8	PF-1/4	PT-1/8	55	46
47	8 × 1/4	8	" 1/4	" 1/4	58	46
48	9.5 × 1/4	9.5	" 3/8	" 1/4	65	54
49	11 × 3/8	11	" 3/8	" 1/4	65	56

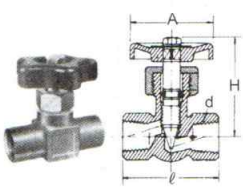
Brass Needle Valves
Threaded

Válvulas de Aguja Roscada de Latón
ねじ込式真鍮ニードルバルブ 黄铜针阀

For controlling flow of liquids or gases requiring close regulating. Brass rod material made body and bonnet with nitrile "O" rings and heat-resist plastic handles. The applicable temperature is –20°C to 100°C and the maximum pressure is 5.88 MPa [60 kgf/cm²] at 80°C.

Brass Needle Straight Valves
Both Female Ends

Válvulas rectas de aguja de latón
真鍮ニードルストレートバルブ
黄铜针形直通阀

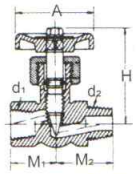


Unit Per Pc.

CODE	Nominal Size	Thread d	Dimensions mm		
			L	H	A
75 21 51	1/8	PF-1/8	35	37	35
52	1/4	" 1/4	40	45	35
53	3/8	" 3/8	50	50	45
54	1/2	" 1/2	70	65	55

Brass Needle Straight Valves
Male & Female Ends

Válvulas rectas de aguja de latón
真鍮ニードルストレートバルブ
黄铜针形直通阀

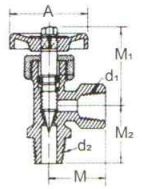


Unit Per Pc.

CODE	Nominal Size	Thread		Dimensions mm		
		d_1	d_2	M_1+M_2	H	A
75 21 56	1/8 × 1/8	PT-1/8	PT-1/8	37	37	35
57	1/4 × 1/4	" 1/4	" 1/4	45	45	35
58	3/8 × 3/8	" 3/8	" 3/8	56	50	45
59	1/2 × 1/2	" 1/2	" 1/2	72	65	55

Brass Needle Angle Valves
Male & Female Ends

Ángulo de aguja de latón Válvulas
真鍮ニードルアングル弁　黄铜针型角阀



Unit Per Pc.

CODE	Nominal Size	Thread		Dimensions mm		
		d_1	d_2	M_1+M_2	H	A
75 21 61	1/8 × 1/8	PT-1/8	PT-1/8	56	20	35
62	1/4 × 1/4	" 1/4	" 1/4	64	25	35
63	3/8 × 3/8	" 3/8	" 3/8	75	30	45
64	1/2 × 1/2	" 1/2	" 1/2	97	38	55

Butterfly Valves

Butterfly Valves

Válvulas de Mariposa　バタフライバルブ　碟形阀

Compared with conventional gate and globe valves, butterfly valves achieve high performance near to perfection with its pressure resistance and durability.
Especially in vessels, the Butterfly Valves enjoy high reliability and when compared with the conventional valves, the Butterfly Valves are excellent in the following aspects: (1) light and compact, (2) maintenance is easy, (3) labour-saving ease of operation, and (4) low cost.

Model 700G/705G

Standard Specifications

Nominal Size	40 to 300 mm	350 to 600mm
Applicable Flange Standard	JIS 5K/10K, ANSI 125/150 lb, DIN NP10/16, BS 4504 PN10/16, BS 10"E" *Model 700G: only JIS 5K/10K is available from 350-600 mm	
Face to Face Dimensions	JIS B2002 (46 series)/ ISO 5752 wafer butterfly valve(short)	
Max. Working Pressure	1.0 MPa	
Working Temperature Range	NBR : -10 to 80°C EPDM : -20 to 120°C (on request)	

Standard Materials

Body	Ductile iron, JIS FCD450	Cast iron, JIS FC 250
Disc	316 stainless steel, JIS SCS14	304 stainless steel, JIS SCS13
	PPS (40 to 200 mm)	
	Ductile iron, JIS FCD 450 (80 to 300 mm)	Ductile iron, JIS FCD 450 (with hard chrome plating)
Stem	SUS420J2	
Seat Ring	NBR, EPDM	

Actuators		
Lock Lever	40 to 200 mm	-
Worm Gear	40 to 300 mm	350 to 600 mm
Center Handle	40 to 300 mm	-
Pneumatic Cylinder	40 to 300 mm	350 to 600 mm
Motorized	40 to 300 mm	350 to 600 mm

Remark: *Never use an EPDM rubber seat ring if the valve being used for oil or for a fluid containing even a slight amount of oil.
The 316 stainless steel (JIS SCS14) rib disc comes standard from 50 mm to 300 mm.

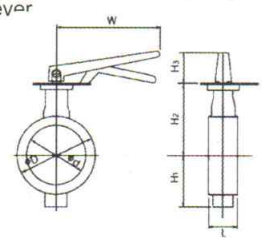
1. Lock Lever Actuator

Generally used in small diameters. Opening and closing operations can be done with a light one-touch device, by turning the lever to only 90 degrees. Moreover, flow regulation is available with a ten-step locking device. Opening degrees are indicated by the tip of the lever.



Wafer Type
Model: 700G

Semi Lugged Type
Model: 705G



Model 700G (Wafer Type)

How to order: CODE

Butterfly valve, wafer type with lock lever, NOMINAL SIZE

Unit Per Pc.

CODE	Nom Size		Dimension (mm)								Weight
	mm	Inch	φd	φD	L	H1	H2	H3	W		kg
75 22 08	40	1-1/2	45	80	35	61	132	66	200		2.1
01	50	2	56	90	43	68	138	66	200		2.4
02	65	2-1/2	69	115	46	79	151	66	200		3.1
03	80	3	84	126	46	86	156	66	200		3.2
04	100	4	104	146	52	103	167	66	200		4
75 22 05	125	5	130	181	56	118	191	92	300		6.7
06	150	6	153.5	211	56	135	202	92	300		8.3
07	200	8	199	256	60	177	227	97	350		12.1

Name of Mfr.: Tomoe Valve Co., Ltd. Model: 700G-1T

Model 705G (Semi Lugged Type)

How to order: CODE

Butterfly valve, semi lugged type with lock lever, NOMINAL SIZE

Unit Per Pc.

CODE	Nom Size		Dimension (mm)							Weight
	mm	Inch	φd	φD	L	H1	H2	H3	W	kg
75 22 09	50	2	56	90	43	85	138	66	200	3.1
10	65	2-1/2	69	115	46	94	151	66	200	4.1
28	80	3	84	126	46	109	156	66	200	4.6
29	100	4	104	146	52	117	167	66	200	5.6
30	125	5	130	181	56	143	191	92	300	9.3
75 22 46	150	6	153.5	211	56	164	202	92	300	12.3
47	200	8	199	256	60	186	227	97	350	16.7

Name of Mfr.: Tomoe Valve Co., Ltd. Model: 705G-1T

2. Worm Gear Actuator

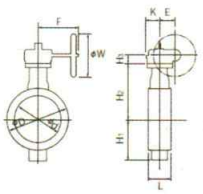
Gear reduction is available by the worm and worm wheels incorporated, opening the disc very lightly, leading to non-step adjustment of flow.
In addition, a stopper bolt is fitted to the fully closed and fully opened positions, hence accurate positions can be taken.

Furthermore, the opening angle of the disc can be read by the indicator at the upper part of the gear box. "Close" is effected by revolving clockwise, and "Open" by revolving anticlockwise, with the manual handle.



Wafer Type
Model: 700G

Semi Lugged Type
Model: 705G



Model 700G (Wafer Type)

How to order: CODE

Butterfly valve, wafer type with worm gear, NOMINAL SIZE

Unit Per Pc.

CODE	Nom Size		Dimension (mm)								Weight
	mm	Inch	φd	φD	L	H1	H2	H3	F	W	kg
75 22 27	40	1-1/2	45	80	35	61	132	29.5	160	100	3.8
11	50	2	56	90	43	68	138	29.5	160	100	4.1
12	65	2-1/2	69	115	46	79	151	29.5	160	100	4.8
13	80	3	84	126	46	86	156	29.5	160	100	4.9
14	100	4	104	146	52	103	167	29.5	160	100	5.7
75 22 15	125	5	130	181	56	118	191	34.5	173.5	160	9.6
16	150	6	153.5	211	56	135	202	34.5	173.5	160	11.2
17	200	8	199	256	60	177	227	41.5	198	200	18
18	250	10	253	322	68	215	280	41.5	198	200	26
19	300	12	302	367	78	253	312	48	222.5	200	39
75 22 20	350	14	337	410	78	276	348	48	222.5	280	58
21	400	16	394	469	102	338	383	50	266	280	80
22	450	18	441	525	114	368	413	50	266	280	103
23	500	20	492	580	127	403	453	50	266	280	130
24	550	22	540	608	154	410	523	-	392	450	199
75 22 25	600	24	589	658	154	445	558	-	392	450	233
61	650	26	634	708	170	468	647	-	421	390	350
62	700	28	684	756	165	496	722	-	454	390	410
63	750	30	731	810	190	540	762	-	454	390	495
64	800	32	781	860	190	570	792	-	454	390	575

Name of Mfr.: 40-500 mm & 600 mm - Tomoe Valve Co.,Ltd.
Model 700G-2U
550 mm & 650-800 mm - Okumura Engineering Corp.
Model 615X

Model: 705G (Semi Lugged Type)

How to order: CODE

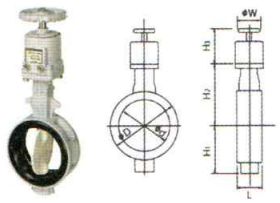
Butterfly valve, semi lugged type with worm gear, NOMINAL SIZE

Unit Per Pc.

CODE	Nom Size		Dimension (mm)								Weight
	mm	Inch	φd	φD	L	H1	H2	H3	F	W	kg
75 22 65	50	2	56	90	43	85	138	29.5	160	100	4.8
66	65	2-1/2	69	115	46	94	151	29.5	160	100	5.8
67	80	3	84	126	46	109	156	29.5	160	100	6.3
68	100	4	104	146	52	117	167	29.5	160	100	7.3
69	125	5	130	181	56	143	191	34.5	173.5	160	12.2
75 22 70	150	6	153.5	211	56	164	202	34.5	173.5	160	16
71	200	8	199	256	60	186	227	41.5	198	200	23
72	250	10	253	322	68	215	280	41.5	198	200	32
73	300	12	302	367	78	253	312	48	222.5	200	45
74	350	14	337	410	78	276	348	48	222.5	280	63
75 22 75	400	16	394	469	102	338	383	50	266	280	91
76	450	18	441	525	114	368	413	50	266	280	115
77	500	20	492	580	127	403	453	50	266	280	145
78	550	22	540	608	154	410	523	-	392	450	199
79	600	24	589	658	154	445	558	-	392	450	223
75 22 80	650	26	634	708	170	468	647	-	421	390	350
81	700	28	684	756	165	496	722	-	454	390	410
82	750	30	731	810	190	540	762	-	454	390	495
83	800	32	781	860	190	570	792	-	454	390	575

Name of Mfr.: 50-500 mm & 600 mm - Tomoe Valve Co.,Ltd.
Model 705G-2U
550 mm & 650-800 mm - Okumura Engineering Corp.
Model 615X

3. Center Handle Actuator



How to order: CODE

Butterfly valve, wafer type with center handle, NOMINAL SIZE

Unit Per Pc.

CODE	Nom Size		Dimension (mm)							Weight
	mm	Inch	φd	φD	L	H1	H2	H3	W	Kg
75 22 31	40	1-1/2	45	80	35	61	132	136	100	4.4
32	50	2	56	90	43	68	138	136	100	4.7
33	65	2-1/2	69	115	46	79	151	136	100	5.4
34	80	3	84	126	46	86	156	136	100	5.5
35	100	4	104	146	52	103	167	136	100	6.3
75 22 36	125	5	130	181	56	118	191	133	100	9.2
37	150	6	153.5	211	56	135	202	133	100	10.8
38	200	8	199	256	60	177	227	151	200	17.5
39	250	10	253	322	68	215	280	151	200	25.1
40	300	12	302	367	78	253	312	161	200	32.1
75 22 41	350	14	337	410	78	276	348	409	355	75
42	400	16	394	469	102	338	383	409	355	97
43	450	18	441	525	114	368	413	409	355	121
44	500	20	492	580	127	403	453	409	355	148
45	600	24	584	682	154	458	528	498	450	244

Name of Mfr.: Tomoe Valve Co.,Ltd.
700G-2G (40 mm - 300 mm)
700G-2R (350 mm - 600 mm)

Besides the above types of actuator, the following types are also available on request:
1. Pneumatic Cylinder
2. Motorized

Double Flanged Large Diameter Butterfly Valves

Válvulas de mariposa de gran diámetro y doble brida
ダブルフランジ式大口径バタフライバルブ　双法兰大口径蝶阀

Model 700E

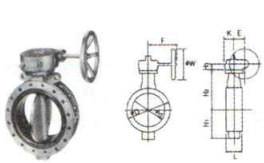
For various applications in water treatment, shipbuilding, air conditioning, petrochemical, power generation and other industries.

Standard Specifications	
Valve Nominal Size	650 to 1,350 mm
Applicable Flange Standard	JIS 5K/10K
Face to face Dimensions	Manufactured standard
Max. Working Pressure	1.0 MPa
Working Temperature Range	NBR: -10 to 80 deg. C EPDM: -20 to 120 deg. C (on request)
Standard Materials	
Body	FC 250
Disc	FCD 450 (hard chrome plating), SCS13
Stem	SUS403
Seat Ring	EPDM* / NBR

Remark: *Never use an EPDM rubber seat ring if the valve being used for oil or for a fluid containing even a slight amount of oil.

Worm Gear Actuator

Actuador de tornillo sin fin
ウォームギア・アクチュエーター
蜗轮传动执行机构



How to order: CODE

Butterfly valve, double flangd, wafer type with worm gear, NOMINAL SIZE

Unit Per Pc.

CODE	Nom Size		Dimension (mm)								Weight
	mm	Inch	φd	φD	L	H1	H2	H3	F	W	kg
75 22 51	650	26	627	845	170	558	510	65	400	450	363
52	700	28	670	905	180	629	560	75	457	500	487
53	750	30	723	970	190	659	590	75	457	500	547
54	800	32	772	1,020	200	679	620	75	457	500	617
55	850	34	822	1,070	210	709	650	100	490	500	780
75 22 56	900	36	858	1,120	230	759	685	100	490	500	855
57	1,000	40	975	1,235	250	819	745	100	490	500	1,384
58	1,100	44	1,070	1,345	280	874	820	100	490	500	1,584
59	1,200	48	1,170	1,465	300	948	880	100	490	500	1,984
60	1,350	54	1,314	1,630	330	1,030	960	151	675	600	2,436

Name of Mfr. : Tomoe Valve Co.,Ltd. Model: 700E-2S

Flange Dimensions

Nominal Size		JIS 5K		JIS 10K	
mm	Inch	Long Bolts & Nuts	Hex Bolts	Long Bolts & Nuts	Hex Bolts
650	26	16-M24x285x90	16-M24x65x54	16-M30x310x60	16-M30x80x66
700	28	16-M24x295x50	16-M24x65x54	16-M30x320x60	16-M30x80x66
750	30	16-M30x320x60	16-M30x75x66	16-M30x335x60	16-M30x80x66
800	32	16-M30x335x60	16-M30x75x66	20-M30x345x60	16-M30x80x66
850	34	16-M30x345x60	16-M30x75x66	20-M30x360x60	16-M30x80x66
900	36	16-M30x360x60	16-M30x75x66	20-M30x385x65	16-M30x85x66
1,000	40	20-M30x385x65	16-M30x85x66	20-M36x420x75	16-M36x100x78
1,100	44	20-M30x420x65	16-M30x85x66	20-M36x450x80	16-M36x100x78
1,200	48	24-M30x445x65	16-M30x85x66	24-M36x475x80	16-M36x100x78
1,350	54	24-M30x475x65	16-M30x85x66	24-M42x525x80	16-M42x100x90

Nominal Size		ASME B 16.47 Series A		BS 4504 NP10, DIN PN10	
mm	Inch	Long Bolts & Nuts	Hex Bolts	Long Bolts & Nuts	Hex Bolts
650	26	16-U1 1/4x390x70	16-U1 1/4x110x70	16-M20x200x45	-
700	28	20-U1 1/4x410x70	16-U1 1/4x110x70	16-M24x210x50	-
750	30	20-U1 1/4x425x70	16-U1 1/4x125x70	20-M24x250x50	-
800	32	20-U1 1/2x460x80	16-U1 1/4x125x80	16-M27x280x60	8-M27x60x50
850	34	24-U1 1/2x475x80	16-U1 1/4x135x80	16-M27x305x60	16-M27x65x54
900	36	24-U1 1/2x510x80	24-U1 1/2x510x80	16-M30x335x60	16-M30x65x54
1,000	40	28-U1 1/2x530x80	28-U1 1/2x530x80	20-M30x370x65	16-M30x75x66
1,100	44	32-U1 1/2x580x80	32-U1 1/2x580x80	20-M33x400x65	16-M33x90x72
1,200	48	36-U1 1/2x615x80	36-U1 1/2x615x80	24-M36x475x80	16-M36x100x78
1,350	54	-	-	-	-

Besides the above model, the following types of actuators are available on request:
1. Double-acting pneumaic cylinder type
2. Three phase motor actuator type

Guide of how to order

When ordering, please specify the following points:

How to order: 75 - 22 - 26

Butterfly valve, with the following information:

··· 1. Type pipe connection ····· Water Type, or Double Flanged Type
··· 2. Flange standard ····· JIS (kgf/cm²), ANSI (lbs)BS, DIN, etc.
··· 3. Nominal diameter ····· mm
··· 4. Name of fluid ·····
··· 5. Pressure and temperature of fluid ·····
··· 6. Flow ····· m^3/min.
··· 7. Material of body, disk, seat ·····
··· 8. Type of actuator ·····
··· 9. Operating power source··
10. Classification society of required·····

Butterfly Valves

Double Flanged with Gear Box Nodular Cast Iron, Undrille Model: KL700

Válvulas de Mariposa バタフライバルブ 碟形阀



A nodular cast iron double flanged butterfly valve with gear box. Flanges are undrilled.
Suitable for JIS 5K, 10K, PN10 & PN16.
Disc: Stainless steel, Seat: NBR

Unit Per Pc.

CODE	Size mm			Product No.
	Nom Size	Flange Dia	Face to Face	
75 23 02	50	165	41	KL700050
03	65	185	40	KL700065
04	80	200	60	KL700080
05	100	229	60	KL700100
06	125	254	100	KL700125
75 23 07	150	285	100	KL700150
08	200	343	100	KL700200
09	250	406	110	KL700250
10	300	483	110	KL700300

Name of Mfr.: Alligator

Butterfly Valves

Double Flanged with Gear Box Nodular Cast Iron Model: KL710



Válvulas de Mariposa バタフライバルブ 碟形阀

A nodular cast iron double flanged butterfly valve with gear box.
Nominal Pressure: 5 kgf/cm²
Disc: Stainless steel, Seat: NB

Unit Per Pc.

CODE	Size mm	Dimensions mm					Product No.
		Face to Face	Flange Dia	Flange Bolt Hole			
				Pitch	Number	Hole	
75 23 11	50	43	165	105	4	15	KL710050
12	65	45	185	130	4	15	KL710065
13	80	46	200	145	4	19	KL710080
14	100	60	229	165	8	19	KL710100
15	125	100	254	200	8	19	KL710125
75 23 16	150	100	285	230	8	19	KL710150
17	200	100	343	280	8	23	KL710200
18	250	110	406	345	12	23	KL710250
19	300	110	483	390	12	23	KL710300

Name of Mfr.: Alligator

Butterfly Valves

Double Flanged with Gear Box Nodular Cast Iron Model: KL720



Válvulas de Mariposa バタフライバルブ 碟形阀

A nodular cast iron double flanged butterfly valve with gear box.
Nominal Pressure: 10 kgf/cm²
Disc: Stainless Steel, Seat: NBR

Unit Per Pc.

CODE	Size mm	Dimensions mm					Product No.
		Face to Face	Flange Dia	Flange Bolt Hole			
				Pitch	Number	Hole	
75 23 20	50	43	165	120	4	19	KL720050
21	65	45	185	140	4	19	KL720065
22	80	46	200	150	4	19	KL720080
23	100	60	229	175	8	19	KL720100
24	125	100	254	210	8	23	KL720125
75 23 25	150	100	285	240	8	23	KL720150
26	200	100	343	290	12	23	KL720200
27	250	110	406	355	12	25	KL720250

Name of Mfr.: Alligator

Diaphragm Valves

Diaphragm Valves

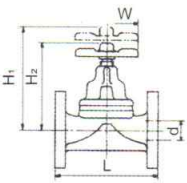
Válvulas de Diafragma ダイアフラムバルブ 隔膜阀

The basic construction of the diaphragm valve is quite simple. It is composed of three principal units called body, bonnet and diaphragm. It is particularly suitable for service lines handling corrosive, abrasive, viscous or fibrous fluids with the following advantages:

1. The most economical corrosion/abrasion resisting valve available today – versatile body and diaphragm materials.
2. Permanent bubble tightness against slurry, fibre and gases – resilient closure.
3. No contamination. The most suitable for the nuclear and food service – no gland packing.
4. Simple in-line maintenance – easy to disassemble and reassemble. Can be made without removing the body from the pipeline.

1. Weir Type Handwheel Operated Diaphragm Valves





Maximum Working Pressure at Room Temperature

Unit kgf/cm²

Diaphragm	Rubgber Diaphragm		Teflon Diaphragm	
Body / Nominal Size	Cast Iron Stainless Steel Bronze Rubber Lined	Glss Lined	Cast Iron Stainless Steel	Glass Lined Rubber lined Teflon Lined
15	14	10	10	10
20	14	10	10	10
25	14	10	7	7
40	14	10	7	7
50	14	7	7	7
65	10	7	7	7
80	10	7	7	7
100	10	5	7	5

Dimensions

Size in mm

Nominal Size	Actual Diam. d	Face to Face		Wheel Diam.	Open Height
		Unlined	Rubber Lines		
15	13	102	107	63	115
20	19	118	123	63	125
25	25	127	132	80	129
40	38	159	165	100	155
50	51	191	197	125	172
65	64	216	222	125	209
80	76	254	260	160	235
100	102	305	313	224	297

2. Weir Type Piston Operated Reverse Acting Valves (Air-to-Open, Spring-to-Close)



When it is desirable to close the valve in case of a failure in the supply of operating pressure, this type of valve is recommended. Actuators are supplied in 2 kgf/cm² and 4 kgf/cm² operating pressure.

3. Weir Type Piston Operated Direct Acting Valves (Spring-to-Open, Air-to-Close)

When it is desirable to open the valve in case of a failure in the supply of operating pressure, this type of valve is recommended.

4. Weir Type Piston Operated Double Acting Valves (Air-to-Open, Air-to-Close)

Being a springless type valve, the double acting valve is much more compact than the reverse acting valve and the direct acting valve. This type of valve may serve as either a normal open type or a normal closed type valve depending on the control scheme.

5. Straight Way Type Handwheel Operated Valves

The hand wheel operated valve has the usual features of the weir type diaphragm valve plus the features of the sluice valves. When fully opened, it forms a straight-transfer passage as in a pipeline.

Guide of how to order

When ordering, please specify the following points,

How to order: 75 - 23 - 01

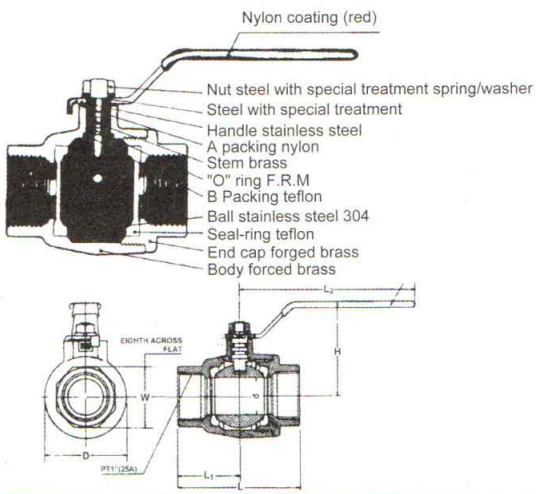
Diaphragm valve, with the following information:

1. Name of fluid to be used ...
2. Type of flow ..... Weir type, or straight way type
3. Size ..... Nominal size
4. End connection..... Screwed or flanged
5. Body material..... Cast iron, ductile iron, etc.
6. Diaphragm material ... Neoprene, natural rubber, etc.
7. Operation ..... Handwheel operated or pneumatically operated

Ball Valves

Forged Brass Screwed End Ball Valves

Válvulas de Bola Roscada de Latón Forjado
黄銅ねじ込ボールバルブ　螺旋式铸造黄铜球阀



Service fluid	Water, oil, gas, air, etc.
Max. working pressure	1.96 MPa [20 kgf/cm²]
Range of temperature used	-10°C +120°C

Unit Per Pc.

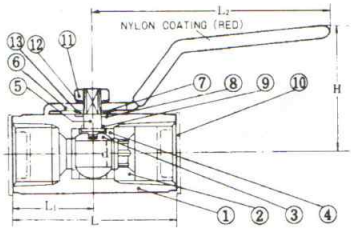
CODE	Size	Dimensions mm			
		d	L	H	W
75 24 01	PT 3/8	10	51.1	46	22
02	1/2	15	61	48	27
03	3/4	20	74.5	55	32
04	1	25	90.5	59	41
05	1-1/4	32	103.8	74	50
75 24 06	PT 1-1/2	40	117	80	55
07	2	50	135	88	70

* Screwed end available BSPT, NPT.

Stainless Steel Screwed End Ball Valves

Válvulas de Bola Roscada de Acero-inoxidable
ステンレスねじ込ボールバルブ　螺旋式不锈钢球阀

Service fluid	Oil, gas and corrosiive chemical liquid
Max. working pressure	3.29 MPa [40 kgf/cm²]



No.	Description	Material
1	Valve Body	SUS 316
2	End Cap	SUS 316
3	Ball	SUS 316
4	Seat	Reinforced Teflon
5	Stem	SUS 316
6	Handle	SUS 430
7	Gland Washer	SUS 316
8	A Packing	Reinforced Teflon
9	B Packing	Reinforced Teflon
10	Dust Proof Cap	Polyethylene
11	Nut	SUS 316
12	Toothed Lock Washer	SUS 304
13	Conical Spring Washer	SUS 304

Unit Per Pc.

CODE	Size	Dimensions mm				
		d	L	L_1	L_2	H
75 24 11	PT 1/4	5	40	19	60	31
12	3/8	7.5	44.5	21.7	80	40
13	1/2	9	54.5	26.5	80	42
14	3/4	12.5	61	30	100	51
15	1	16	68.5	34.5	100	54
75 24 16	PT 1-1/4	21	78	39	150	66
17	1-1/2	24	82	41	150	69
18	2	32	100	50	150	75

* Screwed end available BSPT, NPT.

Ball Valves

Reduced Bore Type



Válvulas de bola, Tipo de paso reducido
ボールバルブ レデュースドボアタイプ
球阀缩径型

The stream through the reduced bore valve is one pipe size smaller than the valve's pipe size.
Suitable medium: Water, oil, air and corrosive liquid. Nominal pressure: 1.6-6.4 MPa. Blow out proofstem full port. Investment casting body. Locking device. Temperature: -20°C to +232°C

SUS304

Unit Per Pc.

CODE	Size BSPT Female	Alligator No.	CODE	Size BSPT Female	Alligator No.
75 33 01	1/4"	KR265006	**75 33 05**	1"	KR265025
02	3/8"	KR265010	**06**	1-1/4"	KR265032
03	1/2"	KR265015	**07**	1-1/2"	KR265040
04	3/4"	KR265020	**08**	2"	KR265050

SUS316

75 33 11	1/4"	KR270006	**75 33 15**	1"	KR270025
12	3/8"	KR270010	**16**	1-1/4"	KR270030
13	1/2"	KR270015	**17**	1-1/2"	KR270040
14	3/4"	KR270020	**18**	2"	KR270050

Name of Mfr.: Alligator

Y-strainers

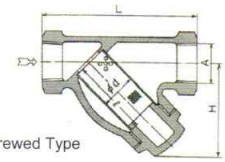
Pipeline Y-strainers

Filtros-Y paraOleoducto　Y型ストレーナー　管道Y-过滤器

Installed into pipelines to protect traps, regulators, pumps, meters, burners and lubricators against damage caused by foreign matters such as scale, dirt, etc. Among the wide variety of types of sizes of strainers, the most common models have been coded with the undermentioned specifications.

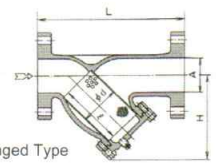
Bronze Y-strainer





Screwed Type





Flanged Type

Standard Feature		
Max working pressure	Screwed type	16 kgf/cm²
	Flanged type	10 kgf/cm²
Max working temperature		120°c
Material	Body	Bronze Casting (CAC406)
	Screen	Stainless Steel (SUS304)
Connection	Screw thread	Rc
	Flange rating	JIS 10 kgf/cm²

How to order: CODE

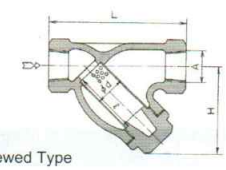
Pipeline Y-strainer, bronze, PRESSURE, TYPE of CONNECTION, SIZE mm

Unit Per Pc.

CODE	Size		Dimensions mm		Screen mm	
	mm(A)	Inch	L	H	Φd	L
Screwed Type (16 kgf/cm²)						
75 24 21	8A	1/4	75	55	18	40
22	10A	3/8	75	55	18	40
23	15A	1/2	80	55	18	40
24	20A	3/4	100	65	23	50
25	25A	1	115	75	30	60
75 24 26	32A	1-1/4	135	95	39	70
27	40A	1-1/2	150	100	44	75
28	50A	2	180	120	56	90
Flanged Type (10 kgf/cm²)						
75 24 31	10A	3/8	125	60	18	45
32	15A	1/2	125	60	18	45
33	20A	3/4	140	70	23	50
34	25A	1	160	80	30	60
35	32A	1-1/4	180	100	39	70
75 24 36	40A	1-1/2	190	105	44	75
37	50A	2	220	125	56	90
38	65A	2-1/2	270	180	78	120
39	80A	3	290	200	88	130
40	100A	4	350	240	110	180
75 24 41	125A	5	390	260	140	200
42	150A	6	440	320	170	240
43	200A	8	540	380	210	300

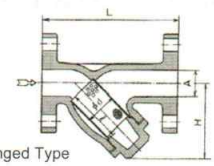
Cast Iron Y-strainer





Screwed Type





Flanged Type

Standard Feature		
Max working pressure	Screwed type	20 kgf/cm² *65·80A 16 kgf/cm²
	Flanged type	10 kgf/cm²
Max working temperature	Screwed type	200°C *65·80A 120°C
	Flanged type	120°C
Material	Body (Screwed)	Cast Iron (FCD450) *65·80A-FC200
	Body (Flanged)	Cast Iron (FC200)
	Screen	Stainless Steel (SUS304)
Connection	Screw thread	Rc
	Flange rating	JIS 10 kgf/cm²

How to order: CODE

Pipeline Y-strainer, cast iron, PRESSURE, TYPE of CONNECTION, Size mm

Unit Per Pc.

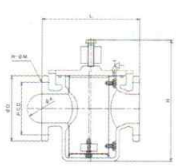
CODE	Size		Dimensions mm		Screen mm	
	mm(A)	Inch	L	H	Φd	L
Screwed Type (20 kgf/cm²) *65·80A 16 kgf/cm²						
75 24 46	8A	1/4	80	60	18	45
47	10A	3/8	80	60	18	45
48	15A	1/2	90	60	18	45
49	20A	3/4	105	75	23	50
50	25A	1	125	85	30	60
75 24 51	32A	1-1/4	145	100	39	70
52	40A	1-1/2	160	105	44	75
53	50A	2	180	125	56	90
54	65A	2-1/2	230	180	78	120
55	80A	3	240	190	88	130
Flanged Type (10 kgf/cm²)						
75 24 56	10A	3/8	125	70	18	45
57	15A	1/2	125	70	18	45
58	20A	3/4	140	75	23	50
59	25A	1	160	85	30	60
60	32A	1-1/4	180	105	39	70
75 24 61	40A	1-1/2	190	110	44	75
62	50A	2	220	130	56	90
63	65A	2-1/2	270	180	78	120
64	80A	3	290	200	88	130
65	100A	4	350	240	110	180
75 24 66	125A	5	390	260	140	200
67	150A	6	440	320	170	240
68	200A	8	540	380	210	300
69	250A	10	680	480	270	370
70	300A	12	840	600	320	480

Marine Can Water Filters

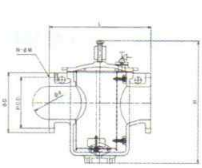
Marine Can Water Filters

Filtros Marinos de Agua　筒型水こし　船用筒型水过滤器

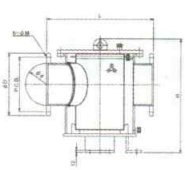
Made of casting steel and used for water pipelines in ship. Complete with inner strainer. Connecting flange size are conform to JIS 5K cm² standard.



25A-100A



125A-150A



200A-800A

Unit Per Pc.

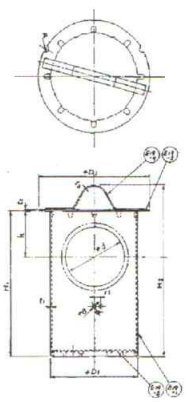
CODE	Nominal Diam. mm	Flange					Total Height mm	Weight Kg
		Face to Face mm	Diam. mm	Bolt				
				P.C.D. mm	No.	Diam. mm		
87 20 01	25	170	95	75	4	M10	178	5.8
02	40	190	115	90	4	M12	211	8.2
03	40	190	120	95	4	M12	211	8.4
04	50	200	130	105	4	M12	258	11.4
05	65	250	155	130	4	M12	314	18.5
87 20 06	80	270	180	145	4	M16	335	25.4
07	100	320	200	165	8	M16	391	35.7
08	131	400	235	200	8	M16	480	52.4
09	156	460	265	230	8	M16	573	71.6
10	200	550	320	280	8	M20	600	95
87 20 11	250	680	385	345	12	M20	725	150
12	300	760	430	390	12	M20	820	185
13	350	820	480	435	12	M22	920	245
14	400	880	540	495	16	M22	1,010	290
15	450	1,040	605	555	16	M22	1,230	440
87 20 16	500	1,130	655	605	20	M22	1,320	530
17	550	1,220	720	665	20	M24	1,380	720
18	600	1,310	770	715	20	M24	1,455	830
19	650	1,410	825	770	24	M24	1,514	1,150
20	700	1,500	875	820	24	M24	1,574	1,200
87 20 35	750	1,600	945	880	24	M30	1,630	1,390
36	800	1,700	995	930	24	M30	1,900	1,690

Filter Elements for Marine Can Water Filter

Repurstos para Filtros Marino

筒型水こし用エレメント　過滤器配件

Suitable for use with marine can water filter based on JIS F-7121 specification.
Made of stainless steel with light weight and tough structure.



Unit Per Pc.

CODE	Model	Size mm				Weight kg
		d	D1	D2	H1	
87 20 21	SWS II -FC-S-C- 25	33	50	68	109.1	0.17
22	SWS II -FC-S-C- 32	47	65	84	137	0.24
23	SWS II -FC-S-C- 40	47	65	84	137	0.28
24	SWS II -FC-S-C- 50	62	75	94	172	0.28
25	SWS II -FC-S-C- 65	78	100	125	218	0.42
87 20 26	SWS II -FC-S-C- 80	91	110	140	226	0.69
27	SWS II -FC-S-C-100	116	130	160	282	1.56
28	SWS II -FC-S-C-125	141	162	195	319	1.77
29	SWS II -FC-S-C-150	167	200	235	371	2.19
30	SWS II -SS-S-C-200	217	250	347	350	2.0
87 20 31	SWS II -SS-S-C-250	269	330	390	505	4.0
32	SWS II -SS-S-C-300	320	380	440	581	6.0
33	SWS II -SS-S-C-350	359	420	485	709	8.0
34	SWS II -SS-S-C-400	410	471	535	755	9.5
37	SWS II -SS-S-C-450	461	562	637	861	14.0
87 20 38	SWS II -SS-S-C-500	514	625	700	927	18.0
39	SWS II -SS-S-C-550	566	689	780	980	21.0
40	SWS II -SS-S-C-600	617	753	845	1,033	25.0
41	SWS II -SS-S-C-650	667	816	910	1,074	31.0
42	SWS II -SS-S-C-700	719	882	980	1,134	40.0
87 20 43	SWS II -SS-S-C-750	770	941	1,040	1,170	47.0
44	SWS II -SS-S-C-800	820	1,008	1,110	1,482	67.0

Name of Mfr. : Niikura Kogyo Co., Ltd.

Steam Traps

Steam Traps

Purgadores de Vapor　スチームトラップ　蒸汽冷凝罐

These steam traps automatically adjust themselves to operate at varying steam pressures, and feature a large condensate discharge capacity for such a compact design.
The small size of the traps means less heat and therefore energy is wasted by radiation. For protection against dirt and scale and to prolong trap service life, pipe strainers should be fitted on the inlet side of the trap. Among the wide variety of these traps in types and sizes, the most common types are described along with their specifications.

Thermodynamic Steam Trap

Purgador de vapor termodinámico

熱力学的蒸気トラップ　热动力式蒸汽疏水阀

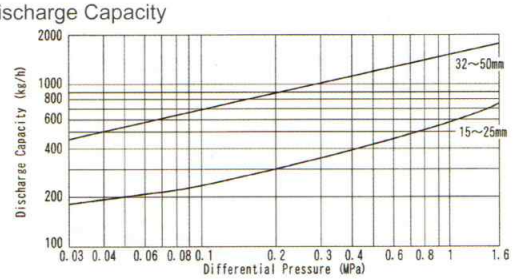


TLV A3N

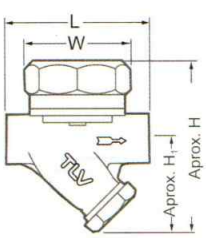
Specifications

Operating Pressure		Maximum	1.6 MPaG
		Minimum	0.03 MPaG
Maximum Operating Temperature			220°C
Material	Size	15-25 mm	Ductile Cast Iron
		32-50 mm	Cast Iron
	Main Components		Stainless Steel
Connection	Screwed		Rc (PT)
	Flanged		JIS 10KFF/20KRF ASME/JPI Class 150RF/300RF

Discharge Capacity



Dimensions

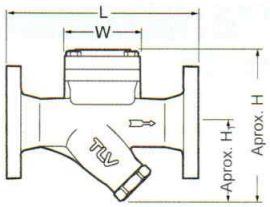


TLV A3N (Screwed)

A3N Screwed

Unit Per Pc.

CODE	Size		L	H	H1	W	Weight
	mm (A)	Inch	mm	mm	mm	mm	kg
75 24 81	15	1/2	98	125	70	71	1.5
82	20	3/4	104	125	70		1.6
83	25	1	112	135	75		1.8
84	32	1-1/4	175	194	104	104	7.2
85	40	1-1/2	180	193	105		7.4
86	50	2	195	208	109		8.8



TLV AF3N (Flanged)

AF3N Flanged

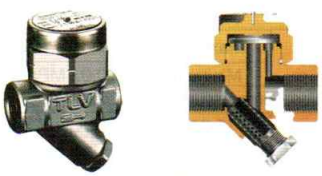
Unit Per Pc.

CODE	Size		L	H	H1	W	Weight
	mm (A)	Inch	mm	mm	mm	mm	kg
75 24 91	15	1/2	175	120	70		3.5
92	20	3/4	195	125	70	71	4.3
93	25	1	215	130	75		5.7
94	32	1-1/4	245	194	104		11
95	40	1-1/2	260	198	106	104	13
96	50	2	265	208	109		13

* Weight is for JIS10KFF

Thermodynamic Steam Trap

Purgador de vapor termodinámico
熱力学的蒸気トラップ　熱动力式蒸汽疏水阀

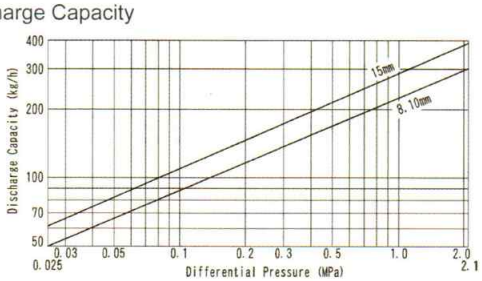


TLV P21S ver.C

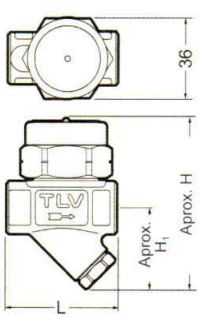
Specifications

Operating Pressure	Maximum	2.1 MPaG
	Minimum	0.025 MPaG
Maximum Operating Temperature		425°C
Material	Size 8-15 mm	Cast Stainless Steel
	Main Components	Stainless Steel
Connection	Screwed	Rc (PT)

Discharge Capacity



Dimensions



TLV P21S ver.C (Screwed)

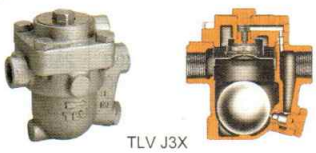
P21S ver.C Screwed

Unit Per Pc.

CODE	Size		L	H	H1	Weight
	mm (A)	Inch	mm	mm	mm	Kg
75 24 80	8	1/4	50	77	37	0.35
87	10	3/8				
88	15	1/2	68	82	39	0.46

Mechanical Steam Trap

Purgador de Vapor Mecánico
機械式スチームトラップ
机械式蒸汽疏水阀

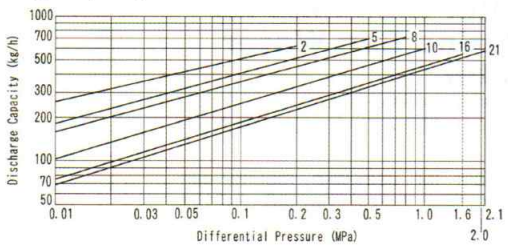


TLV J3X

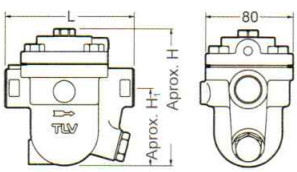
Specifications

Operating Pressure	Orifice No.	2, 5, 8, 10, 16, 21
	Maximum	0.2, 0.5, 0.8, 1.0, 1.6, 2.1 MPaG
	Minimum	0.01 MPaG
Maximum Operating Temperature		220°C
Material	Size 15-25 mm	Ductile Cast Iron /Cast Iron
Connection	Screwed	Rc (PT)
	Flanged	JIS 10KFF/20KRF ASME/JPI Class 150RF/300RF

Discharge Capacity



Dimensions

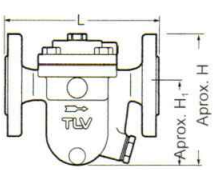


TLV J3X (Screwed)

J3X Screwed

Unit Per Pc.

CODE	Size		L	H	H1	Weight
	mm (A)	Inch	mm	mm	mm	kg
75 24 89	15	1/2	120	130	75	2.7
90	20	3/4			72.5	2.8
97	25	1		137	75	3.0



TLV JF3X (Flanged)

JF3X Flanged

Unit Per Pc.

CODE	Size		L	H	H1	Weight
	mm (A)	Inch	mm	mm	mm	kg
75 24 98	15	1/2	175	130	80	3.8
99	20	3/4	195	135	90	4.4
75 25 00	25	1	215	140	95	5.5

* Weight is for JIS10KFF

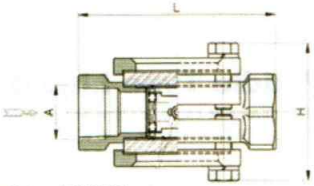
Flow Indicators

Flapper Type Sight Flow Indicators

Indicadores visuales de caudal tipo clapeta
フラッパー式サイトフローインジケーター　活瓣式视流量指示器

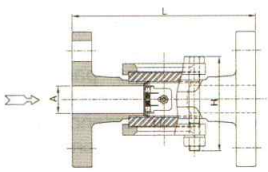
Cast iron flow indicator used for the visual inspection of the level of liquid flow through pipes and valves. The indicator is comprised of a gravity loaded swing flap which is lifted when fluid flows through the line. Used in pipes where there is no back flow. Stainless steel indicators are also available upon request.





Screwed Type (FCD450)





Flanged Type (FC200)

Standard Feature		
Maximum working pressure		10 kgf/cm²
Maximum working temperature		150
Connection	Screw thread	Rc
	Flange rating	JIS 10 kgf/cm²

How to order: CODE

Flow indicator, flapper type, cast iron, SCREWED or FLANGED type, NOMINAL BORE

Unit Per Pc.

CODE	Size		Dimensions mm	
	mm(A)	Inch	L	H
Screwed Type (FCD450)				
75 25 01	8A	1/4	70	52
75 25 02	10A	3/8	70	52
75 25 03	15A	1/2	95	65
75 25 04	20A	3/4	100	70
75 25 05	25A	1	120	84
75 25 06	32A	1-1/4	140	108
75 25 07	40A	1-1/2	145	116
75 25 08	50A	2	160	134
Flanged Type (FC200)				
75 25 11	15A	1/2	150	66
75 25 12	20A	3/4	150	71
75 25 13	25A	1	170	87
75 25 14	32A	1-1/4	200	113
75 25 15	40A	1-1/2	200	118
75 25 16	50A	2	220	138
75 25 17	65A	2-1/2	270	162
75 25 18	80A	3	270	178
75 25 19	100A	4	320	210
75 25 20	125A	5	380	263
75 25 21	150A	6	420	288
75 25 22	200A	8	500	350

Note: Max. working pressure for 150A = 7.5 kgf/cm²
" for 200A = 4.5 kgf/cm²

Oil Flowmeters

Caudalímetros de aceite　オイル流量計　油流量计

These oil flowmeters are positive displacement type flow meters which are used in a wide variety of applications including measuring of boiler fuel oil and diesel oil, as well as for transactions of kerosene, light oil and heavy oil.



Gear Type



Roots Type

Gear Type

This flowmeter employs a gear-type rotor for small-volume flow of low-viscosity oil in heat control applications, etc. It can be used without modification to measure kerosene, light oil, or heavy oil. Measuring accuracy is ±0.5 %.

Roots Type

This flowmeter is widely used for transaction and in other applications. The roots rotor rotates without physical contact, resulting in extremely low pressure loss. In addition, its accuracy remains virtually unchanged over a long period of time.

Standard Specifications

Accuracy	± 0.5%
Max. working pressure	10 kgf/cm²
Hydraulic test pressure	20 kgf/cm²
Max. working temperature	50°C for kerosene and light oil, 100°C for heavy oil

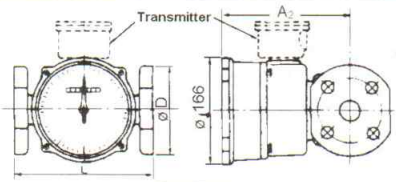
Flange rating		JIS kgf/cm² FF
Material	Body	Cast Iron
	Rotor	Gear type: Bronze or phenol resin
		Roots type: Aluminium alloy casting
Counter unit		Integrating pointer and integrating counter (a reset counter is also available.)
Electrical transmitter unit	Transmitter	Reed switch (S): Microswitch (M)
	Power supply	AC 100V 50/60 Hz as standard
	Number of pulse	0 - 5 PPS
	Output signal	ON-OFF contact
	Transmission cable	2-core cabtyre cable
Flow direction		Right → Left

Specifications for each type-1

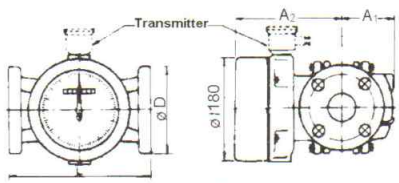
Type	Bore (mm)	Pointer (ltr/rev)	Integrating counter	
			Number of digits	Minimum unit (ltr)
Gear type	15	1	7	1
	20			
	25	10		10
Roots type	40	10	7	10
	50	10	7	10
	80	100	7	100

Specifications for each type-2

Type	Type of Transmitter	Flow range (ltr / h) (Accuracy : =0.5%)			
		Fluid		Kerosene. Light oil	A heavy oil
		Viscosity		1.2 - 3 cP	10 cP -
Gear type	Reed switch	Normal operation		10 - 200	5 - 200
				40 - 1,250	20 - 1,250
				150 - 3,000	50 - 3,000
Roots type	Micro switch	Normal operation	Intermittent	800 - 6,000	100 - 7,000
			Continuous	800 - 4,500	100 - 6,000
		Max.		7,000	8,000



Gear Type

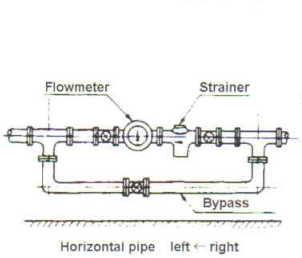


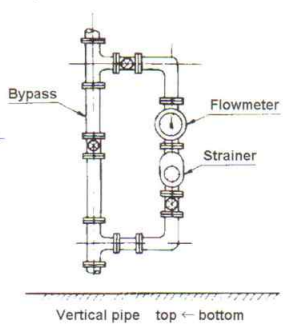
Roots Type

Dimension table

Type	Dimensions (mm)	Flange dimensions (mm)				Approx. weight (kg)
		øD	L	A1	A2	
Gear type	15	95	130	-	181	6.0
	20	100	170	-	176	7.0
	25	125	200	-	187	10.0
Roots type	40	140	200	77	177	17.0
	50	155	250	99	190	20.0
	80	185	300	125	206	40.0

Precautions during piping and operation





Guide of how to order

When ordering, please specify the following points,

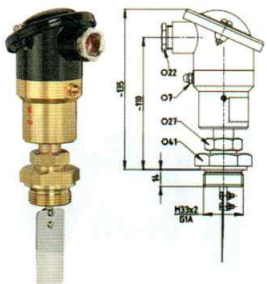
How to order: 75 - 25 - 31

Flowmeter with the following information :

1. Type (Gear type or Roots type)
2. Fluid Name
3. Transmission Unit (In case of a flowmeter with transmitter)
4. Specify the following only when they deviate from the standard specifications.
   a. Flow direction
   b. Paint colour
   c. Power supply
   d. Cable connect standards
   e. Attachment for fitting counter unit by 45°

Paddle Type Liquid Flow Switches

Interruptores de caudal de líquido tipo paleta
パドル型液体スイッチ　桨式液体流量开关



For detecting the incoming flow or movement of the existing water or oil in the pipe, by utilizing the force of liquid flow to propel its paddle. Insert installation into pipe or T-pieces DN 25 to DN 50 or larger. Four paddles in different sizes included to be selected in accordance to the pipe size. Robust construction and vibration proof to 4g. Wide set point ranges and universally insertable. Setpoint adjustment by paddle size selection and by adjustment screw. Micro switch with high contact rating. Approved by DNV, Certificate No: TAA000011M

Technical Data

Max. pressure rating	: 6 bar or 10 bar	
Max. test pressure	: 10 bar or 15 bar	
Max. medium temperature	: 100°C	
Max. ambient temperature	: 85°C	
Change over contact, max. contact rating	: 24V DC,	5 A resistance load, 4 A inductive load
	60V DC	1 A resistance load, 0.5 A inductive load
	250V AC	10A resistance load, 10 A inductive load
Protection class	: IP 54	
Material	: Brass	

Unit Per Pc.

CODE	Size of Pipe	Target Plate mm	Set Point Ranges H2O bis 2 Bar [m³/h]*	
			ON	OFF
Thread Connection : 1" BSP Male (Code VH 500 NI)				
75 25 35	DN 25	25 x 30	1.00...1.25	1.05...1.20
36	DN 32	25 x 38	1.70...2.05	1.60...1.95
37	DN 40	25 x 46	2.20...2.55	2.10...2.45
38	DN 50	25 x 58	3.25...3.85	3.15...3.75
Thread Connection : M33 x 2 (Code VH 500 NM)				
75 25 41	DN 25	25 x 30	1.00...1.25	1.05...1.20
42	DN 32	25 x 38	1.70...2.05	1.60...1.95
43	DN 40	25 x 46	2.20...2.55	2.10...2.45
44	DN 50	25 x 58	3.25...3.85	3.15...3.75

Note: *) Higher set points selectable by use of smaller paddle sizes. Tolerance of the set point ranges: ±15%, set points for bigger pipe sizes on request.

Name of Mfr. : SIKA

Engine Indicator Valves

Válvulas indicadoras del motor
エンジン・インジケータ・バルブ　发动机指示阀

The connection between the engine and the indicator for accurate measurement.

Images	Specifications
 1715 Long	- Divided spindle - 3/4" connection for SKL engine - Option with thread cup - Height: 148 mm
 1715	- With divided spindle - All connection thread customer wish - Option with thread cup - Height: 105 mm - Angle: 45°
 1715/1	- Swinging, divided spindle - All connection thread customer wish - Option with thread cup - Height: 128 mm - Angle: 45°
 1720	- Divided spindle - Corner Valve - All connection thread customer wish - Option with thread cup - Height: 116 mm
 1725	- All connection thread customer wish - Option with thread cup - Height: 116 mm

Unit Per Pc.

CODE	Type	Max. Working Pressure	CODE	Type	Max. Working Pressure
75 26 21	1715 Long	250 bar	**75 26 24**	1720	250 bar
22	1715		**25**	1725	250 bar
23	1715/1				

Sleeve Packing

for Diesel Engine Indicator Cocks

Janta Grifo Nivel　スリーブパッキング　套筒填料

Made of pressed non-asbestos joint sheets heat resisting. When ordering, specify packing size, if not, inner and outer diameters as well as height.



Unit Per Pc.

CODE	No.	Size mm ID x OD x H	CODE	Type	Size mm ID x OD x H
75 26 51	AB-12	12 x 18 x 22	**75 26 56**	AB-32H	32 x 45 x 84
52	18	18 x 26 x 32	**57**	40	40 x 58 x 94
53	22	22 x 33 x 37	**58**	50	50 x 70 x 106
54	28	28 x 38 x 54	**59**	70	70 x 94 x 134
55	32	32 x 45 x 74			

Sleeve Packing Replacing Instruments

Janta Grifo Nivel　スリーブパッキング　石棉套筒盼更

2 pcs in a set. One is for extracting and another is for inserting sleeve packings.



75 26 71	Sleeve packing replacing instrument	Set

Storm Valves

Storm Valves

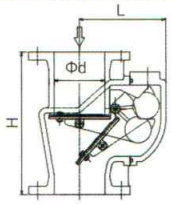
Válvulas de Mal Tiempo　波止弁　止回排水阀

Non-return valve for scupper, soil and sanitary discharge lines. When ordering please specify type of flange fitting as listed below, and also please specify if the screw-down closing handle is required.

JIS 5K – F3060

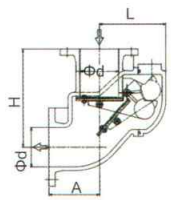
Storm Valve Standard, Ductile Cast Iron





Vertical & Horizontal Type, Standard



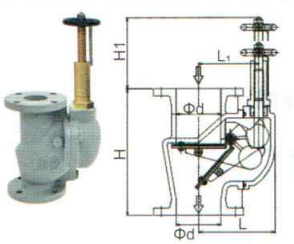


Angle Type, Standard

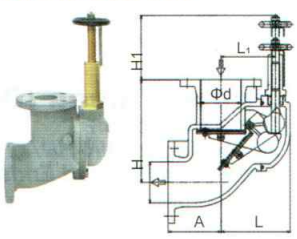
Unit Per Pc.

CODE	Model	Dimensions mm Φd	H	A	L	Weight Kg
Vertical & Horizontal Type, Standard						
75 42 01	SVII-FCD- 50	50	210	-	130	10
02	SVII-FCD- 65	65	240	-	140	14
03	SVII-FCD- 80	80	260	-	155	18
04	SVII-FCD-100	100	280	-	170	23
05	SVII-FCD-125	125	330	-	185	35
75 42 06	SVII-FCD-150	150	360	-	205	50
31	SVII-FCD-200	200	450	-	257	78
Angle Type, Standard						
75 42 07	SVII-FCD-A- 50	50	170	90	130	90
08	SVII-FCD-A- 65	65	200	110	140	110
09	SVII-FCD-A- 80	80	220	120	155	120
10	SVII-FCD-A-100	100	250	130	170	130
11	SVII-FCD-A-125	125	270	150	185	150
75 42 12	SVII-FCD-A-150	150	310	165	215	165
32	SVII-FCD-A-200	200	400	190	257	190

Storm Valve with Handle, Ductile Cast Iron



Vertical & Horizontal Type with Handle



Angle Type with Handle

Unit Per Pc.

CODE	Model	Dimensions mm						Weight Kg
		Φd	H	A	L	L1	H1	
Vertical & Horizontal Type, Standard								
75 42 41	SVII-FCD-RMH- 50	50	210	-	130	100	180	12
42	SVII-FCD-RMH- 65	65	240	-	140	110	182	16
43	SVII-FCD-RMH- 80	80	260	-	155	120	170	20
44	SVII-FCD-RMH-100	100	280	-	170	135	166	25
45	SVII-FCD-RMH-125	125	330	-	185	150	190	38
75 42 46	SVII-FCD-RMH-150	150	360	-	205	180	185	53
47	SVII-FCD-RMH-200	200	450	-	257	210	239	82
Angle Type, Standard								
75 42 51	SVII-FCD-A-RMH- 50	50	170	90	130	90	180	12
52	SVII-FCD-A-RMH- 65	65	200	110	140	110	182	17
53	SVII-FCD-A-RMH- 80	80	220	120	155	120	170	21
54	SVII-FCD-A-RMH-100	100	250	130	170	130	166	27
55	SVII-FCD-A-RMH-125	125	270	150	185	150	190	40
75 42 56	SVII-FCD-A-RMH-150	150	310	165	205	165	185	56
57	SVII-FCD-A-RMH-200	200	400	190	257	190	239	89

Storm Valves with handle

Cast Steel, JIS 10 Kgs Type
AA 730/AA 740

Válvulas de mal tiempo con manija de hierro fundido
ハンドル付き鋳鉄波止弁　带手轮铸铁吸入截止阀



Vertical Type



Angle Type

Vertical Type

Unit Per Pc.

CODE	Nom. Size mm	Dimensions mm				Item No.
		Flange Diam	Face to Face	Pitch	Hole dia x No.	
75 42 29	50	155	210	120	19 x 4	AA730050
30	65	175	240	140	19 x 4	AA730065
40	80	185	260	150	19 x 8	AA730080
48	100	210	280	175	19 x 8	AA730100
49	125	250	330	210	23 x 8	AA730125
75 42 50	150	280	360	240	23 x 8	AA730150
58	200	330	450	290	23 x 12	AA730200

Name of Mfr.: Alligator

Angle Type

Unit Per Pc.

CODE	Nom. Size mm	Dimensions mm				Item No.
		Flange Diam	Face to Face	Pitch	Hole dia x No.	
75 42 59	50	155	130	120	19 x 4	AA740050
60	65	175	140	140	19 x 4	AA740065
83	80	185	155	150	19 x 8	AA740080
84	100	210	170	175	19 x 8	AA740100
97	125	250	185	210	23 x 8	AA740125
75 42 98	150	280	205	240	23 x 8	AA740150
99	200	330	257	290	23 x 12	AA740200

Name of Mfr.: Alligator

Storm Valves (DIN)

Ductile Cast Iron
According to DIN-HNA Type
Flat Faced Flanged Ends to DIN PN 10

Válvula de Tormenta (DIN) Hierro Fundido Dúctil Conforme al Tipo DIN-HNA
DIN型ダクタイル鋳鉄波止弁
DIN-HNA 型延性鑄鐵止浪閥附 DIN PN10 平面法蘭

Storm valves are mainly installed in sanitary piping systems which have a ship's side exit. They will prevent sea water entering this system during heavy sea.

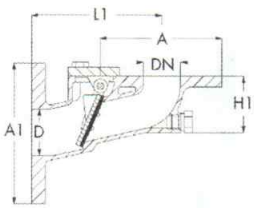
Maximum Operating Pressure
Strength tested at pressure 10 bar.

Material Specificatiom

Component	Material	EN and/or (DIN)
Disc Sealing Ring (Seawater resistant)	Rubber	
Disc	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Cover	Ductile cast iron	GJS-400-15 (GGG-40)
Body	Ductile cast iron	GJS-400-15 (GGG-40)

Angle, without Locking Device





How to order: CODE

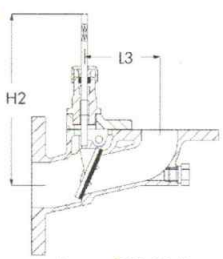
Storm valve (DIN), ductile cast iron, according to DIN-HNA type, flat faced flanged ends to DIN PN 10, angle, without locking device, SIZE DN

Unit Per Pc.

CODE	DN	Size mm						Weight Kg
		D	A	A1	L1	H1	Lift Height	
75 42 71	50	68	165	200	180	90	30	10.5
72	65	85	185	220	200	99	41	12.5
73	80	100	200	250	215	108	47	16.5
74	100	130	220	285	250	130	44	25.5
75	125	158	250	315	290	152	73	35.0
75 42 76	150	190	285	340	330	176	65	46.5

Angle, with Locking Device





How to order: CODE

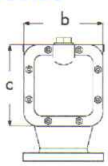
Storm valve (DIN), ductile cast iron, according to DIN-HNA type, flat faced flanged ends to DIN PN 10, angle, with locking device, SIZE DN

Unit Per Pc.

CODE	DN	Size mm						Weight Kg
		D	A1	L3	H1	H2	Lift Height	
75 42 77	50	68	200	103	90	333	30	12.0
78	65	85	220	118	99	341	41	14.0
79	80	100	250	135	108	352	47	18.0
80	100	130	285	154	130	413	44	27.0
81	125	158	315	188	152	438	73	37.0
75 42 82	150	190	340	210	176	465	65	49.0

Straight, without Locking Device





How to order: CODE

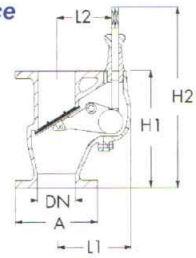
Storm valve (DIN), ductile cast iron, according to DIN-HNA type, flat faced flanged ends to DIN PN 10, straight, without locking device, SIZE DN

Unit Per Pc.

CODE	DN	Size mm						Weight Kg
		A	b	c	L1	H1	Lift Height	
75 42 85	50	165	160	165	137	200	55	15
86	65	185	180	175	148	240	55	19
87	80	200	195	190	174	260	55	27
88	100	220	220	205	195	300	42	36
89	125	250	270	240	216	350	58	54
75 42 90	150	285	300	255	242	400	77	65

Straight, with Locking Device





How to order: CODE

Storm valve (DIN), ductile cast iron, according to DIN-HNA type, flat faced flanged ends to DIN PN 10, straight, with locking device, SIZE DN

Unit Per Pc.

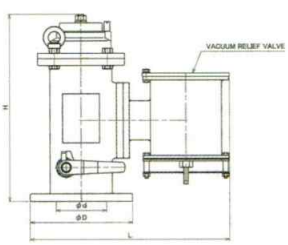
CODE	DN	Size mm						Weight Kg
		A	L1	L2	H1	H2	Lift Height	
75 42 91	50	165	137	110	200	369	55	17
92	65	185	148	120	240	407	55	21
93	80	200	174	139	260	418	55	29
94	100	220	195	154	300	508	42	38
95	125	250	216	175	350	541	58	56
75 42 96	150	285	242	195	400	583	77	67

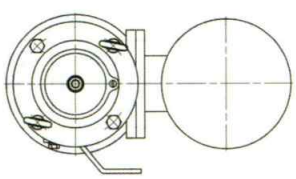
High Velocity Venting Valves

Válvulas de ventilación de alta velocidad 高速排気弁 高速排气阀

Device to prevent the passage of flame into inert cargo tanks in oil tankers pressure during cargo loading or ballasting. High velocity and full open. Automatic move. Simple mechanism. Application of IMO MSC/Circ.677. 1009 & IMO MSC. 1/Circ.1324. Approved by NK, ABS, LRS.
Setting pressure 14kPa to 20kPa.







* The above right side of image is included Vacuum Valve. These can be supplied separately as your request.

N-NHV-SCS-065 / 080 for chemical tanker

Body Material: SCS

Unit Per Pc.

CODE	Model	Φd	H	L*1	Weight (Kg)*2, *3
75 43 21	N-NHV-SCS-065	100	387	433	39
22	N-NHV-SCS-080	125	447	490	53

*1: The dimensions of L is included Vacuum Valve(VV-IIB)
*2: The weight is included Vacuum Valve (VV-IIB). (-3.5kPa)
*3: The weight of the model is 14kPa.

DHV-F05-08~20 for oil tanker

Body Material: FC

Unit Per Pc.

CODE	Model	Φd	H	L*1	Weight (Kg)*2, *3
75 43 23	DHV-F05-08	125	445	455	69
24	DHV-F05-10	150	478	546	105
25	DHV-F05-13	200	600	666	160
26	DHV-F05-15	200	614	732	217
27	DHV-F05-20	250	697	889	340

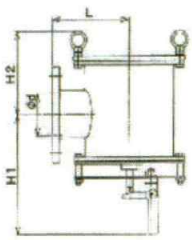
*1: The dimensions of L is included Vacuum Valve(VV-E)
*2: The weight is included Vacuum Valve (VV-E). (-3.5kPa)
*3: The weight of the model is 14kPa.
Name of Mfr.: Niikura Kogyo Co., Ltd.

Vacuum Relief Valves

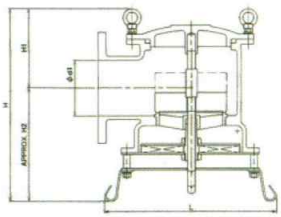
Válvulas de alivio de vacío 真空逃がし弁 真空泄压阀







VV-E-65 to 250



VV-IIB-65 to 125

Designed for vacuum break of cargo tank. Combined of High velocity vending valve. Incorporating flame screen. Flange connection is JIS 5K, Setting Pressure is -3.5 kPa. to -7.0kPa. Approved by NK/ABS/LRS.

VV-E Model for oil tanker

Unit Per Pc.

CODE	Model	d	L	H1	H2	Flow Rate (Nm^3/h)
75 43 61	VV-E- 65	65	130	176	148	200 ~1,100
62	VV-E- 80	80	145	181	152	400 ~1,600
63	VV-E-100	100	170	205	157	900 ~2,600
64	VV-E-125	125	205	217	170	1,200 ~4,000
65	VV-E-150	150	235	300	205	1,500 ~5,200
75 43 66	VV-E-200	200	285	335	245	2,000 ~7,500
67	VV-E-250	250	370	570	305	2,500~10,500

Name of Mfr.: Niikura Kogyo Co., Ltd.

VV-II B Model for chemical tanker

Unit Per Pc.

CODE	Model	d	L	H1	H2	L
75 43 68	VV-E- 65	65	320	130	190	263
69	VV-E- 80	80	325	133	192	394
70	VV-E-100	100	364	145	219	332
71	VV-E-125	125	403	157	246	374

Name of Mfr.: Niikura Kogyo Co., Ltd.

DIN Standard Valves

The following table are a cross comparison from JIS(Japan Industrial Standard) to DIN(Deutsche Industrie-Norm), and from DIN to JIS for your reference purpose. The tables are classified according to similar material, working pressure and general design. However as you understand, the basic specification of material, dimensions and flanges are essentially defferent between JIS standard and DIN standard. We are not held responsible for any possible accident or damage caused by using these tables.

Comparison List
JIS to equivalent design DIN Valves

Globe Valves

Material & W.P.	Type	JIS No.	Nom. Size	CODE	DIN Model	CODE	Flanged to	DN
Bronze 16 kgf/cm² Flanged	Straight	F-7303	15-40mm	75 01 41 - 45	410.5.5.5.1 -	75 51 21 - 29/93 75 51 61 - 75	PN 16 PN 6/10/16	15-125mm 15-300mm
	Angle	F-7304	15-40mm	75 01 51 - 55	411.5.5.5.1 -	75 51 32 - 38 75 52 00 / 91 75 51 76 - 90	PN 16 PN 6/10/16	20-125mm 15-300mm
Cast Iron 16 kgf/cm² Flanged	Straight	F-7309	50-200mm	75 02 61 - 67	- - 410.2.5.5.1	75 52 31 - 45 75 52 61 - 75 75 54 01 - 11	PN 10/16 PN 10/16 PN 16	15-300mm 15-300mm 15-150mm
	Angle	F-7310	50-200mm	75 02 71 - 77	- - 411.2.5.5.1	75 52 46 - 60 75 52 76 - 90 75 54 16 - 29	PN 10/16 PN 10/16 PN 16	15-300mm 15-300mm 15-250mm
Cast Steel 20 kgf/cm² Flanged	Straight	F-7313	32-250mm	75 04 31 - 40	-	75 53 01 - 11 75 51 94 - 99	PN 10/16	15-400mm
	Angle	F-7314	32-250mm	75 04 41 - 50	-	75 53 15 - 25 75 52 94 - 99	PN 10/16	15-400mm
Cast Steel 40 kgf/cm² Flanged	Straight	F-7317	32-150mm	75 04 71 - 78	410.3.4.4.1	75 53 26 - 34	PN 40	15-100mm
	Angle	F-7318	32-150mm	75 04 81 - 88	411.3.4.4.1	75 53 41 - 51	PN 40	15-150mm

Gate Valves

Material & W.P.	Type	JIS No.	Nom. Size	CODE	DIN Model	CODE	Flanged to	DN
Cast Iron 10 kgf/cm²	Flanged	F-7364	50-600mm	75 08 21 - 35	- - - - - -	75 55 71 - 86 75 56 01 - 14 15 - 24 32 - 40 41 - 50 51 - 60	PN 10 PN 10 PN 10 PN 10 PN 10 PN 10/16	40-600mm 40-600mm 40-300mm 50-300mm 40-300mm 40-300mm
Cast Steel 10 kgf/cm²	Flanged	F-7366	50-400mm	75 09 01 - 11	-	75 56 72 - 80	PN 16	50-300mm

Lift Check Valves

Material & W.P.	Type	JIS No.	Nom. Size	CODE	DIN Model	CODE	Flanged to	DN
Bronze 16 kgf/cm² Flanged	Straight	F-7417	15-40mm	75 13 61 - 65	- - -	75 58 11 - 21 41 - 68 71 - 98	PN 16 PN 16 PN 16	15-150mm 15-300mm 15-300mm
	Angle	F-7418	15-40mm	75 13 66 - 70	- - -	75 58 25 - 35 55 - 67 85 - 97	PN 16 PN 16 PN 16	15-150mm 15-200mm 15-200mm

Swing Check Valves

Material & W.P.	Type	JIS No.	Nom. Size	CODE	DIN Model	CODE	Flanged to	DN
Cast Iron 10 kgf/cm² Flanged	Straight	F-7373	50-200mm	75 14 31 - 37	-	75 59 11 - 20	PN 10/16	40-300mm

Hose Valves

Material & W.P.	Type	JIS No.	Nom. Size	CODE	DIN Model	CODE	Flanged to	DN
Bronze 10 kgf/cm² Flanged	Straight	F-7334	50 / 65 mm	75 17 17 / 18	470.5.6.5.1	75 60 44 / 46	PN 16	50 / 65 mm

Screwed Valves

Material & W.P.	Type	JIS No.	Size	CODE	DIN Model	CODE	Pressure Rating	Size
Bronze 10 kgf/cm²	Straight	B-2011	1/4" - 4"	75 18 16 - 27	-	75 51 01 - 10	12/16 bar	1/4" - 3"
	Angle	B-2011	1/4" - 4"	75 18 31 - 42	-	75 51 11 - 18	12/16 bar	1/4" - 2"

Needle Valves

Material & W.P.	Type	JIS No.	Size	CODE	DIN Model	CODE	Pressure Rating	Size
Brass w/Ring Joint	Straight	-	6x1/4"-14x1/2"	75 21 01 - 05	-	75 62 02 - 06	100/40 bar	1/4" - 1"
Brass w/Ring Joint	Angle	-	6x1/8"-14x1/2"	75 21 16 - 21	-	75 62 12 - 16	100/40 bar	1/4" - 1/2"

Butterfly Valves

Material & W.P.	Type	JIS No.	Size	CODE	DIN Model	CODE	Flanged to	DN
FC250 10 kgf/cm²	-	-	1-1/2" - 8" 1-1/2" - 24"	75 22 01 - 08 75 22 11 - 27 75 22 --	- 700.2.5.6.1 700.2.5.6.1 -	75 63 01 - 14 75 63 31 - 44 / 67 75.63 68 -70 75 63 45 - 55 75 63 56 - 66	PN 10 / 16 PN 10 / 16 PN 10/ 16 PN 10 / 16 PN 10	50-600mm 40-600mm 450-600mm 50-400mm 50-400mm

Diaphragm Valves

Material & W.P.	Type	JIS No.	Size	CODE	DIN Model	CODE	Pressure Rating	D
Cast Iron, Ductile Iron, etc. (To be indicated)	-	-	-	75 23	- - -	75 64 12 - 17 15 - 26 31 - 42	10 bar PN 16 PN 16	1/2" - 2" 15-200m 15-200m

Ball Valves

Material & W.P.	Type	JIS No.	Size	CODE	DIN Model	CODE	Pressure Rating	D
Forged Brass 20 kgf/cm²	Screwed	-	3/8" - 2"	75 24 01-07	503.5.5.7.1	75 66 01 - 10	PN 40	8-80mm

Y-Strainers

Material & W.P.	Type	JIS No.	Size	CODE	DIN Model	CODE	Pressure Rating	D
Bronze 16 kgf/cm²	Screwed	-	1/4" - 2"	75 24 21 - 28	-	75 68 01 - 10	16 bar	1/4" - 3"
Cast Iron 16 kgf/cm²	Screwed	-	1/4" - 3"	75 24 46 - 55	-	75 68 25 - 38 / 69 15	PN 16	15-400mm

Storm Valves

Material & W.P.	Type	JIS No.	Size	CODE	DIN Model	CODE	Flanged to	DN
Ductile Cast Iron	Angle	-	50-200mm	75 42 07 - 12 75 42 32	-	75 42 71 - 76	PN 10	50-150mm
Ductile Cast Iron w/Handle	Vertical	F-3060	50-200mm	75 42 41 - 47	-	75 42 91 - 96	PN 10	50-150mm
Ductile Cast Iron w/Handle	Angle	-	50-200mm	75 42 51 - 57	-	75 42 77 - 82	PN 10	50-150mm

Remark : DIN model is referred to MESON products.

Comparison List
DIN to equivalent design JIS Valves

Globe Valves

Material & W.P.	Type	DIN Model	Size	CODE	JIS No.	CODE	Max. W/P	Size
Bronze 12 - 16 bar Screwed	Straight	-	1/4" - 3"	75 51 01 - 10	B-2011	75 18 16 - 27	10 kgf / cm2	1/4" - 4"
	Angle	-	1/4" - 2"	75 51 11 - 18	B-2011	75 18 31 - 42	10 kgf / cm2	1/4" - 4"
Bronze 16 - 12 bar Flanged	Straight	410.5.5.5.1	15-125mm	75 51 21 - 29 / 93	F-7303	75 01 41 - 45	16 kgf / cm2	15-40mm
	Angle	411.5.5.5.1	20-125mm	75 51 32 - 38	F-7304	75 01 51 - 55	16 kgf / cm2	15-40mm
Bronze 16 - 6 bar Flanged	Straight	-	15-300mm	75 51 61 - 75	F-7303	75 01 41 - 45	16 kgf / cm2	15-40mm
	Angle	-	15-300mm	75 51 76 - 90	F-7304	75 01 51 - 55	16 kgf / cm2	15-40mm
Cast Iron 16 - 10 bar Flanged	Straight	-	15-300mm	75 52 31 - 45	F-7309	75 02 61 - 67	16 kgf / cm2	50-200mm
	Angle	-	15-300mm	75 52 46 - 60	F-7310	75 02 71 - 77	16 kgf / cm2	50-200mm
Cast Iron 16 - 10 bar Flanged	Straight	-	15-300mm	75 52 61 - 75	F-7309	75 02 61 - 67	16 kgf / cm2	50-200mm
	Angle	-	15-300mm	75 52 76 - 90	F-7310	75 02 71 - 77	16 kgf / cm2	50-200mm
Carbon Steel 16 - 10 bar Flanged	Straight	-	15-400mm	75 53 01 - 11 75 51 94 - 99	F-7313	75 04 31 - 40	20 kgf / cm2	32-250mm
	Angle	-	15-400mm	75 53 15 - 25 75 52 94 - 99	F-7314	75 04 41 - 50	20 kgf / cm2	32-250mm
Cast Steel 40 - 25 bar Flanged	Straight	410.3.4.4.1	15-100mm	75 53 26 - 34	F-7317	75 04 71 - 78	40 kgf / cm2	32-150mm
	Angle	411.3.4.4.1	15-150mm	75 53 41 - 51	F-7318	75 04 81 - 88	40 kgf / cm2	32-150mm
Ductile Cast Iron 16 - 10 bar Flanged	Straight	410.2.5.5.1	15-150mm	75 54 01 - 11	F-7309	75 02 61 - 67	16 kgf / cm2	50-200mm
	Angle	411.2.5.5.1	15-250mm	75 54 16 - 29	F-7310	75 02 71 - 77	16 kgf / cm2	50-200mm

Gate Valves

Material & W.P.	Type	DIN Model	DN	CODE	JIS No.	CODE	Max. W/P	Size
Cast Iron 10 - 2 bar	Flanged	-	40-600mm	75 55 71 - 86	F-7364	75 08 21 - 35	10 kgf / cm2	50-600mm
Cast Iron 10 - 2 bar	Flanged	-	40-600mm	75 56 01 - 14	F-7364	75 08 21 - 35	10 kgf / cm2	50-600mm
Cast Iron 10 - 2 bar	Flanged	-	40-300mm	75 56 15 - 24	F-7364	75 08 21 - 35	10 kgf / cm2	50-600mm
Cast Iron 10 - 8 bar	Flanged	-	50-300mm	75 56 32 - 40	F-7364	75 08 21 - 35	10 kgf / cm2	50-600mm
Cast Iron 10 - 8 bar	Flanged	-	40-300mm	75 56 41 - 50	F-7364	75 08 21 - 35	10 kgf / cm2	50-600mm
Cast Iron 10 bar	Flanged	-	40-300mm	75 56 51 - 60	F-7364	75 08 21 - 35	10 kgf / cm2	50-600mm
Cast Iron 10 bar	Flanged	-	50-300mm	75 56 72 - 80	F-7366	75 09 01 - 11	10 kgf / cm2	50-400mm

Lift Check Valves

Material & W.P.	Type	DIN Model	DN	CODE	JIS No.	CODE	Max. W/P	Size
Bronze 16 - 8 bar Flanged	Straight	-	15-150mm	75 58 11 - 21	F-7417	75 13 61 - 65	16 kgf / cm2	15-40mm
Bronze 16 - 8 bar Flanged	Angle	-	15-150mm	75 58 25 - 35	F-7418	75 13 66 - 70	16 kgf / cm2	15-40mm
Cast Iron 16 - 13 bar Flanged	Straight	-	15-300mm	75 58 41 - 68	F-7417	75 13 61 - 65	16 kgf / cm2	15-40mm
Cast Iron 16 - 13 bar Flanged	Angle	-	15-200mm	75 58 55 - 67	F-7418	75 13 66 - 70	16 kgf / cm2	15-40mm
Cast Iron 16 - 13 bar Flanged	Straight	-	15-300mm	75 58 71 - 98	F-7417	75 13 61 - 65	16 kgf / cm2	15-40mm
Cast Iron 16 - 13 bar Flanged	Angle	-	15-200mm	75 58 85 - 97	F-7418	75 13 66 - 70	16 kgf / cm2	15-40mm

Swing Check Valves

Material & W.P.	Type	DIN Model	DN	CODE	JIS No.	CODE	Max. W/P	Size
Cast Iron 10 - 8 bar Flanged	Straight	-	40-300mm	75 59 11 - 20	F-7373	75 14 31 - 37	10 kgf / cm²	50-200mm

Globe Fire and Deckwash Valves

Material & W.P.	Type	DIN Model	DN	CODE	JIS No.	CODE	Max. W/P	Size
Bronze 10 bar	Straight	470.5.6.5.1	50/65mm	75 60 44 - 46	F-7334	75 17 17 - 18	10 kgf / cm²	50 / 65mm

Needle Valves

Material & W.P.	Type	DIN Model	Size	CODE	JIS No.	CODE	W/P	Size
Brass 100-40 bar Screwed	Straight	-	1/4" - 1"	75 62 02 - 06	-	75 21 01 - 05	-	6x1/4"-14x1/2"
Brass 100-40 bar Screwed	Angle	-	1/4" - 1/2"	75 62 12 - 16	-	75 21 16 - 21	-	6x1/8"-14x1/2"

Butterfly Valves

Material & W.P.	Type	DIN Model	DN	CODE	JIS No.	CODE	Max. W/P	Size
Ductile Cast Iron 10 bar	-	-	50-600mm	75 63 01 - 14	-	75 22 01 - 08	10 kgf / cm²	1-1/2" - 8"
Cast Iron 10/16 bar	Water	700.2.5.6.1	40-600mm	75 63 31 - 44 / 67	-	75 22 11 - 27	10 kgf / cm²	1-1/2"-24"
	Semi Lug	700.2.5.6.1	450-400mm	75 63 68 - 70				
Cast Iron 10/16 bar	-	-	50-400mm	75 63 45 - 55	-			
Cast Iron 10 bar	-	-	50-400mm	75 63 56 - 66	-			

Diaphragm Valves

Material & W.P.	Type	DIN Model	Size	CODE	JIS No.	CODE	W/P	Size
Bronze 10 bar Threaded	Straight	-	1/2" - 2"	75 64 12 - 17	-	75 23 --	-	-
Cast Iron 10 - 4 bar Flanged	Straight	-	15-200mm	75 65 15 - 26	-	75 23 --	-	-
Cast Iron 10 - 4 bar Flanged	Straight	-	15-200mm	75 65 31 - 42	-	75 23 --	-	-

Ball Valves

Material & W.P.	Type	DIN Model	Size	CODE	JIS No.	CODE	Max. W/P	Size
Brass Nickel Plate (See spec.)	Screwed	503.5.5.7.1	8-80mm	75 66 01 - 10	-	75 24 01 - 07	20 kgf / cm²	3/8" - 2"

Y-Strainers

Material & W.P.	Type	DIN Model	Size	CODE	JIS No.	CODE	Max. W/P	Size
Bronze 16 bar	Screwed	-	1/4" - 3"	75 68 01 - 10	-	75 24 21 - 28	16 kgf / cm²	1/4" - 2"
Cast Iron 16 bar	Flanged	-	15-400mm	75 68 25 - 38 / 69 15	-	75 24 46 - 55	16 kgf / cm²	1/4" - 3"

Storm Valves

Material & W.P.	Type	DIN Model	DN	CODE	JIS No.	CODE	Nom. /P	Size
Ductile Cast Iron 10 bar	Angle	-	50-150mm	75 42 71 - 76	-	75 42 07 - 12 75 42 32	5 kgf / cm²	50-200mm
Ductile Cast Iron 10 bar	Angle	-	50-150mm	75 42 77 - 82	-	75 42 51- 57	5 kgf / cm²	50-200mm
Ductile Cast Iron 10 bar	Vertical	-	50-150mm	75 42 91 - 96	F-3060	75 42 41 - 47	5 kgf / cm²	50-200mm

Remark : DIN model is referred to MENSON Products.

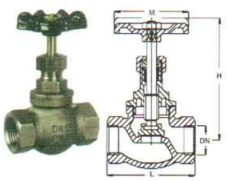
DIN Globe Valves

Globe Valves (DIN)

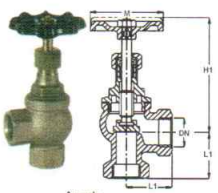
Bronze, BSP Female Threaded
Threaded Bonnet, Metal Seated
Fixed Disc, Max 16 bar, Straight and Angle

Válvulas de globo (DIN) Bronce, rosca hembra BSP
DIN 型青銅玉形弁・アングル弁
截止阀（DIN）青铜，英制锥螺纹内螺纹

Bronze globe valves with threaded bonnet, metal seated, straight and angle pattern, BSP female threaded connection, inside screwed stem and rising handwheel.
Application: water, oil, air and gas.



Straight



Angle

Pressure and Temperature Range

Bore	20°C	200°C
3/8" - 3"	16 bar	12 bar

Material Specification

Component	Material	EN and/or (DIN)
Body	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Bonnet	Brass	- (CuZn41Pb62)
Disc	Brass	- (CuZn41Pb62)
Stem	Brass	- (CuZn41Pb62)
Gland Packing	PTFE	
Bonnet Gasket	Asbestos-free	
Handwheel	Aluminium	

How to order: CODE

Globe valve (DIN), bronze, BSP female threaded, threaded bonnet, metal seated, STRAIGHT or ANGLE, MODEL NO., SIZE DN

Unit Per Pc.

Straight					Angle					Weight
CODE	DN	Size mm			CODE	DN	Size mm			kg
		L	H	M			L_1	H	M	
75 51 01	1/4"	50	95	50	**75 51 11**	1/4"	28	85	50	0.3
02	3/8"	50	95	50	**12**	3/8"	28	85	50	0.3
03	1/2"	60	95	60	**13**	1/2"	32	95	60	0.5
04	3/4"	70	110	70	**14**	3/4"	40	115	70	0.6
05	1"	80	120	70	**15**	1"	46	120	70	1.0
75 51 06	1-1/4"	95	145	70	**75 51 16**	1-1/4"	51	135	70	1.3
07	1-1/2"	105	155	80	**17**	1-1/2"	58	140	80	1.7
08	2"	130	185	110	**18**	2"	61	165	110	2.9
09	2-1/2"	155	245	130						
10	3"	180	280	150						

Same weight for straight type and angle type.

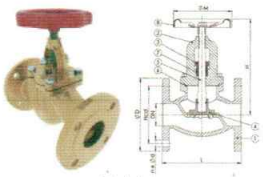
Globe Valves (DIN)

Bronze, DIN Flanges
Secured Bonnet, Metal Seated
Fixed Disc, Pressure Rating PN 16, Straight and Angle

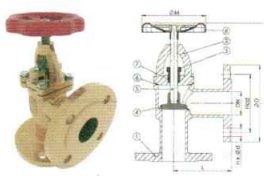
Válvulas de globo (DIN), Bridas de bronce, DIN
DIN 型青銅玉形弁・アングル弁
截止阀（DIN）青铜，DIN 法兰

Metal seated glove valve with bronze (RG5) body. Comes with rising stem and bolted bonnet. Raised face flanges.

Applications:
Steam, Fuel oil, Lubricating oil, Flammable hydraulic oil, Cargo oil, Boiler feedwater, Condensate, Sea water, Water



Straight



Angle

Pressure and Temperature Range
PN 16: Min. & Max. -10°C/+200°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Bronze	CC491K
Bonnet	Bronze	CC491K
Stem	Bronze	CW602N
Gland	Bronze	CC491K
Disc	Bronze	CC491K
Gasket	NA	Dixo 4000
Packing	NA	Graphite
Handwheel	Ductile Iron	GGG40

How to order: CODE

Globe valve (DIN), bronze, DIN flanges, secured bonnet, metal seated, pressure rating PN 16 STRAIGHT or ANGLE, MODEL NO., SIZE DN

Straight

Unit Per Pc.

CODE	DN	Size mm					Weight
		D	Hcd	L	H	M	kg
75 51 21	15	95	65	130	140	100	2.5
22	20	105	75	150	150	100	3.0
23	25	115	85	160	160	100	3.8
24	32	140	100	180	165	100	5.0
25	40	150	110	200	195	140	7.0
75 51 26	50	165	125	230	205	140	9.6
27	65	185	145	290	255	160	13.6
28	80	200	160	310	290	200	19.0
29	100	220	180	350	335	200	26.9
93	125	250	210	400	405	250	44.0

MESON Model No.: 410.5.5.5.1

Angle

Unit Per Pc.

CODE	DN	Size mm					Weight
		D	Hcd	L	H	M	kg
75 51 32	20	105	75	95	130	100	3.1
33	25	115	85	100	150	100	4.0
34	32	140	100	105	155	100	6.0
35	40	150	110	115	180	140	6.9
36	50	165	125	125	185	140	9.3
75 51 37	65	185	145	145	225	160	13.9
38	80	200	160	155	260	200	18.4
75 52 00	100	220	180	175	290	200	26.0
91	125	285	240	225	335	320	64.0

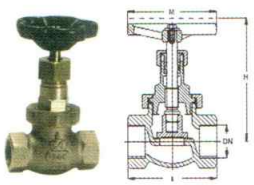
MESON Model No.: 411.5.5.5.1

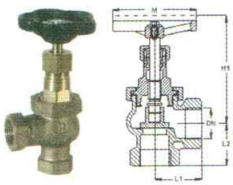
Globe Valves (DIN)

Bronze, BSP Female Threaded
Secured Bonnet, Metal Seated
Fixed Disc, Pressure Rating PN 16
Straight and Angle

Válvulas de globo (DIN) Bronce, rosca hembra BSP
DIN 型青銅玉形弁・アングル弁
截止阀（DIN）青铜，英制锥螺纹内螺纹

Bronze globe valves with threaded and secured bonnet, metal seated, straight and angle pattern, BSP female threaded ends, inside screwed stem and rising handwheel.
Application area is aboard ships where a light bronze construction is desirable, but it also complies with all requirements related to marine inspection and classification societies, which in certain instances specify a dependable securing of threaded bonnets.


Straight


Angle

Pressure and Temperature Range

Bore	0/120°C	200°C
3/8" - 3"	16 bar	12 bar

Material Specification

Component	Material	EN and/or (DIN)
Body, Seat, Bonnet, Bonnet Nut and Disc	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Stem	Brass	CuZn35Ni3Mn2AlPb (CuZn35Ni)
Gland Packing	Asbestos-free	
Bonnet Gasket	PTFE	
Handwheel	Cast iron	

How to order: CODE

Globe valve (DIN), bronze, BSP female threaded, secured bonnet, pressure rating PN 16, fixed disc, STRAIGHT or ANGLE, MODEL NO., SIZE DN

Unit Per Pc.

Straight					Angle						
CODE	D Inch	Size mm L	H	M	CODE	D Inch	Size mm L1	L2	H1	M	Wgt Kg
75 51 41	3/8	60	95	60	**75 51 51**	3/8	35	30	86	60	0.6
42	1/2	65	95	60	**52**	1/2	40	35	86	60	0.6
43	3/4	75	110	80	**53**	3/4	45	40	100	80	0.8
44	1	90	115	80	**54**	1	50	45	105	80	1.2
45	1-1/4	105	135	90	**55**	1-1/4	55	50	120	90	1.9
75 51 46	1-1/2	120	145	100	**75 51 56**	1-1/2	65	55	135	100	2.5
47	2	145	165	120	**57**	2	75	65	150	120	4.0
48	2-1/2	170	230	160	**58**	2-1/2	90	75	230	160	7.5
49	3	200	250	200	**59**	3	110	90	250	200	11.5

Same weight for straight type and angle type.

Globe Valves (DIN)

Bronze, BSP Female Threaded PN 32

Válvulas de globo (DIN)Bronce, rosca hembra BSP
DIN 型青銅玉形弁
截止阀（DIN）青铜，英制锥螺纹内螺纹



Unit Per Pc.

CODE	Size	Item No.	CODE	Size	Item No.
75 51 30	1/4"	AA040006	**75 51 60**	1"	AA040025
39	3/8"	AA040010	**91**	1-1/4"	AA040032
40	1/2"	AA040015	**92**	1-1/2"	AA040038
50	3/4"	AA040020			

Name of Mfr.: Alligator

Globe Valves (DIN)

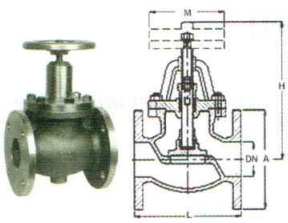
Bronze, DIN Flanges
Bolted Bonnet, Outside Screw and Yoke
Metal Seated, Fixed Disc
Pressure Rating PN 6-10-16, Straight and Angle

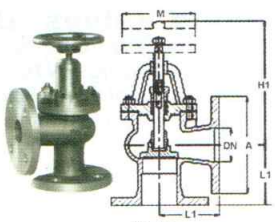
Válvulas de globo (DIN)Bridas de bronce, DIN
DIN 型青銅玉形弁・アングル弁
截止阀（DIN）青铜，DIN 法兰

Bronze globe valves with bronze disc and seat, pressure rating PN 6/10/16, straight and angle pattern, flat faced flanges according to DIN PN 10/16, bolted bonnet, outside screw & yoke. Heavy pattern for ship building industry.

Application: the valves offer good resistance to corrosive action of seawater, fresh water and waste water.

Application area: aboard ships, etc. but also in installations where internal or external corrosion is undesirable.


Straight


Angle

Pressure and Temperature Range

Bore	Pressure Rating	Pressure and Temperature Range
DN 15 - 150	PN 16	16 bar - 120°C 12 bar - 200°C
DN 200	PN 10	10 bar - 120°C 8 bar - 200°C
DN 250 - 300	PN 6	6 bar - 120°C

Material Specification

Component	Material	EN and/or (DIN)
Body, Bonnet, Disc	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Stem	Brass	CuZn35Ni3Mn2AlPb (CuZn35Ni)
Stud Bolts, Nuts	Stainless steel	
Bonnet Gasket	Graphite	
Gland Packing		
Handwheel	Cast iron	

How to order: CODE

Globe valve (DIN), bronze, DIN flanges, bolted bonnet, outside screw and yoke, metal seated, fixed disc, STRAIGHT or ANGLE, PRESSURE RATING, SIZE DN

Straight Type

Unit Per Pc.

CODE	DN	Pressure Rating	Size mm A	L	H	M	Weight Kg
75 51 61	15		95	120	175	100	4.3
62	20		105	120	175	100	5.0
63	25	PN16	115	140	178	125	6.0
64	32		140	150	200	125	8.7
65	40		150	155	220	140	10.0
75 51 66	50		165	180	250	140	13.2
67	65		185	200	260	140	23.0
68	80	PN16	200	240	300	180	31.9
69	100		220	270	350	200	42.8
70	125		250	320	380	220	62.0
75 51 71	150	PN16	285	370	440	280	88.0
73	200	PN10	340	500	620	315	136.0
74	250	PN 6	395	730	670	400	165.0
75	300		445	850	750	400	295.0

Angle Type

Unit Per Pc.

CODE	DN	Pressure Rating	Size mm A	L1	H1	M	Weight Kg
75 51 76	15		95	65	175	100	4.0
77	20		105	65	175	100	5.5
78	25	PN16	115	70	178	125	6.2
79	32		140	90	200	125	8.4
80	40		150	90	220	140	10.0
75 51 81	50		165	105	250	140	12.8
82	65		185	115	260	140	23.2
83	80	PN16	200	125	300	180	31.0
84	100		220	145	350	200	41.0
85	125		250	170	380	220	65.0
75 51 86	150	PN16	285	200	440	280	89.0
88	200	PN10	340	250	570	315	127.0
89	250		395	325	550	400	155.0
90	300	PN 6	445	375	620	400	225.0

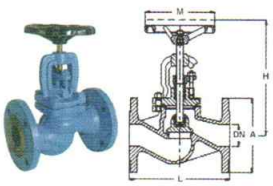
Globe Valves (DIN)

Cast Iron, DIN Flanges
Pressure Rating PN16
Stainless Steel Trim, Fixed Disc, Straight and Angle

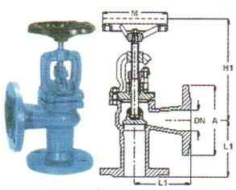
Válvulas de globo (DIN), Hierro fundido, bridas DIN
DIN 型鋳鉄玉形弁・アングル弁
截止阀（DIN）铸铁，DIN 法兰

Cast iron globe valves with stainless steel trim, PN 16, straight and angle pattern, flanged ends acc. To DIN PN 10/16. Outside screw & yoke.

Application : steam, cold and hot water, oil, air gases etc.



Straight



Angle

Pressure and Temperature Range

	-10/120°C	150°C	180°C	200°C	230°C	250°C	300°C
PN 16	16 bar	14.4	13.4	12.8	11.8	11.2	9.6

Material Specification

Component	Material	EN and/or (DIN)
Body, Bonnet and Gland	Cast iron	GJL-250 (GG-25)
Disc and Stem	Stainless steel	X20Cr13
Seat	Stainless steel	X12Cr13 (X10Cr13)
Gland Packing	Graphite	
Bonnet Gasket (SS insert)	Graphite	
Handwheel	Cast iron	

How to order: CODE

Globe valve (DIN), cast iron, DIN flanges, pressure rating PN 16, stainless steel trim, fixed disc STRAIGHT or ANGLE, SIZE DN

Straight Type

Unit Per Pc.

CODE	DN	Size mm A	L	H	M	Weight Kg
75 52 31	15	95	130	172	100	3.3
32	20	105	150	173	100	3.9
33	25	115	160	182	120	5.0
34	32	140	180	200	120	6.6
35	40	150	200	255	160	8.4
75 52 36	50	165	230	273	160	12.0
37	65	185	290	295	180	17.3
38	80	200	310	332	200	22.7
39	100	220	350	369	250	35.8
40	125	250	400	432	250	52.8
75 52 41	150	285	480	483	320	74.2
43	200	340	600	606	360	126.0
44	250	405	730	758	360	200.0
45	300	460	850	830	500	315.0

Angle Type

Unit Per Pc.

CODE	DN	Size mm A	L1	H1	M	Weight Kg
75 52 46	15	95	90	168	100	3.1
47	20	105	95	166	100	3.5
48	25	115	100	180	120	4.8
49	32	140	105	187	120	6.6
50	40	150	115	234	160	8.7
75 52 51	50	165	125	236	160	11.8
52	65	185	145	271	180	14.0
53	80	200	155	291	200	20.5
54	100	220	175	332	250	32.2
55	125	250	200	387	250	46.0
75 52 56	150	285	225	437	320	62.0
58	200	340	275	532	360	106.0
59	250	405	325	651	360	-
60	300	460	375	830	500	-

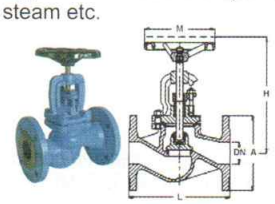
Globe Valves (DIN)

Cast Iron, DIN Flanges
Pressure Rating PN16
Bronze Trim, Fixed Disc, Straight and Angle

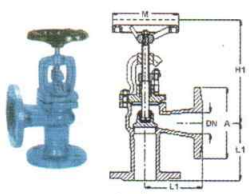
Válvulas de globo (DIN), Hierro fundido, bridas DIN
DIN 型鋳鉄玉形弁・アングル弁
截止阀（DIN）铸铁，DIN 法兰

Cast iron globe valves with low-zinc bronze seat, pressure rating PN 16, straight and angle pattern, flanged ends acc. to DIN PN 10/16. Outside screw & yoke and rising handwheel.

Application: Aboard ships for hot and cold water, oil, air, steam etc.



Straight



Angle

Pressure and Temperature Range

	-10/120°C	150°C	180°C	200°C	225°C
PN 16	16 bar	14.4	13.4	12.8	12

Material Specification

Component	Material	EN and/or (DIN)
Body, Bonnet and Gland	Cast iron	GJL-250 (GG-25)
Disc, Seat	Low-zinc bronze	- (G-CuSn10Zn (Rg 10))
Stem	Brass	- (CuZn41Pb62)
Gland Packing	Graphite	
Body Gasket (SS insert)	Graphite	
Handwheel	Cast iron	

How to order: CODE

Globe valve (DIN), cast iron, DIN flanges, pressure rating PN 16, bronze trim, fixed disc, STRAIGHT or ANGLE, SIZE DN

Straight Type

Unit Per Pc.

CODE	DN	Size mm A	L	H	M	Weight Kg
75 52 61	15	95	130	172	100	3.3
62	20	105	150	173	100	3.9
63	25	115	160	182	120	5.0
64	32	140	180	200	120	6.6
65	40	150	200	255	160	8.4
75 52 66	50	165	230	273	160	12.0
67	65	185	290	295	180	17.3
68	80	200	310	332	200	22.7
69	100	220	350	369	250	35.8
70	125	250	400	432	250	52.8
75 52 71	150	285	480	483	320	74.2
73	200	340	600	606	360	126.0
74	250	395	730	758	360	200.0
75	300	445	850	830	500	315.0

Angle Type

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		A	L1	H1	M	
75 52 76	15	95	90	168	100	3.1
77	20	105	95	166	100	3.5
78	25	115	100	180	120	4.8
79	32	140	105	187	120	6.6
80	40	150	115	234	160	8.7
75 52 81	50	165	125	236	160	11.8
82	65	185	145	271	180	14.0
83	80	200	155	291	200	20.5
84	100	220	175	332	250	32.2
85	125	250	200	387	250	46.0
75 52 86	150	285	225	437	320	62.0
88	200	340	275	532	360	106.0
89	250	395	325	651	360	-
90	300	445	375	830	500	-

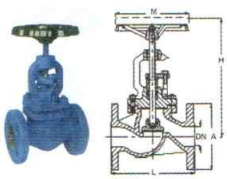
Globe Valves (DIN)

Cast Steel, DIN Flanges Pressure Rating PN 16 Bronze Trim, Fixed Disc, Straight and Angle

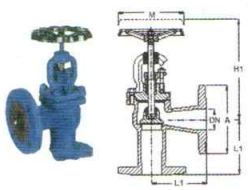
Válvulas de globo (DIN) Acero fundido, bridas DIN
DIN 型鋳鋼玉形弁・アングル弁
截止阀（DIN）铸钢，DIN 法兰

Cast steel globe valves with bronze trim, pressure rating PN 16, straight and angle pattern, flanged ends acc. to DIN PN 10/16, outside screw & yoke and rising handwheel.

Application : steel valves are frequently used aboard ships, e.g. as ships side valve.



Straight



Angle

Pressure and Temperature Range

	-10/120°C	200°C	225°C
PN 16	16 bar	14.7	13.9

Material Specification

Component	Material	EN and/or (DIN)
Body	Cast steel	GP240GH + N (GS-C25N)
Bonnet (DN 15 - 80)	Forged steel	C22G2 (C 22.8)
Bonnet (DN 100 - 400)	Cast steel	GP240GH + N (GS-C25N)
Disc	Bronze	CuSn5Zn5Pb5-C (G-CuSN5ZnPb (Rg 5))
Seat	Bronze	CuSn5Zn5Pb5-C (G-CuSN5ZnPb (Rg 5))
Stem	Brass	CuZn35Ni3Mn2AlPb (CuZn35Ni)
Yoke Bush	Steel	- (9S20)
Gland Packing	Graphite	
Bonnet Gasket (SS insert)	Graphite	
Handwheel	Cast iron	

How to order: CODE

Globe valve (DIN), cast steel, DIN cast steel, DIN flanges, pressure rating PN 16, bronze trim, fixed disc, STRAIGHT or ANGLE, SIZE DN

Straight Type

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		A	L	H	M	
75 51 94	15	95	130	189	120	4.8
95	20	105	150	189	120	5.4
96	25	115	160	203	140	7.1
97	32	140	180	203	140	8.0
98	40	150	200	246	160	11.5
75 51 99	50	165	230	254	160	13.5
75 53 01	65	185	290	294	180	21
02	80	200	310	322	200	27. 5
03	100	220	350	381	225	40
04	125	250	400	427	250	61
75 53 05	150	285	480	521	400	84
07	200	340	600	643	520	160
08	250	405	730	780	520	265
09	300	460	850	890	520	377
10	350	520	980	976	640	510
75 53 11	400	580	1,100	1,006	640	780

Angle Type

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		A	L1	H1	M	
75 52 94	15	95	90	159	120	5.2
95	20	105	95	159	120	7.2
96	25	115	100	178	140	7.4
97	32	140	105	178	140	8.4
98	40	150	115	221	160	12.4
75 52 99	50	165	125	229	160	13.6
75 53 15	65	185	145	263	180	20
16	80	200	155	297	200	25
17	100	220	175	336	225	34
18	125	250	200	387	250	53
75 53 19	150	285	225	466	400	70
21	200	340	275	588	520	148
22	250	405	325	690	520	188
23	300	460	375	785	520	327
24	350	520	425	876	640	383
75 53 25	400	580	475	886	640	690

Globe Valves (DIN)

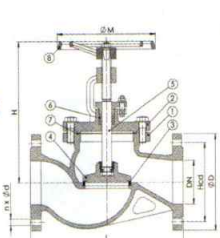
Cast Steel, DIN Flanges Pressure Rating PN 40 Stainless Steel Trim Fixed Disc, Straight and Angle

Válvulas de globo (DIN) Acero fundido, bridas DIN
DIN 型鋳鋼玉形弁・アングル弁
截止阀（DIN）铸钢，DIN 法兰

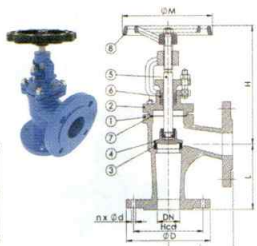
Cast Steel globe valves with stainless steel trim, pressure rating PN 40, straight and angle pattern, flanged ends acc. to DIN PN 40, outside screw & yoke and rising handwheel.

Application:
Fuel oil, Lubricating oil, Flammable hydraulic oil, Cargo oil, Non-flammable hydraulic fluid, Boiler feedwater, Condensate, Sea water, Water.





Straight



Angle

Pressure and Temperature Range
PN 40: maximum temperature 300°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Cast steel	GS-C25N
Bonnet	Cast steel	GS-C25N
Disc	Stainless steel	1.4021
Seat	Stainless steel	1.4301
Stem	Stainless steel	1.4021

How to order: CODE

Globe valve (DIN), cast steel, DIN flanges, pressure rating PN 40, stainless steel trim, fixed disc, STRAIGHT or ANGLE, SIZE DN

Straight Type

Unit Per Pc.

CODE	DN	Size mm					Weight Kg
		Hcd	D	L	H	M	
75 53 26	15	65	95	130	165	120	4.0
27	20	75	105	150	165	120	4.5
28	25	85	115	160	175	140	5.0
29	32	100	140	180	180	140	7.0
30	40	110	150	200	220	160	11.0
75 53 31	50	125	165	230	230	160	13.0
32	65	145	185	290	245	180	19.0
33	80	160	200	310	295	200	25.0
34	100	190	235	350	330	225	37.0

MESON Model No. : 410.3.4.4.1

Angle Type

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		A	L1	H	M	
75 53 41	15	95	90	165	120	3.8
42	20	105	95	165	120	4
43	25	115	100	175	140	5
44	32	140	105	180	140	7
45	40	150	115	220	160	11
75 53 46	50	165	125	230	160	13
47	65	185	145	245	180	18
48	80	200	155	290	200	25
49	100	235	175	330	225	35
50	125	270	200	365	250	55
75 53 51	150	300	225	420	300	75

MESON Model No. : 411.3.4.4.1

Globe Valves (DIN)

Cast Iron, DIN Flanges, Screw down check, Pressure Rating PN 16 Stainless Steel Trim, Straight and Angle

Válvulas de globo (DIN) Hierro fundido, bridas DIN
DIN 型鋳鉄玉形弁・アングル弁
截止阀（DIN）铸铁，DIN 法兰

Cast iron screw down check globe valves with stainless steel stem 13% Cr. Maximum working pressure is 16 bar, maximum working temperature is 100°C.



Straight



Angle

Straight Type

Unit Per Pc.

CODE	DN	Size mm				Item No.
		Flange Diam.	Face to Face	Pitch	Hole Dia × No. mm	
75 53 12	15	95	130	65	4×14	AA210015
13	20	105	150	75	4×14	AA210020
14	25	115	160	85	4×14	AA210025
69	32	140	180	100	4×18	AA210032
70	40	150	200	110	4×18	AA210040
75 53 78	50	165	230	125	4×18	AA210050
79	65	185	290	145	4×18	AA210065
80	80	200	310	160	8×18	AA210080
95	100	220	350	180	8×18	AA210100
96	125	250	400	210	8×18	AA210125

Name of Mfr.: Alligator

Angle Type

Unit Per Pc.

CODE	DN	Size mm				Item No.
		Flange Diam.	Face to Face	Pitch	Hole Dia × No. mm	
75 53 97	15	95	130	65	4×14	AA225015
98	20	105	150	75	4×14	AA225020
99	25	115	160	85	4×14	AA225025
75 54 00	32	140	180	100	4×18	AA225032
88	40	150	200	110	4×18	AA225040
75 54 89	50	165	230	125	4×18	AA225050
90	65	185	290	145	4×18	AA225065
91	80	200	310	160	8×18	AA225080
92	100	220	350	180	8×18	AA225100

Name of Mfr.: Alligator

Globe Valves (DIN)

Steel, Pressure PN 640, BSP Female Thread End Straight

Válvulas de globo (DIN) Acero
DIN 型鋼製玉形弁
截止阀（DIN）钢



Maximum working pressure/temperature:
100 bar -100°C / 640 bar -20°C.

Unit Per Pc.

CODE	Size	Face to Face mm	Alligator No.
75 53 56	1/4"	80	AA250006
57	3/8"	80	AA250010
58	1/2"	80	AA250015
59	3/4"	100	AA250020
60	1"	130	AA250025

Name of Mfr. : Alligator - Model AA250

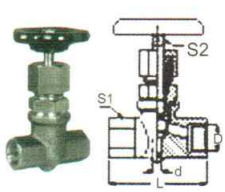
Globe Valves (DIN)

Stainless Steel, Pressure Rating PN 200, BSP Female Threaded Ends, Straight and Angle

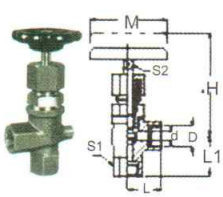
Válvulas de globo (DIN) Acero inoxidable
DIN 形ステンレス製玉形弁・アングル弁
截止阀（DIN）不锈钢

Forged steel globe valves with threaded bonnet, SS trim and inside screwed stem.

Application : liquids, gases and steam.



Straight



Angle

Pressure and Temperature Range

	Pressure rating PN 200
Maximum Operating Pressure	200 bar
Minimum Temperature	-10 °C
Maximum Temperature	300 °C

Material Specification

Component	Material	EN and/or (DIN)
Body	Stainless steel	X20Cr13
Bonnet	Carbon steel	C35E (Ck 35)
Stem	Stainless steel	X14CrMoS17 (X12CrMoS17)
Disc	Stainless steel	X39CrMo17-1 (X35CrMo17)
Butt Welding Stub	Steel	- (St.37-1)
Bonnet Nut	Steel	
Handwheel	PF (Bakelite)	

How to order: CODE

Globe valve (DIN), stainless steel, pressure rating PN 200 BSP female threaded ends,STRAIGHT or ANGLE, SIZE DN

Straight Type

Unit Per Pc.

CODE	D ["]	d mm	Size mm					Weight Kg
			H max.	L	M	S1	S2	
75 53 62	R3/8	6	130	80	90	30	9	0.87
63	R1/2	8	130	80	90	30	9	0.82
64	R3/4	10	135	100	90	36	9	1.02
65	R3/4	15	160	130	150	46	9	2
66	R1	20	160	130	150	46	9	1.82
75 53 67	R1-1/4	25	170	160	150	60	10	3.88
68	R1-1/2	32	170	160	150	60	10	3.46

Angle Type

Unit Per Pc.

CODE	D ["]	d mm	Size mm						Weight Kg
			H max.	L	L1	M	S1	S2	
75 53 72	R3/8	6	123	42	42	90	30	9	0.99
73	R1/2	8	123	42	42	90	30	9	0.96
74	R3/4	12	125	38	50	90	36	9	1.02
75	R3/4	15	125	38	50	150	46	9	1.02

Globe Valves (DIN)

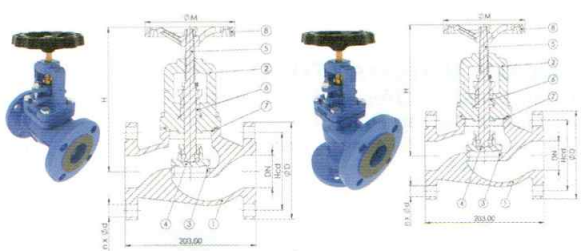
Nodular Cast Iron
DIN Flanges, Pressure Rating PN 16
Bronze Trim, Fixed Disc, Straight and Angle

Válvulas de globo (DIN) Fundición nodular

DIN 型ふし状鋳鉄玉形弁・アングル弁　截止阀（DIN）球墨铸铁

Nodular cast iron globe valve with bronze trim, pressure rating PN 16, straight and angle pattern, flanged ends acc. to DIN PN 16, outside screw & yoke and rising handwheel.

Application:
Fuel oil, Lubricating oil, Flammable hydraulic oil, Cargo oil, Non-flammable hydraulic fluid, Boiler feedwater, Condensate, Sea water, Water



Straight　　Angle

Size	Max. Press. At 120°C	Max. Press At 180°C	Flange Rate
DN 15-150	PN16	PN10	PN16
DN 200	PN10	PN6	PN10

Material Specification

Component	Material	EN and/or (DIN)
Body	Nodular cast iron	GGG40
Bonnet	Nodular cast iron	GGG40
Seat	Bronze	RG5
Disc	Bronze	RG5
Stem	Special Brass	CW602N
Gland packing	Graphite	
Gasket	Graphite	
Handwheel	Cast Iron	GG25

How to order: CODE

Globe valve (DIN), nodular cast iron, DIN flanges, pressure rating PN 16, bronze trim, STRAIGHT or ANGLE, SIZE DN

Straight Type

Unit Per Pc.

CODE	DN	Size mm					Weight Kg
		Hcd	D	L	H	M	
75 54 01	15	65	95	130	177	120	3.8
02	20	75	105	150	179	120	4.3
04	32	100	140	180	198	120	7.1
05	40	110	150	200	221	140	9.8
06	50	125	165	200	224	140	13.0
75 54 07	65	145	185	290	267	140	17.0
08	80	160	200	310	292	160	25.0
09	100	180	220	350	325	160	35.0
10	125	210	250	400	370	200	50.0
11	150	240	285	480	420	200	70.0

MESON Model No. : 410.2.5.5.1

Angle Type

Unit Per Pc.

CODE	DN	Size mm					Weight Kg
		Hcd	D	L1	H	M	
75 54 16	15	65	95	90	173	120	4.0
17	20	75	105	95	173	120	4.5
18	25	85	115	100	189	120	5.2
19	32	100	140	105	190	120	6.7
20	40	110	150	115	225	140	9.6
75 54 21	50	125	165	125	218	140	12.0
22	65	145	185	145	246	140	16.0
23	80	160	200	155	274	160	21.0
24	100	180	220	175	303	160	33.0
25	125	210	250	200	310	200	43.0
75 54 26	150	240	285	225	360	200	70.0
28	200	295	340	275	488	400	110.0
29	250	350	395	325	578	400	160.0

MESON Model No. : 411.2.5.5.1

Globe Valves (DIN)

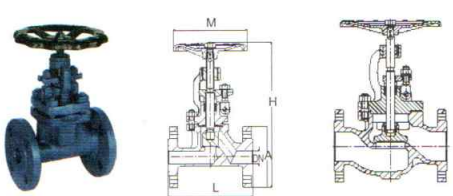
Forged Steel and Cast Steel DIN Flanges
Pressure Rating PN 40-63-100-160
Fixed Disc, Straight

Válvulas de globo (DIN) Acero Acero forjado y acero fundido

DIN 型鍛造鋼及び鋳鋼玉形弁　截止阀（DIN）锻钢和铸钢

Forged and cast steel globe valves, pressure rating PN 40/63/100/160, straight pattern, flanged ends acc. to DIN PN 40/63/100/160, hard-faced seats, outside screw & yoke and rising handwheel.

Application: steam, water, oil, air, etc.



DN 10 - 50　　DN 65 - 200

Pressure and Temperature Range

	-10/100°C	150°C	200°C	250°C	300°C	350°C	400°C	450°C
PN 40 (DN10-50)	40 bar	37	35	32	28	24	21	10
PN 40 (DN65-200)	40	37	35	32	28	24	21	-
PN 63 (DN10-50)	63	58	50	45	40	36	32	24
PN 63 (DN65-150)	63	53	50	45	40	36	32	-
PN 100 (DN10-50)	100	90	80	70	60	56	50	38
PN 100 (DN65-150)	100	83	80	70	60	56	50	-
PN 160 (DN10-50)	160	145	130	112	96	90	80	60
PN 160 (DN65-100)	160	135	130	112	96	90	80	-

Material Specification

Component	Material	EN and/or (DIN)
Body (DN 10-50) with armoured seat	Forged steel	C22G2 (C 22.8)
Body (DN 65 - 200) with armoured seat	Cast steel	GP240GH + N (GS-C 25N)
Bonnet (DN 10 - 50)	Forged steel	C22G2 (C 22.8)
Bonnet (DN 65 - 200)	Cast steel	GP240GH + N(GS-C25N)
Disc (DN 10 - 50) with hard-faced seat	Stainless Steel	X20Cr13
Disc (DN65-200) with armoured seat	Forged steel	C22G2 (C 22.8)
Stem	Stainless steel	X20Cr13
Yoke Bush	Steel	11SMnPb30 (9SMnPb 28)
Gland Packing	Graphite	
Bonnet Gasket	Graphite	
Handwheel	Ductile cast iron	GJS-400-15 (GGG-40)

PN 40

How to order: CODE

Globe valve (DIN), FORGED or CAST STEEL, DIN flanges, pressure rating PN 40, straight type, SIZE DN

Unit Per Pc.

CODE	DN	Size mm A	L	H	M	Weight Kg
Forged Steel						
75 54 51	10	90	130	215	140	4.5
52	15	95	130	215	140	5.0
53	20	105	150	220	140	5.7
54	25	115	160	220	140	6.3
55	32	140	180	245	180	10.0
75 54 56	40	150	200	250	180	11.2
57	50	165	230	260	180	15.5
Cast Steel						
75 54 58	65	185	290	310	225	23.5
59	80	200	310	360	280	28.0
60	100	235	350	400	280	40.0
61	125	270	400	465	360	61.0
62	150	300	480	530	360	84.0
75 54 63	200	375	600	575	450	170.0

PN 63

How to order: CODE

Globe valve (DIN), FORGED or CAST STEEL, DIN flanges, pressure rating PN 63, straight type, SIZE DN

Unit Per Pc.

CODE	DN	Size mm A	L	H	M	Weight Kg
Forged Steel						
75 54 64	10	100	210	220	180	8.7
65	15	105	210	220	180	8.6
66	20	130	230	220	180	10.4
67	25	140	230	220	180	10.9
68	32	155	260	285	225	19.0
75 54 69	40	170	260	285	225	21.0
70	50	180	300	345	225	24.1

(to be continued)

Unit Per Pc.

CODE	DN	Size mm A	L	H	M	Weight Kg
Cast Steel						
75 54 71	65	205	340	360	280	34.0
72	80	215	380	400	280	47.0
73	100	250	430	410	360	72.0
74	125	295	500	535	360	117.0
75	150	345	550	555	450	160.0

PN 100

How to order: CODE

Globe valve (DIN), FORGED or CAST STEEL, DIN flanges, pressure rating PN 100, straight type, SIZE DN

Unit Per Pc.

CODE	DN	Size mm A	L	H	M	Weight Kg
Forged Steel						
75 54 76	10	100	210	220	180	8.7
77	15	105	210	220	180	8.6
78	20	130	230	220	180	10.4
79	25	140	230	220	180	10.9
80	32	155	260	285	225	19.0
75 54 81	40	170	260	285	225	21.0
82	50	195	300	345	225	24.1
Cast Steel						
75 54 83	65	220	340	360	280	34.0
84	80	230	380	400	280	47.0
85	100	265	430	410	360	72.0
86	125	315	500	535	360	120.0
87	150	355	550	555	450	166.0

PN 160

How to order: CODE

Globe valve (DIN), FORGED or CAST STEEL, DIN flanges, pressure rating PN 160, straight type, SIZE DN

Unit Per Pc.

CODE	DN	Size mm A	L	H	M	Weight Kg
Forged Steel						
75 54 31	10	100	210	220	180	8.7
32	15	105	210	220	180	8.6
33	20	130	230	220	180	10.4
34	25	140	230	220	180	10.9
35	32	155	260	285	225	19.0
75 54 36	40	170	260	285	225	21.0
37	50	195	300	345	225	25.0
Cast Steel						
75 54 38	65	220	340	360	280	39.0
39	80	230	380	400	280	51.0
40	100	265	430	410	360	80.0

Globe Valves (DIN)

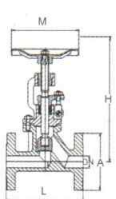
Heat-resistant Steel DIN Flanges Pressure Rating PN 160

Válvulas de globo (DIN) Acero resistente al calor
DIN 型耐熱鋼玉形弁
截止阀（DIN）耐热钢

Forged and cast heat-resistant steel globe valves, pressure rating PN 160, straight pattern, flanged ends acc. to DIN PN 160, stellited seat, outside screw & yoke and rising handwheel.

Application: steam, water, oil. air etc.





Pressure and Temperature Range

	-10/300°C	350°C	400°C	450°C	500°C
PN 160	160 bar	153	146	139	118
	510°C	520°C	530°C	540°C	550°C
PN 160	100	79	62	46	35

Material Specification

Component	Material	EN and/or (DIN)
Body (with stellited seat)	Heat-resistant steel	13CrMo4-5 (13CrMo4 4)
Bonnet	Heat-resistant steel	13CrMo4-5 (13CrMo4 4)
Disc (with stellited seat)	Heat-resistant steel	13CrMo4-5 (13CrMo4 4)
Stem	Stainless steel	X20Cr13
Yoke Bush	Steel	11SMnPb30 (9SMnPb 28)
Bonnet Gasket, Gland Packing	Graphite	
Handwheel	Ductile cast iron	GJS-400-15 (GGG-40)

How to order: CODE

Globe valve (DIN), heat-resistant steel, DIN flanges, pressure rating PN 160, straight type, SIZE DN

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		A	L	H	M	
75 54 41	10	100	210	232	180	8.7
42	15	105	210	232	180	8.6
43	20	130	230	232	180	10.4
44	25	140	230	232	180	10.9
45	32	155	260	300	225	19.0
75 54 46	40	170	260	300	225	21
47	50	195	300	363	225	25

DIN Gate Valves

Gate Valves (DIN)

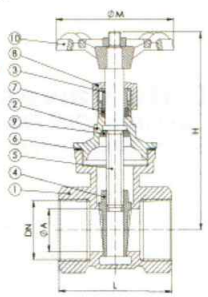
Brass, BSPP Female Threaded Ends, Non-Rising Stem

Válvulas de compuerta (DIN) Bronce y latón

DIN 型真鍮仕切弁　闸阀（DIN）青铜和黄铜

Brass body gate valve, brass wedge. Non rising stem, screwed bonnet. BSPP female threaded ends.





Pressure and Temperature Rang: 16 Bar-120°C (Water, Oil, Air)

Material Specification

No	Part	Material	Code
1	Body	Copper Alloy	CC491K
2	Bonnet	Copper Alloy	CW614N
3	Gland	Copper Alloy	CW614N
4	Wedge	Copper Alloy	CW614N
5	Stem	Copper Alloy	CW614N
6	Gasket	NA	Red fiber
7	Packing	NA	Red fiber
8	Gland nut	Copper Alloy	CW614N
9	Nut	Copper Alloy	CW614N
10	Handwheel	Steel	-

How to order: CODE

Gate valve (DIN), brass, BSPP female threaded ends, non-rising stem, TYPE, SIZE DN

PN16

Unit Per Pc.

CODE	DN	Size mm					Weight Kg
		Inch	H	L	A	M	
75 55 03	15	1/2"	74	42	14	55	0.2
04	20	3/4"	79	44	19	55	0.3
05	25	1"	91	47	24	60	0.4
06	32	1-1/2"	112	53	32	70	0.6
07	40	1-1/2"	126	58	36	80	0.8
75 55 08	50	2"	143	67	46.5	90	1.2
09	65	2-1/2"	178	76	60	110	2.1
10	80	3"	206	82	69.5	120	2.8

MESON Model No. : 600.5.5.5.1

Gate Valves (DIN)

Bronze, DIN Flanged Ends Threaded Bonnet Inside Screwed Stem Pressure Rating PN 16

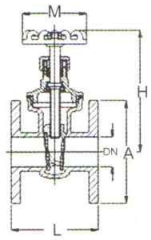
Válvulas de compuerta (DIN) Bronce, bridas DIN

DIN 型青銅仕切弁

闸阀（DIN）青铜，DIN 法兰端

Bronze gate valve with bronze wedge and seat, pressure rating PN 16, flat faced flange acc. to DIN PN 10/16, threaded bonnet, inside screwed stem, non-rising stem and handwheel, face to face acc. to EN 558-1, 47 (DIN 3202-F19). Heavy duty construction with flat faced flanges. Possible certification by various classification societies. Application: cold and hot water, saturated steam and other neutral media. Application area: general; but primarily used in shipbuilding.





Pressure and Temperature Range

Bore	Pressure and temperature Range
DN 15 - 100	16 bar - 120°C 10 bar - 150°C 6 bar - 200°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Bonnet	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Wedge	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Stem	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Bonnet Gasket	Asbestos-free	
Gland Packing	Asbestos-free	

How to order: CODE

Gate valve (DIN), bronze, DIN flanged ends, threaded bonnet inside screwed stem, SIZE DN

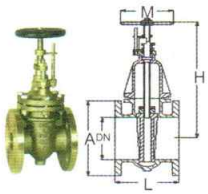
Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		A	H	L	M	
75 55 41	15	95	85	75	55	1.7
42	20	105	105	75	55	1.9
43	25	115	117	80	70	2.5
44	32	140	130	90	70	3.5
45	40	150	150	100	80	4.5
75 55 46	50	165	180	110	110	5.1
47	65	185	220	130	110	8.9
48	80	200	251	150	150	11.4
49	100	220	344	160	170	19.0

Gate Valves (DIN)

Bronze, DIN Flanged Ends Bolted Bonnet Inside Screwed Stem

Válvulas de compuerta (DIN) Bronce, bridas DIN
DIN 型青銅仕切弁
闸阀（DIN）青铜，DIN 法兰端



Bronze gate valve with bronze wedge and seat, pressure rating PN 4/6/10/16, flat faced flanges acc. to DIN PN 10/16, bolted bonnet, position indicator, inside screwed stem, non-rising stem and handwheel, face to face acc. to EN 558-1, 14 (DIN 3202-F4).
Heavy duty construction with flat faced flanges. A position indicator is a standard feature of the valve. Possible certification by various classification societies.

Application: especially suitable for use in shipbuilding.

Pressure and Temperature Range

Bore	Pressure and Temperature Range
DN 40 thru DN 150	16 bar - 100°C, 11 bar - 225°C
DN 200	10 bar - 100°C, 6 bar - 225°C
DN 250	6 bar - 100°C, 4 bar - 225°C
DN 300	4 bar - 100°C, 2.5 bar - 225°C

Material Specification

Component	Material	EN and/or (DIN)
Body Bonnet and Wedge	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Stem	Brass	CuZn35Ni3Mn2AlPb (CuZn35Ni)
Bonnet Gasket	Asbestos-free	
Gland Packing	Asbestos-free	
Position Indicator	Brass	CuZn35Ni3Mn2AlPb (CuZn35Ni)

How to order: CODE

Gate valve (DIN), bronze, DIN flanged ends, bolted bonnet inside screwed stem, SIZE DN

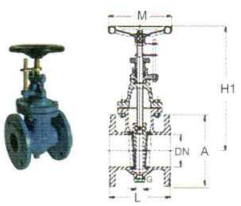
Unit Per Pc.

CODE	DN	Size mm				Weight
		A	H	L	M	Kg
75 55 51	40	150	260	140	140	11.5
52	50	165	260	150	140	14
53	65	185	320	170	160	18
54	80	200	350	180	160	21
55	100	220	410	190	200	29
75 55 56	125	250	440	200	200	38
57	150	285	520	210	250	50
59	200	340	630	230	250	79
60	250	395	720	250	315	108
61	300	445	820	270	400	187

Gate Valves (DIN)

Cast Iron, DIN Flanged Ends, Inside Screwed Stem, Short Face to Face, Bronze Seat

Válvulas de compuerta (DIN) Hierro fundido, bridas DIN
DIN 型鋳鉄仕切弁
闸阀（DIN）铸铁，DIN 法兰端



Cast iron gate valve with bronze seat, pressure rating PN 2.5/6/10, flanged ends acc. to DIN PN 10, bolted bonnet, inside screwed stem, non-rising stem, non-rising handwheel, solid wedge, short Face To Face acc. to EN 558-1, 14 (DIN 3202-F4). This model has standard a position indicator and drain plug.

Application: cold and hot fresh water, seawater, lubricating oil, steam, etc.

Pressure and Temperature Range

Bore	Stem and Hot Water	Other Media
DN 40 thru DN 300	8 bar - 150°C	10 bar - 120°C
DN 350 thru DN500	2 bar - 150°C	6 bar - 120°C
DN 600	-	2.5 bar - 120°C

Material Specification

Component	Material	EN and/or (DIN)
Body and Bonnet	Cast iron	GJL-250 (GG-25)
Body Seat Rings	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Wedge (DN40-DN100)	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Wedge (DN125-DN600)	Cast iron	GJL-250 (GG-25)
Wedge Set Rings (DN125-600)	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Stem	Brass	- (CuZn41Pb62)
Handwheel	Cast iron	
Bonnet Gasket	Novus 34	
Gland Packing	PTFE	
Position Indicator	Brass	- (CuZn41Pb62)

How to order: CODE

Gate valve (DIN), cast iron, DIN flanged ends, inside screwed stem, short face to face, bronze seat, with position indicator and drain plug, SIZE DN

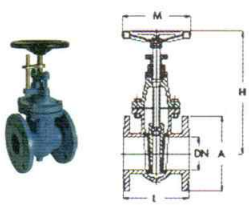
Unit Per Pc.

CODE	DN	Size mm					Weight
		A	L	H1	M	G	Kg
75 55 71	40	150	140	255	125	-	10
72	50	165	150	270	150	1/2"	12
73	65	185	170	323	175	1/2"	17
74	80	200	180	355	175	1/2"	22
75	100	220	190	405	200	1/2"	27
75 55 76	125	250	200	460	200	1/2"	33
77	150	285	210	518	225	1/2"	43
78	200	340	230	608	225	3/4"	65
79	250	395	250	708	250	3/4"	100
80	300	445	270	818	300	3/4"	142
75 55 81	350	505	290	997	400	1"	207
82	400	565	310	1,087	400	1"	246
84	500	670	350	1,308	500	1"	416
86	600	780	390	1,493	500	1"	624

Gate Valves (DIN)

Cast Iron, DIN Flanged Ends, Inside Screwed Stem, Short Face to Face, Bronze Seat

Válvulas de compuerta (DIN), Hierro fundido, bridas DIN
DIN 型鋳鉄仕切弁
闸阀（DIN）铸铁，DIN 法兰端



Cast iron gate valve with bronze seat, pressure rating PN 2.5/6/10, flanged ends acc. to DIN PN 10, bolted bonnet, inside screwed stem, non-rising stem, non-rising handwheel, solid wedge, short Face To Face acc. to EN 558-1, 14 (DIN 3202-F4).

Application: cold and hot fresh water, seawater, lubricating oil steam etc.
*Drain Plug is available in option.

Pressure and Temperature Range

Bore	Stem and Hot Water	Other Media
DN 40 thru DN 300	8 bar - 150°C	10 bar - 120°C
DN 350 thru DN500	2 bar - 150°C	6 bar - 120°C
DN 600	-	2.5 bar - 120°C

Material Specification

Component	Material	EN and/or (DIN)
Body and Bonnet	Cast iron	GJL-250 (GG-25)
Body Seat Rings	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Wedge (DN40-DN100)	Bonze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Wedge (DN125-DN600)	Cast iron	GJL-250 (GG-25)
Wedge Set Rings (DN125-600)	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Stem	Brass	- (CuZn41Pb62)
Handwheel	Cast iron	
Bonnet Gasket	Novus 34	
Gland Packing	PTFE	

How to order: CODE

Gate valve (DIN), cast iron, DIN flanged ends, inside screwed stem, short face to face, bronze seat, SIZE DN

Unit Per Pc.

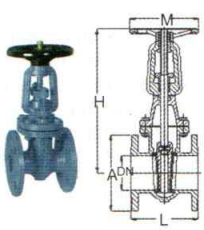
CODE	DN	Size mm				Weight
		A	L	H	M	Kg
75 56 01	40	150	140	230	125	10
02	50	165	150	245	150	12
03	65	185	170	290	175	17
04	80	200	180	315	175	22
05	100	220	190	355	200	27
75 56 06	125	250	200	415	200	33
07	150	285	210	460	225	43
08	200	340	230	545	225	65
09	250	395	250	635	250	100
10	300	445	270	728	300	142
75 56 11	350	505	290	888	400	207
12	400	565	310	964	400	246
13	500	670	350	1,150	500	416
14	600	780	390	1,320	500	624

Gate Valves (DIN)

Cast Iron, DIN Flanged Ends
Outside Screw & Yoke, Short Face to Face
Bronze Seat

Válvulas de compuerta (DIN), Hierro fundido, bridas DIN
DIN 型鑄鉄仕切弁
闸阀（DIN）铸铁，DIN 法兰端

Cast iron gate valve with bronze seat, pressure rating PN 10, flanged ends acc. to DIN PN 10, bolted bonnet, outside screwed stem and yoke, rising stem, non-rising handwheel, solid wedge, short face to face acc. to EN 558-1, 14 (DIN 3202-F4). Purpose: cold and hot fresh water, saltwater, lubricating oil, steam etc.



Pressure and Temperature Range

Bore	Pressure and Temperature Range	Max. Temperature
DN 40 thru DN 300	8 bar - 150°C 10 bar - 120°C	150°C

Material Specification

Component	Material	EN and/or (DIN)
Body and Bonnet	Cast iron	GJL-250 (GG-25)
Body Seat Rings	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Wedge (DN40-DN100)	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Wedge (DN125-DN300)	Cast iron	GJL-250 (GG-25)
Wedge Set Rings (DN125-300)	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Stem	Brass	-(CuZn41Pb62)
Handwheel	Cast iron	
Bonnet Gasket	Novus 34	
Gland Packing	PTFE	

How to order: CODE

Gate valve (DIN), cast iron, DIN flanged ends, outside screw & yoke, short face to face, bronze seat, SIZE DN

Unit Per Pc.

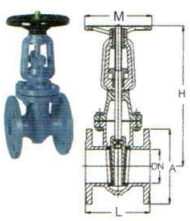
CODE	DN	Size mm						Weight
		A	L	H	H Open	M		Kg
75 56 15	40	150	140	265	310	150		10
16	50	165	150	275	330	150		12
17	65	185	170	335	405	175		17
18	80	200	180	355	440	175		22
19	100	220	190	400	505	200		27
75 56 20	125	250	200	495	625	200		33
21	150	285	210	585	740	225		43
22	200	340	230	700	910	225		65
23	250	395	250	830	1,090	250		100
24	300	445	270	960	1,270	300		142

Gate Valves (DIN)

Cast Iron, DIN Flanged Ends
Outside Screw & Yoke, Short Face to Face
Bronze Seat

Válvulas de compuerta (DIN), Hierro fundido, bridas DIN
DIN 型鑄鉄仕切弁
闸阀（DIN）铸铁，DIN 法兰端

Cast iron gate valves with bronze seat, pressure rating PN 10, flanged ends acc. to DIN PN 10, bolted bonnet, outside screwed stem and yoke, rising stem, non-rising handwheel, solid wedge, short face to face acc. to EN558-1, 14 (DIN 3202-F4). This model has a double pitch threaded stem (fast opening/closing) and drain plug.



Purpose: cold and hot fresh water, saltwater, lubricating oil, steam etc.

Pressure and Temperature Range

Bore	Pressure and Temperature Range	Max. Temperature
DN 40 thru DN 300	8 bar - 150°C 10 bar - 120°C	150°C

Material Specification

Component	Material	EN and/or (DIN)
Body and Bonnet	Cast iron	GJL-250 (GG-25)
Body Seat Rings	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Wedge (DN40-DN100)	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Wedge (DN125-DN300)	Cast iron	GJL-250 (GG-25)
Wedge Set Rings (DN125-300)	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Stem	Brass	-(CuZn41Pb62)
Handwheel	Cast iron	
Bonnet Gasket	Novus 34	
Gland Packing	PTFE	

How to order: CODE

Gate valve (DIN), cast iron, DIN flanged ends, outside screw & yoke, short face to face, bronze seat, with double pitch threaded stem and drain plug SIZE DN

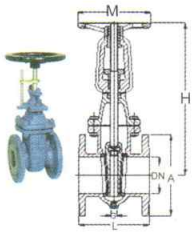
Unit Per Pc.

CODE	DN	Size mm					Weight Kg
		A	L	H	M	Drain Plug	
75 56 32	50	165	150	275	150	1/2"	12
33	65	185	170	335	175	1/2"	17
34	80	200	180	355	175	1/2"	22
35	100	220	190	400	200	1/2"	27
36	125	250	200	495	200	1/2"	33
75 56 37	150	285	210	585	225	1/2"	43
38	200	340	230	700	225	3/4"	65
39	250	395	250	830	250	3/4"	100
40	300	445	270	960	300	3/4"	142

Gate Valves (DIN)

Cast Iron, DIN Flanged ends Outside Screw & Yoke. Short Face to Face Stainless Steel Seat, Pressure Rating PN 10

Válvulas de compuerta (DIN), Hierro fundido, DIN Extremos con bridas
DIN 型鑄鉄仕切弁
闸阀（DIN）铸铁，DIN 法兰端



Cast iron gate valves with stainless steel seat, pressure rating PN 10, flanged ends acc. to DIN PN 10, bolted bonnet, outside screwed stem and yoke, rising stem, non-rising handwheel, solid wedge, drain plug, grease nipple, short face to face acc. to EN 558-1, 14 (DIN 3202-F4).

Application: cold and hot fresh water, lubricating oil, steam etc. Application due to the absence of cupriferous parts, these valves are especially suitable for aggressive media.

Pressure and Temperature Range

Bore	Pressure and Temperature Range	Max. Temperature
DN 40 thru DN 300	8 bar - 150°C 10 bar - 120°C	150°C

Material Specification

Component	Material	EN and/or (DIN)
Body and Bonnet	Cast iron	GJL-250 (GG-25)
Body Seats	Stainless steel	X5CrNi18-10
Wedge (DN40-DN100)	Cast steel	GP240GH + N (GS-C25N)
Wedge (DN125-DN300)	Cast iron	GJL-250 (GG-25)
Wedge Seats	Stainless steel	X5CrNi18-10
Stem	Stainless steel	X5CrNi18-10
Handwheel	Cast iron	
Bonnet Gasket	Novus 34	
Gland Packing	PTFE	

How to order: CODE

Gate valve (DIN), cast iron, DIN flanged ends, outside screw & yoke, short face to face, stainless steel seat, SIZE DN

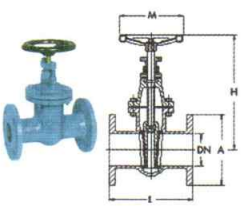
Unit Per Pc.

CODE	DN	Size mm					Weight
		A	L	H	M	G	Kg
75 56 41	40	150	140	265	150	-	10
42	50	165	150	275	150	1/2"	12
43	65	185	170	335	175	1/2"	17
44	80	200	180	355	175	1/2"	22
45	100	220	190	400	200	1/2"	27
75 56 46	125	250	200	495	200	1/2"	33
47	150	285	210	585	225	1/2"	43
48	200	340	230	700	225	3/4"	65
49	250	395	250	830	250	3/4"	100
50	300	445	270	960	300	3/4"	142

Gate Valves (DIN)

Cast Iron, DIN Flanged Ends, Inside Screwed Stem, Long Face to Face, Bronze Seat

Válvulas de compuerta (DIN), Hierro fundido, bridas DIN
DIN 型鑄鉄仕切弁
闸阀（DIN）铸铁，DIN 法兰端



Cast iron gate valve with brass seat, pressure rating PN 16, flanged ends acc. to DIN PN 10/16, bolted bonnet, inside screwed stem, non-rising stem, non-rising handwheel, solid wedge, long face to face acc. to EN 558-1, 15 (DIN 3202-F5).

Application: as standard, these valves can be used for cold and warm water.

Pressure and Temperature Range

Bore	Pressure and Temperature Range	Max. Temperature
DN 40 thru DN 300	16 bar - 80°C	80°C (due to NBR bonnnet gasket)
For higher temperatures, use a different bonnet gasket		

Material Specification

Component	Material	EN and/or (DIN)
Body and Bonnet	Cast iron	GJL-250 (GG-25)
Body Seats	Brass	- (CuZn41Pb62)
Wedge (DN40-DN65)	Brass	- (CuZn41Pb62)
Wedge (DN80-DN300)	Cast iron	GJL-250 (GG-25)
Wedge Seats (DN80-DN300)	Brass	- (CuZn41Pb62)
Stem	Brass	- (CuZn41Pb62)
Handwheel	Cast iron	
Bonnet Gasket	NBR	
Gland Packing	PTFE	

How to order: CODE

Gate valve (DIN), cast iron, DIN flanged ends, inside screwed stem, long face to face, bronze seat, SIZE DN

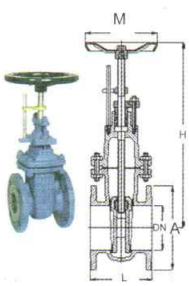
Unit Per Pc.

CODE	DN	Size mm				Weight
		A	L	H	M	Kg
75 56 51	40	150	240	230	180	10
52	50	165	250	245	180	13
53	65	185	270	290	225	17
54	80	200	280	315	225	24
55	100	220	300	355	280	31
75 56 56	125	250	325	415	320	41
57	150	285	350	460	320	55
58	200	340	400	545	400	89
59	250	395	450	635	500	140
60	300	445	500	725	500	180

Gate Valves (DIN)

Cast Iron, DIN Flanged Ends, Inside Screwed Stem, Short Face to Face, Pressure Rating PN16

Válvulas de compuerta (DIN), Hierro fundido, bridas DIN
DIN 型鑄鉄仕切弁
闸阀（DIN）铸铁，DIN 法兰端



Cast steel gate valve with stainless steel seat, pressure rating PN 16, flanged ends acc. to DIN PN 16, bolted bonnet, inside screwed stem, non-rising stem, non-rising handwheel, flexible wedge, position indicator, short face to face acc. to EN 558-1, 14 (DIN 3202-F4).

Application suitable for general applications; due to the special trim, these valves are especially suitable for seawater, and they are used aboard ships as ship-side valve and in cooling water systems.

Pressure and Temperature Range

	-10/20°C	100°C	150°C	200°C	250°C
PN 16	16 bar	16	16	13.3	12.2
	300°C	350°C	400°C	425°C	450°C
PN 16	11	10.3	9.9	9.7	9.5

Material Specification

Component	Material	EN and/or (DIN)
Body, Bonnet and Wedge	Cast steel	GP240GH + N (GS-C 25N)
Wedge Seats	Stainless steel	- (X2CrNiMo19 12)
Body Seats	Stainless steel	- (X2CrNiMo19 12)
Stem	Stainless steel	X6CrNiMoTi17-12-2
Handwheel	Steel	
Bonnet Gasket, Gland Packing (SS insert)	Graphite	
Position Indicator	Brass	

How to order: CODE

Gate valve (DIN), cast steel, DIN flanged ends, inside screwed stem, short face to face, pressure rating PN 16, SIZE DN

Unit Per Pc.

CODE	DN	Size mm				Weight
		A	H	L	M	Kg
75 56 72	50	165	330	150	200	16
73	65	185	390	170	200	23
74	80	200	420	180	200	26
75	100	220	440	190	200	32
76	125	250	490	200	250	39
75 56 77	125	285	580	210	250	52
78	200	340	690	230	300	84
79	250	405	860	250	400	160
80	300	460	930	270	400	190

Gate Valves (DIN)

Cast steel, DIN Flanged Ends Rising Stem, Short Face to Face Pressur Rating PN16

Válvulas de compuerta (DIN), Acero fundido, DIN Extremos con bridas
DIN 型鋳鋼仕切弁
闸阀（DIN）铸钢，DIN 法兰端



Cast steel body gate valve, Cast Steel wedge, Stainless Steel seat. Rising stem and bolted bonnet. Raised face flanges.

Pressure and Temperature Range

	-10/20°C	100°C	150°C	200°C	250°C
PN 16	16 bar	16	14	11	10
	300°C	350°C	400°C	427°C	
PN 16	8	7	5	5	

ASTM A216 WCB is not recommended for long-term duty above 427°C.

Material Specification

No	Part	Material	Code
1	Body	Cast Steel	ASTM A216-WCB
2	Bonnet	Cast Steel	ASTM A216-WCB
3	Wedge	Cast Steel	ASTM A216-WCB
4	Seat	Stainless Steel	Deposited 13Cr
5	Stem	Stainless Steel	ASTM A182-F6a
6	Bonnet Gasket	Graphite	
7	Packing	Graphite	
8	Yoke	Cast Steel	ASTM A216-WCB
9	Stem nut	Aluminium Bronze	
10	Handwheel	Cast Iron	

How to order: CODE

Gate valve (DIN), cast steel, DIN flanged ends, rising stem, short face to face, pressure rating PN16, SIZE DN

Unit Per Pc.

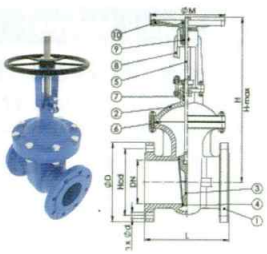
CODE	DN	Size mm					Weight
		Hcd	D	L	H	M	Kg
75 56 91	40	110	150	140	300	200	26.5
82	50	125	165	150	358	240	29
83	65	145	185	170	375	240	33
84	80	160	200	180	433	280	45
85	100	180	220	190	502	320	63
75 56 86	125	210	250	200	612	380	108
87	150	240	285	210	676	380	134
88	200	295	340	230	820	400	192
89	250	355	405	250	969	450	273
90	300	410	460	270	1,142	580	379

MESON Model No.: 622.3.4.4.1

Gate Valves (DIN)

Cast Steel, DIN Flanged Ends, Risinbg Stem, Long Face to Face, Pressure Rating PN 16-40

Válvulas de compuerta (DIN), Acero fundido, DIN Extremos con bridas
DIN 型鋳鋼仕切弁
闸阀（DIN）铸钢，DIN 法兰端



Cast steel gate valve with stainless steel seat, pressure rating PN 16, 25 and 40, flanged ends acc. to DIN PN 16 - 40, bolted bonnet with yoke, outside screwed stem and yoke, rising stem, raised face flanges, long type.

Application:
Corrosive fluids, Steam, Thermal oil, Fuel oil, Lubricating oil, Flammable hydraulic oil, Cargo oil, Non-flammable hydraulic fluid, Boiler feedwater, Condensate, Sea water,

Pressure and Temperature Range

Pressure Rating	0/50°C	100°C	150°C	200°C	250°C	300°C	350°C	375°C	427°C
PN16	16 bar	14	13	11	10	8	7	6	5
PN25	25 bar	23	21	19	17	14	13	12	10

ASTM A216 WCB is not recommended for long-term duty above 427°C

Material Specification

Component	Material	Code
Body	Cast Steel	ASTM A216-WCB
Bonnet	Cast Steel	ASTM A216-WCB
Wedge	Cast Steel	ASTM A216-WCB
Seat	Stainless Steel	Deposited 13Cr
Stem	Stainless Steel	ASTM A182-F6a
Bonnet Gasket	Graphite	
Packing	Graphite	
Yoke	Cast Steel	ASTM A216-WCB
Stem nut	Aluminium Bronze	
Handwheel	Cast Iron	

How to order: CODE

Gate valve (DIN), cast steel, DIN flanged ends, rising stem, long face to face, PRESSURE RATING PN, SIZE DN

PN 16

Unit Per Pc.

CODE	DN	Size mm					Weight
		Hcd	D	L	H	M	Kg
75 57 09	50	125	165	250	358	240	29
01	65	145	185	270	375	240	33
02	80	160	200	280	433	280	45
03	100	180	220	300	502	320	63
04	125	210	250	325	612	360	108
75 57 05	150	240	285	350	676	360	134
06	200	295	340	400	820	400	192
08	300	410	460	500	1142	560	379

MESON Model No. : 623.3.4.4.1

PN 25

Unit Per Pc.

CODE	DN	Size mm					Weight
		Hcd	Kg	L	H	M	Kg
75 57 19	50	125	165	250	358	240	28
12	80	160	200	280	433	280	46
13	100	190	235	300	502	320	64
14	125	220	270	325	612	360	116
15	150	250	350	350	676	360	141
75 57 16	200	310	360	400	820	400	213
17	250	370	425	450	969	450	290

MESON Model No. : 623.3.4.4.1

PN 40

Unit Per Pc.

CODE	DN	Size mm					Weight
		Hcd	D	L	H	M	Kg
75 57 34	50	125	165	250	372	280	32
21	65	145	185	290	395	280	39
22	80	160	200	310	457	320	52
23	100	190	235	350	552	360	80
24	125	220	270	400	634	400	127
75 57 25	150	250	300	450	708	400	154
26	200	320	375	550	858	450	263

MESON Model No. : 623.3.4.4.1

DIN Check Valves

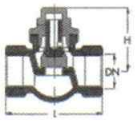
Check Valves (DIN)

Bronze, BSP Female Threaded Ends, Lift Type

Válvulas de retención (DIN), Bronce, extremos roscados hembra BSP Tipo de elevación
逆止弁（DIN）青銅、BSP 雌ネジ端 リフトタイプ
止回阀（DIN）青铜
英制锥螺纹内螺纹端 提升式

Bronze check valves for horizontal installation.





Pressure and Temperature Range

Model	Pressure and Temperature Range	
500BR	16 bar - 120°C	12 bar - 200°C
500TE	16 bar - 120°C	10 bar - 185°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Disc and Bonnet	Brass	- (CuZn41Pb62)
Gasket	Asbestos-free	
Disc Ring (500TE)	PTFE	

How to orde: CODE

Check valve (DIN), bronze, BSP female threaded ends, lift type, SIZE DN

Unit Per Pc.

Max. 200°C at 12 bar				Max. 185°C at 10 bar				Weight Kg
CODE	DN	Size mm L	Size mm H	CODE	DN	Size mm L	Size mm H	
75 57 51	1/4"	50	37	**75 57 61**	1/4"	50	37	0.3
52	3/8"	50	38	**62**	3/8"	50	38	0.3
53	1/2"	60	39	**63**	1/2"	60	39	0.4
54	3/4"	70	48	**64**	3/4"	70	48	0.5
55	1"	80	53	**65**	1"	80	53	0.8
75 57 56	1-1/4"	95	56	**75 57 66**	1-1/4"	95	56	1.2
57	1-1/2"	105	63	**67**	1-1/2"	105	63	1.6
58	2"	130	72	**68**	2"	130	72	2.5
59	2-1/2"	163	100	**69**	2-1/2"	163	100	5.2
60	3"	185	110	**70**	3"	185	110	6.0

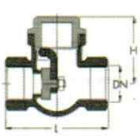
Check Valves (DIN)

Bronze, BSP Female Threaded Ends, Swing Type

Válvulas de retención (DIN), Bronce, extremos roscados hembra BSP, tipo pivotante
逆止弁（DIN）青銅、BSP 雌ネジ端、スイングタイプ
止回阀（DIN），青铜，英制锥螺纹内螺纹端，摆动

Bronze check valves for horizontal and vertical (upward flow) installation.





Pressure and Temperature Range

Type	Pressure and Temperature Range	
Metal Seated	16 bar - 120°C	12 bar - 200°C
PTFE Disc Seal	16 bar - 120°C	10 bar - 185°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Disc and Bonnet	Brass	- (CuZn41Pb62)
Gasket	Asbestos-free	
Disc Ring (505TE)	PTFE	

How to order: CODE

Check valve (DIN), bronze, BSP female threaded ends, swing type, SIZE DN

Unit Per Pc.

Metal Seated				PTFE Disc Seal				Weight Kg
CODE	D	Size mm L	Size mm H	CODE	D	Size mm L	Size mm H	
75 57 71	3/8"	50	35	**75 57 81**	3/8"	50	35	0.3
72	1/2"	60	38	**82**	1/2"	60	38	0.4
73	3/4"	70	49	**83**	3/4"	70	49	0.5
74	1"	80	54	**84**	1"	80	54	0.8
75	1-1/4"	95	60	**85**	1-1/4"	95	60	1.1
75 57 76	1-1/2"	105	70	**75 57 86**	1-1/2"	105	70	1.5
77	2"	130	77	**87**	2"	130	77	2.1
78	2-1/2"	160	94	**88**	2-1/2"	160	94	4.6
79	3"	185	130	**89**	3"	185	130	6.9

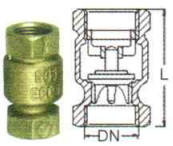
Check Valves (DIN)

Bronze, BSP Female Threaded Ends, Vertical Installation

Válvulas de retención (DIN), Bronce, extremos roscados hembra BSP, instalación vertical
逆止弁（DIN），ブロンズ、BSP 雌ネジ端、垂直設置
止回阀（DIN）青铜，英制锥螺纹内螺纹端，垂直安装

Bronze check valves with BSP female threaded ends, only suitable for vertical (upward flow) installation.

Pressure and Temperature Range:
16 bar - 120°C
12 bar - 200°C



Material Specification

Component	Material	EN and/or (DIN)
Body	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Disc and Disc Guide	Brass	- (CuZn41Pb62)

How to order: CODE

Check valve (DIN), bronze, BSP female threaded ends, Vertical installation, SIZE DN

Unit Per Pc.

CODE	D	L mm	Weight Kg	CODE	D	L mm	Weight Kg
75 57 91	3/8"	55	0.18	**75 57 95**	1-1/4"	80	0.6
92	1/2"	55	0.18	**96**	1-1/2"	85	0.85
93	3/4"	65	0.25	**97**	2"	112	1.45
94	1"	72	0.38				

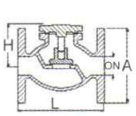
Check Valves (DIN)

Bronze, DIN Flanges, Lift Type, Straight and Angle

Válvulas de retención (DIN), Bronce, bridas DIN, tipo elevador, rectas y en ángulo
逆止弁（DIN）,青銅、DIN フランジ、リフトタイプ、ストレート及びアングル
止回阀（DIN）青铜，DIN 法兰，提升式，直通式和角式

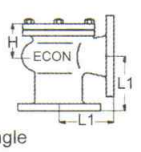
Bronze lift type check valves with bronze disc and seat, pressure rating PN 16, straight and angle pattern, flat faced flanges as per DIN PN 16 and bolted bonnet. Only suitable for installation in horizontal pipelines. These check valves offer very good resistance to the corrosive action of seawater, fresh water and waste water.
Application area: aboard ships but also in installations where corrosion (in- or external) is undesirable.





Straight





Angle

Pressure and Temperature Range

Pressure Raiting	Pressure and Temperature Range	Max. Temperature
PN 16	16 bar - 120°C 12 bar - 200°C	200°C 200°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Disc	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Bonnet	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Bonnet Gasket	Graphite	

How to order: CODE

Check valve (DIN), bronze, DIN flanges, lift type, STRAIGHT or ANGLE, SIZE DN

Straight Type

Unit Per Pc.

CODE	DN	Size mm			Weight Kg
		A	L	H	
75 58 11	15	95	120	65	3.5
12	20	105	120	65	4.2
13	25	115	140	75	5.0
14	32	140	150	75	6.8
15	40	150	155	95	8.4
75 58 16	50	165	180	105	10.2
17	65	185	200	120	21.3
18	80	200	240	130	26.5
19	100	220	270	160	34.0
20	125	250	320	175	50.0
75 58 21	150	285	370	195	62

Angle Type

Unit Per Pc.

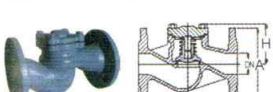
CODE	DN	Size mm			Weight Kg
		A	L1	H	
75 58 25	15	95	65	55	3.3
26	20	105	65	55	4.6
27	25	115	70	65	4.8
28	32	140	90	65	6.4
29	40	150	90	80	8.6
75 58 30	50	165	105	85	11.1
31	65	185	115	95	20.3
32	80	200	125	100	25.0
33	100	220	145	120	33.0
34	125	250	170	135	43.0
75 58 35	150	285	200	150	63

Check Valves (DIN)

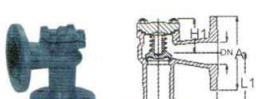
Cast Iron, DIN Flanges, Lift Type with Spring Stainless Steel Seat/Straight and Angle

Válvulas de retención (DIN), Hierro fundido, bridas DIN, tipo elevador con muelle
逆止弁（DIN），鋳鉄、DIN フランジ、バネ付きリフトタイプ
止回阀（DIN）铸铁，DIN 法兰，提升式，带弹簧

Cast iron lift type check valves with stainless steel disc and seat, spring loaded disc, pressure rating PN 16, straight and angle pattern with bolted bonnet, flanged connection acc. to DIN PN 16. Suitable for horizontal and vertical (rising flow) installation.
Application area: general industrial use.
Purpose: cold and hot water, air, gases, steam and other neutral media.



Straight



Angle

Pressure and Temperature Range

	-10/120°C	150°C	180°C	200°C
PN 16	16 bar	14.4	13.4	12.8
	230°C	250°C	300°C	
PN 16	11.8	11.2	9.6	

Material Specification

Component	Material	EN and/or (DIN)
Body	Cast iron	GJL-250 (GG-25)
Bonnet	Cast iron	GJL-250 (GG-25)
Disc	Stainless steel	X20Cr13
Spring	Stainless steel	X17CrNi16-2 (X20CrNi17 2)
Seat	Stainless steel	X12Cr13 (X10Cr13)
Stem	Stainless steel	X20Cr13
Bonnet Gasket (SS insert)	Graphite	

How to order: CODE

Check valve (DIN), cast iron, DIN flanges, lift type with spring, Stainless steel seat, STRAIGHT or ANGLE, SIZE DN

Straight Type

Unit Per Pc.

CODE	DN	Size mm			Weight Kg
		A	L	H	
75 58 41	15	95	130	56	2.1
42	20	105	150	56	2.7
43	25	115	160	67	3.8
44	32	140	180	76	5.5
45	40	150	200	89	7.4
75 58 46	50	165	230	96	9.5
47	65	185	290	104	15
48	80	200	310	124	20
49	100	220	350	161	29
50	125	250	400	174	41
75 58 51	150	285	480	197	66
53	200	340	600	248	111
54	250	405	730	333	196
68	300	460	800	375	302

Angle Type

Unit Per Pc.

CODE	DN	Size mm			Weight Kg
		A	L1	H1	
75 58 55	15	95	90	50	2.2
56	20	105	95	47	2.8
57	25	115	100	57	3.9
58	32	140	105	60	5.5
59	40	150	115	70	7.0
75 58 60	50	165	125	73	9.2
61	65	185	145	79	12.0
62	80	200	155	77	17.2
63	100	220	175	112	25.0
64	125	250	200	119	36.0
75 58 65	150	285	225	123	55
67	200	340	275	157	97

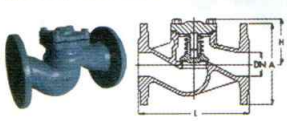
Check Valves (DIN)

Cast Iron, DIN Flanges, Lift Type with Spring Bronze Seat/Straight and Angle

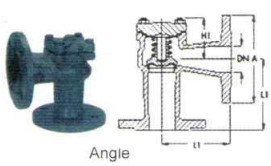
Válvulas de retención (DIN), Hierro fundido, bridas DIN, tipo elevador con muelle
逆止弁（DIN），鋳鉄、DIN フランジ、バネ付きリフトタイプ
止回阀（DIN）铸铁，DIN 法兰，提升式，带弹簧

Cast iron life type check valves with zinc-free bronze disc and seat, spring loaded disc, pressure rating PN 16, straight and angle pattern with bolted bonnet, flanges acc. to DIN PN 16.
Suitable for horizontal and vertical (upward flow) installation.

Application area : maritime use in particular, due to the zinc free bronze trim.
Application: in particular for cold and warm (sea) water, air, gases, other neutral media.



Straight



Angle

Pressure and Temperature Range

	-10/120°C	150°C	180°C	200°C	225°C
PN 16	16 bar	14.4	13.4	12.8	12

Material Specification

Component	Material	EN and/or (DIN)
Body	Cast iron	GJL-250 (GG-25)
Bonnet	Cast iron	GJL-250 (GG-25)
Disc	Zinc-free bronze	CuSn10-Cu (G-CuSn10)
Spring	Zinc-free bronze	
Seat	Zinc-free bronze	CuSn10-Cu (G-CuSn10)
Stem	Zinc-free bronze	CuSn10-Cu (G-CuSn10)
Bonnet Gasket (SS insert)	Graphite	

How to order: CODE

Check valve (DIN), cast iron, DIN flanges, lift type with spring, Bronze seat, STRAIGHT or ANGLE, SIZE DN

Straight Type

Unit Per Pc.

CODE	DN	Size mm			Weight
		A	L	H	Kg
75 58 71	15	95	130	56	2.1
72	20	105	150	56	2.7
73	25	115	160	67	3.8
74	32	140	180	76	5.5
75	40	150	200	89	7.4
75 58 76	50	165	230	96	9.5
77	65	185	290	104	15
78	80	200	310	124	20
79	100	220	350	161	29
80	125	250	400	174	41
75 58 81	150	285	480	197	66
83	200	340	600	248	111
84	250	405	730	333	196
98	300	460	800	375	302

Angle Type

Unit Per Pc.

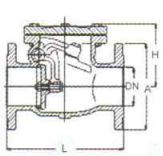
CODE	DN	Size mm			Weight
		A	L1	H1	Kg
75 58 85	15	95	90	50	2.2
86	20	105	95	47	2.8
87	25	115	100	57	3.9
88	32	140	105	60	5.5
89	40	150	115	70	7.0
75 58 90	50	165	125	73	9.2
91	65	185	145	79	12.0
92	80	200	155	77	17.2
93	100	220	175	112	25.0
94	125	250	200	119	36.0
75 58 95	150	285	225	123	55
97	200	340	275	157	97

Check Valves (DIN)

Cast Iron, DIN Flanges, Swing Type, Bronze Disc Seat, Pressure Rating PN 10 - 16

Válvulas de retención (DIN), Hierro fundido, Bridas DIN, Tipo pivotante, Asiento de disco de bronce
逆止弁（DIN）鋳鉄、DIN フランジ、スイングタイプ、青銅製ディスクシート
止回阀（DIN），铸铁，DIN 法兰，摆动式，青铜盘座





Cast iron swing type check valves, bronze seat or rubber seal, pressure rating PN 10/16, straight pattern, full bore, bolted bonnet, flanges acc. to DIN PN 10/16 and flange drilling acc. to DIN PN 10/16. Suitable for horizontal and vertical (upward flow) installation.

Application area: cold and hot water, fresh and seawater.

Pressure and Temperature Range

Size	Pressure and Temperature Range
DN 40 - DN 150 DN 200 - DN 300	16 bar - 120°C 10 bar - 120°C
Max. Temperature	120°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Cast iron	GJL-250 (GG-25)
Bonnet	Cast iron	GJL-250 (GG-25)
Seat	Bronze	CuSn5ZnPb5-C(G-CuSn5ZnPb (Rg 5))
Hinge Pin	Brass	CuZn40Pb2
Hinge Arm	Cast iron	GJL-250 (GG-25)
Disc (DN40-DN125)	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Disc (DN150-DN300)	Cast iron	GJL-250 (GG-25)
Disc Seat	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Bonnet Gasket	Novus 34	

How to order: CODE

Check valve (DIN), cast iron, DIN flanges, swing type, Bronze disc seat, SIZE DN

Unit Per Pc.

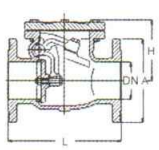
CODE	DN	Size mm			Weight
		A	L	H	
75 59 01	40	150	180	115	8
02	50	165	200	125	10
03	65	185	240	130	15
04	80	200	260	140	20
05	100	220	300	160	26
75 59 06	125	250	350	180	35
07	150	285	400	200	48
08	200	340	500	220	72
09	250	392	600	290	135
10	300	445	700	330	196

Check Valves (DIN)

Cast Iron, DIN Flanges, Swing Type, Rubber Disc Seal, Pressure Rating PN 10 - 16

Válvulas de retención (DIN), Hierro fundido, Bridas DIN, Tipo pivotante, Sello de disco de goma
逆止弁（DIN）鋳鉄、DIN フランジ、スイングタイプ、ゴム製ディスクシール
止回阀（DIN）铸铁，DIN 法兰，摆动式，橡胶盘密封





Cast iron swing type check valves, bronze seat or rubber seal, pressure rating PN 10/16, straight pattern, full bore, bolted bonnet, flanges acc. to DIN 10/16 and flange drilling acc. to DIN PN 10/16. Suitable for horizontal and vertical (upward flow) installation.

Application area: cold and hot water, fresh and seawater.

Pressure and Temperature Range

Size	Pressure and Temperature Range
DN 40 - DN 150 DN 200 - DN 300	16 bar - 80°C 10 bar - 80°C
Max. Temperature	80°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Cast iron	GJL-250 (GG-25)
Bonnet	Cast iron	GJL-250 (GG-25)
Seat	Bronze	CuSn5ZnPb5-C (G-CuSn5ZnPb (Rg 5))
Hinge Pin	Brass	CuZn40Pb2
Hinge Arm	Cast iron	GJL-250 (GG-25)
Disc (DN40DN125)	Bronze	CuSn5ZnPb5-C (G-CuSn5ZnPb (Rg 5))
Disc (DN150-DN300)	Cast iron	GJL-250 (GG-25)
Disc Seal	Rubber	
Bonnet Gasket	Novus 34	

How to order: CODE

Check valve (DIN), cast iron, DIN flanges, swing type, rubber disc seal, SIZE DN

Unit Per Pc.

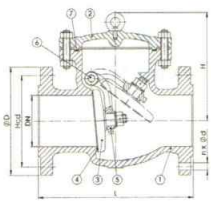
CODE	DN	Size mm			Weight
		A	L	H	Kg
75 59 11	40	150	180	115	8
12	50	165	200	125	10
13	65	185	240	130	15
14	80	200	260	140	20
15	100	220	300	160	26
75 59 16	125	250	350	180	35
17	150	285	400	200	48
18	200	340	500	220	72
19	250	395	600	290	135
20	300	445	700	330	196

Check and Storm Valves (DIN)

Cast Steel, DIN Flanges
Pressure Rating PN 16

Válvulas antirretorno y antitormenta (DIN)
逆止弁および波止弁（DIN）
止回阀和防暴阀（DIN）





Cast steel body, full bore swing check valve with cast steel disc and stainless steel seat. Raised face flanges. Pressure rating is PN16. Suitable for horizontal and vertical (upward flow) installation.

Application: Fuel oil, Lubricating oil, Flammable hydraulic oil, Cargo oil, Non-flammable hydraulic fluid, Boiler feedwater, Condensate, Sea water, Water.

Pressure and Temperature Range

	-10/20°C	100°C	150°C	200°C	250°C
PN 40	40 bar	37.3	34.7	30.2	28.4
	300°C	350°C	400°C	427°C	
PN 40	25.8	24	23.1	21.1	

ASTM A216 WCB is not recommended for long-term duty above 427°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Cast Steel	ASTM A216
Bonnet	Cast Steel	ASTM A216
Disc	Cast Steel	ASTM A216
Seat	Stainless steel	Deposited 13Cr
Hinge	Cast Iron	ASTM A216-WCB
Hinge pin	Stainless Steel	ASTM A276-420
Gasket	Graphite	

How to order: CODE

Check and storm valve (DIN), cast steel, DIN flanges, pressure raiting PN 16, STRAIGHT or ANGLE, SIZE DN

Straight Type

Unit Per Pc.

CODE	DN	Size mm				Weight
		Hcd	D	L	H	Kg
75 59 25	40	110	150	180	130	18.0
26	50	125	165	200	135	21.0
27	65	145	185	240	142	28.0
28	80	160	200	260	165	38.0
29	100	180	220	300	180	58.0
75 59 30	125	210	250	350	210	92.0
31	150	240	285	400	233	130
33	200	295	340	500	304	210
90	250	355	405	600	348	294
91	300	410	460	700	390	367
75 59 93	400	525	580	900	468	461

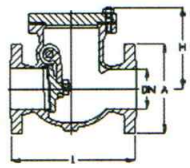
MESON Model No.: 311.3.4.4.1

Check Valves (DIN)

Cast Steel, DIN Flanges, Swing Type
Pressure Rating PN 16

Válvulas de retención (DIN), Acero fundido, Bridas DIN, Tipo pivotante
逆止弁（DIN）鋳鋼、DIN フランジ、スイングタイプ
止回阀（DIN）铸钢，DIN 法兰，摆动式





Cast steel swing type check valves, stainless steel disc and seat, pressure rating DIN PN 16, straight pattern with bolted bonnet, full bore, flanged acc. to DIN PN 16. Suitable for horizontal and vertical (upward flow) installation.

Application: general industrial use, such as hot water installations, aboard ships for ships side, etc.

Pressure and Temperature Range

	20°C	50°C	100°C	150°C	200°C
PN 16	16 bar	14.9	13.6	12.7	11.4
	250°C	300°C	350°C	375°C	400°C
PN 16	10.4	9.4	8.8	8.6	8.4

Material Specification

Component	Material	EN and/or (DIN)
Body	Cast steel	GP240GH (GS-C25)
Bonnet	Cast steel	GP240GH (GS-C25)
Seat	Stainless steel	X20Cr13
Disc	Stainless steel	X20Cr13
Hinge Pin	Stainless steel	X20Cr13
Hinge Arm	Cast steel	GP240GH (GS-C25)
Bonnet Gasket (SS insert)	Graphite	

How to order: CODE

Check valve (DIN), cast steel, DIN flanges, swing type, Pressure raiting PN 16, SIZE DN

Unit Per Pc.

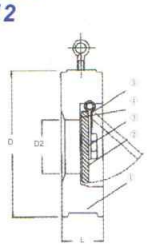
CODE	DN	Size mm			Weight
		A	L	H	Kg
75 59 52	50	165	200	150	18
53	65	185	240	180	25
54	80	200	260	200	29
55	100	220	300	225	39
56	125	250	350	270	60
75 59 57	150	285	400	300	82
58	200	340	500	355	151
59	250	405	600	390	215
60	300	460	700	445	290

Carbon Steel Check Valves

Wafer Style Long PN16, Series No.4012

Válvulas antirretorno de acero al carbono
鋳鋼チェッキ弁　碳钢止回阀





For mounting between flanges according to DIN 2501-PN16.

Material

Part No.	Material	Code
1. Body	Carbon Steel	GSC-25N
2. Disc	Stainless Steel	AISI 316L
3. Arm	Stainless Steel	AISI 316L
4. Seat	Viton	FKM
5. Spring	Stainless Steel	AISI 316L

Pressure

Size DN	Nominal Pressure	Hydraulic Inspection	
	PN	Body	Seat
40 to 200	16	25	16
250 to 500	10	16	10

Unit Per Pc.

CODE	DN	Size mm			Weight
		A	L	H	Kg
75 59 61	50	45	109	33	1.8
62	65	48	129	43	2.4
63	80	51	144	52	3.2
64	100	57	164	76	5.4
65	125	64	194	95	7.3
75 59 66	150	70	220	121	9.2
67	200	73	275	164	14.6
68	250	79	331	194	23.6
69	300	86	386	241	34.4
70	350	108	446	267	75.0
75 59 71	400	108	498	318	91.0
72	450	108	558	356	100.0
73	500	140	620	387	154.0

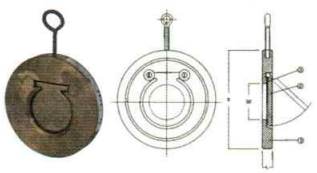
Name of Mfr. : World Wide Metric

Bronze Swing Check Valves

Wafer Style Short PN16, Series No.4022

Válvulas antirretorno de charnela de bronce
青銅製スイングチェックバルブ　　青铜旋启式止回阀

For mounting between flanges according to DIN2501-PN16



Material

Part No.	Material	Code
1. Body	Gunmetal	DIN 1705
2. Disc	Gunmetal	DIN 1705
3. Seat	NBR	NBR

Pressure

Size DN	Nominal Pressure	Hydraulic Inspection	
	PN	Body	Seat
40 to 200	16	25	16
250 to 500	10	16	10

Unit Per Pc.

CODE	DN	Size mm			Weight
		L	D	D2	Kg
75 59 76	40	16	94	26	0.9
77	50	19	109	26	0.9
78	65	19	129	38	1.3
79	80	19	144	47	1.5
80	100	19	164	70	2.0
75 59 81	125	19	195	92	3.0
82	150	19	221	114	4.8
83	200	29	276	143	11
84	250	29	330	190	15
85	300	38	386	214	25
75 59 86	350	44	446	263	37
87	400	51	498	305	55
88	450	60	558	342	65
89	500	64	620	400	105

Name of Mfr. : World Wide Metric

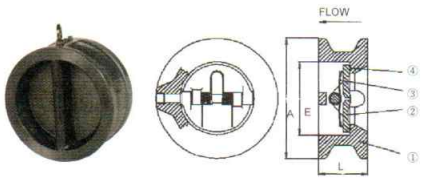
The following optional material for each part are available on your selection;

Part No.	Material	Code
1. Body	Gunmetal Stainless Steel	DIN 1705 AISI 316L
2. Disc	Gunmetal Stainless Steel	DIN 1705 AISI 316L
3. Seat	NBR EPDM Viton Teflon	NBR EPDM FKM PTFE

Duo Check Valves

Cast Iron & Cast Steel, Series No.4101 & 4111

Válvulas antirretorno Duo, Hierro fundido y acero fundido
鋳鉄・鋳鋼デュオチェックバルブ　　双止回阀，铸铁和铸钢



Material

Part No.	Cast Iron (#4101)		Cast Iron (#4111)	
	Material	Code	Material	Code
1. Body	Cast Iron	GG25	Cast Steel	GSC-25N
2. Disc	Bronze	RG5	Stainless Steel	316
3. Spring	Stainless Steel	316	Stainless Steel	316
4. Seat Ring	NBR Viton	NBR Viton	NBR	NBR

Cast Iron (Series 4101)

Unit Per Pc.

CODE	DN	Size mm			Weight
		L	A	E	Kg
75 60 71	50	43	105	54	2.7
72	65	46	124	67	4.5
73	80	64	136	79	5.9
74	100	64	174	105	7.7
75	125	70	196	130	12
75 60 76	150	76	222	155	16
77	200	89	279	209	32
78	250	114	340	257	48
79	300	114	410	308	78
80	350	127	451	358	91
75 60 81	400	140	514	409	125
82	450	152	549	460	143
83	500	152	606	511	197

Name of Mfr. : World Wide Metric
*According to DIN3202 Series 16.

Cast Iron (Series 4111)

Unit Per Pc.

CODE	DN	Size mm			Weight
		L	A	E	Kg
75 60 86	50	60	105	54	2.7
87	65	67	124	67	4.5
88	80	73	136	79	5.9
89	100	73	174	105	7.7
90	125	86	196	130	12
75 60 91	150	98	222	155	16
92	200	127	279	209	32
93	250	146	340	257	48
94	300	181	410	308	78
95	350	184	451	358	91
75 60 96	400	190	514	409	125
97	450	203	549	460	143
98	500	212	606	511	197

Name of Mfr. : World Wide Metric
*According to API609.

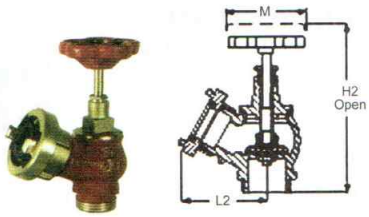
DIN Fire and Deckwash Valves

Firefighting and Deckwash Valves (DIN)

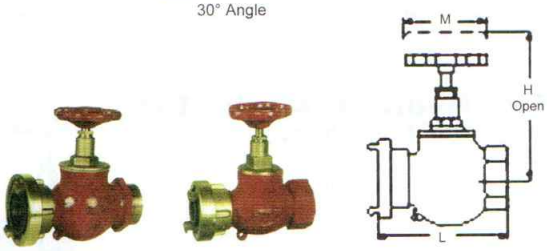
Bronze, BSP Threaded

Válvulas contraincendios y de lavado de cubiertas (DIN)
消火及び甲板洗浄弁 (DIN)
消防和甲板清洗阀门 (DIN)

Fire fighting valves with threaded ends are available in two patterns; straight and 30° angled, with BSP threaded inlet. These valves all feature a threaded bonnet.



30° Angle



Straight
BSP Male Threaded Ends

Straight
BSP Female Threaded Ends

Pressure and Temperature Rang: 16 bar - 60°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Bonnet	Brass	CuZn39Pb3
Stem, Disc, Coupling	Brass	CuZn35Ni3Mn2AlPb (CuZn35Ni)
Disc, Sealing Ring	NBR	
Handwheel	Cast iron	GJL-200 (GG-20)

How to order: CODE

Firefighting and deckwash valve (DIN), Bronze,BSP threaded, STRAIGHT TYPE or 30°, ANGLE TYPE, SIZE DN

30° Angle Type

Unit Per Pc.

CODE	DN	Size mm			Cam Distance	Weight kg
		L2	H2	M		
75 60 01	1"	84	145	80	31	1.0
02	1-1/4"	87	160	80	44	1.9
03	1-1/2"	100	190	100	52	2.6
05	2"	120	200	120	81	3.5
06	2-1/2"	127	240	120	81	4.3
75 60 07	3"	157	275	140	89	6.9

Straight Type with BSP Male Threaded Ends

Unit Per Pc.

CODE	DN	Size mm			Cam Distance	Weight Kg
		L	H	M		
75 60 11	1"	118	110	80	31	1.0
12	1-1/4"	130	125	80	44	1.9
13	1-1/2"	138	140	100	52	2.7
15	2"	176	160	120	81	3.7
16	2-1/2"	212	195	120	81	5.5
75 60 17	3"	225	200	140	89	8.0

Straight Type with BSP Female Threaded Ends

Unit Per Pc.

CODE	Inch	Size mm			Cam Distance	Weight Kg
		L	H	M		
75 60 21	1"	118	110	80	31	1.0
22	1-1/4"	130	125	80	44	1.9
23	1-1/2"	138	140	100	52	2.7
25	2"	176	160	120	81	3.7
26	2-1/2"	212	195	120	81	5.5
75 60 27	3"	225	200	140	89	8.0

Firefighting and Deckwash Valves (DIN)

Bronze, DIN Flanged, Globe Type, Threaded Bonnet Pressure Rating PN 16

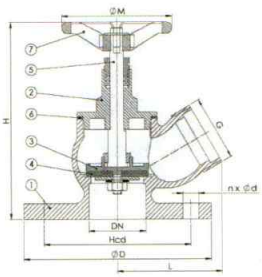
Válvulas contraincendios y de lavado de cubiertas (DIN)
消火及び甲板洗浄弁（DIN）
消防和甲板清洗阀门（DIN）

Flanged fire fighting valves are available in two patterns; straight and 30°angled with PN 16 flanged inlet. Designed for straight hose connection and has a rising stem with a bolted bonnet. The inlet has a raised face flange, and the outlet is threaded with BSP male thread. Comes with a Storz-C coupling, cap and chain.

Applications: Sea water, Water

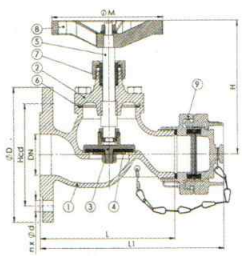


30° Angle





Straight



Pressure and Temperature Range: PN16 maximum + 60°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Bronze	CC491L
Bonnet	Bronze	CC491L
Stem	Bronze	CW710R
Disc	Bronze	CW710R
Disc sealing ring	Rubber	NBR

How to order: CODE

Firefighting and deckwash valve (DIN), bronze,DIN flanged, globe type, threaded bonnet, pressure rating PN 16, TYPE, SIZE DN

30° Angle Type

Unit Per Pc.

CODE	DN	Size mm					Weight Kg
		Hcd	D	L	H	M	
75 60 33	40	110	150	80	165	130	3.4
34	50	125	165	100	195	140	4.4
36	65	145	185	105	230	150	5.4

MESON Model No.: 470.5.6.5.5

Straight Type

Unit Per Pc.

CODE	DN	Size mm					Weight Kg
		Hcd	D	L	H	M	
75 60 44	50	125	165	165	181	140	7.0
46	65	145	185	200	185	150	10.9

MESON Model No.: 470.5.6.5.1

Firefighting and Deckwash Valves (DIN)

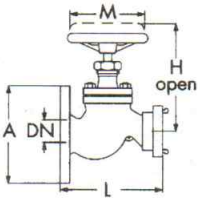
Bronze, DIN Flanged, Globe Type, Bolted Bonnet Pressure Rating PN 16

Válvulas contraincendios y de lavado de cubiertas (DIN)
消火及び甲板洗浄弁（DIN）　　消防和甲板清洗阀门（DIN）

Flanged fire fighting valves are available in two patterns; straight and 30° angled with PN 16 flanged inlet. All valves are fitted with a "Storz" coupling on the outlet.

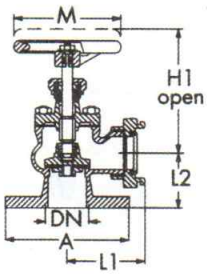


Straight





Angle



Pressure and Temperature Range: 16 bar - 60°C

Material Specification

Component	Material	EN and/or (DIN)
Body, Bonnet	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Stem, Disc, Coupling	Brass	CuZn35Ni3Mn2AlPb (CuZn35Ni)
Disc, Sealing Ring	NBR	CuSn5Zn5Pb5-C (G-CuSn5ZnPb
Handwheel	Bronze	(Rg 5))

How to order: CODE

Firefighting and deckwash valve (DIN), bronze,DIN flanged, globe type, bolted bonnet, pressure rating PN 16, STRAIGHT or ANGLE, SIZE DN

Straight Type

Unit Per Pc.

CODE	DN	Size mm				Weight
		A	L	H	M	Kg
75 60 51	40	150	168	160	140	6.0
52	50	165	185	175	140	6.5
53	65	185	222	205	160	10.4

Angle Type

Unit Per Pc.

CODE	DN	Size mm					Weight
		A	L1	L2	H1	M	Kg
75 60 55	40	150	82	70	150	140	4.8
56	50	165	96	75	150	140	5.8
57	65	185	117	90	200	160	10.4

Fire Hydrant (DIN)

Brass, BSP Threaded AB510



Boca de incendios (DIN)
消火栓（DIN） 消防栓（DIN）

Unit Per Pc.

CODE	Nom. Size	Male Thread × Female Thread	Item No.
75 60 54	DN50	2"	AB510050
58	DN65	2-1/2"	AB510065

Name of Mfr.: Alligator

Fire Hydrant (DIN)

Brass, BSP Male Threaded and Flanged, AB520



Boca de incendios (DIN)
消火栓（DIN） 消防栓（DIN）

Flange is undrilled.

Unit Per Pc.

CODE	Nom.Size	Thread Size	Flange Diam.	Item No.
75 60 59	DN40	1-1/2" BSP male	150 mm	AB520038
60	DN50	2" BSP male	165 mm	AB520050
70	DN65	2-1/2" BSP male	185 mm	AB520065

Name of Mfr.: Alligator

Fire Hydrant, Angle (DIN)

Brass, BSP Male Threaded End AB530



Boca de incendios, ángulo (DIN)
消火栓、アングル（DIN） 角式消防栓（DIN）

75 60 84	Fire hydrant, DIN, Brass, Angle, DN 50, 2" BSP male threaded end, AB530050	Pc.

Name of Mfr.: Alligator

Fire Hydrant, Angle (DIN)

Brass, Flanged End and BSP Male Threaded End, AB550



Boca de incendios, ángulo (DIN)
消火栓、アングル（DIN） 角式消防栓（DIN）

Flange is undrilled.

Unit Per Pc.

CODE	Nom. Size	Flange Diam.	Thread Size	Item No.
75 60 85	DN38	150 mm	1-1/2" BSP male	AB520038
99	DN50	165 mm	2" BSP male	AB520050
75 61 00	DN65	185 mm	2-1/2" BSP male	AB520065

Name of Mfr.: Alligator

Sealing Cap with Chain

"Storz" blind cap for Firefighting and Deckwash Valves (DIN)

Tapa selladora con cadena para válvulas para extinción de fuegos y limpieza de cubiertas Storz DIN
"STORZ" DIN 型消火及び甲板洗浄弁用キャップ
"STORZ" DIN 型灭火及甲板洗涤阀盖



Sealing Cap with Chain is available in "Storz" system, suitable for firefighting and deckwash applications.
Available in Brass and Aluminium body.
Please specify the size and material when ordering.

How to order: CODE

Sealing Cap with Chain, "STORZ" blind cap for Firefighting and deckwash valve, BRASS or ALUMINIUM, SIZE

Unit Per Pc.

CODE	Lug Distance (Reported)	Material	Material Chain
75 60 08	31 mm	Brass	Stainless Steel
09	44 mm	Brass	Stainless Steel
10	51 mm	Brass	Stainless Steel
18	66 mm	Brass	Stainless Steel
19	81 mm	Brass	Stainless Steel
20	89 mm	Brass	Stainless Steel
28	133 mm	Brass	Stainless Steel
75 60 29	31 mm	Aluminium	Galvanized Steel
30	44 mm	Aluminium	Galvanized Steel
38	51 mm	Aluminium	Galvanized Steel
39	66 mm	Aluminium	Galvanized Steel
40	81 mm	Aluminium	Galvanized Steel
48	89 mm	Aluminium	Galvanized Steel
49	115 mm	Aluminium	Galvanized Steel
50	160 mm	Aluminium	Galvanized Steel

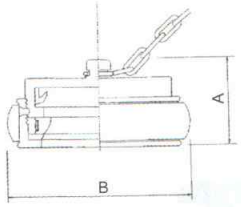
Sealing Cap with Chain
for Firefighting and Deckwash Valves (JIS/ANSI)

Tapa selladora con cadena para válvulas para extinción de fuegos y limpieza de cubiertas JIS/ANSI
JIS/ANSI型消火及び甲板洗浄弁用キャップ
JIS/ANSI型灭火及甲板洗涤阀盖

JIS Type

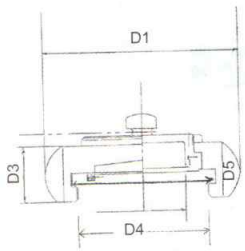


Machino Type





Nakajima Type



How to order: CODE
Sealing Cap with Chain for Firefighting and deckwash valve, JIS Type, Specify the NAME OF MAKER, SIZE

Unit Per Pc.

MACHINO TYPE				NAKAJIMA TYPE						
CODE	Size	Size (mm) A (±3)	Size (mm) B (±3)	CODE	Size	Size (mm) D1	Size (mm) D2	Size (mm) D3	Size (mm) D4	Size (mm) D5
75 60 64	40	72	40	**75 60 67**	40	91	38	27.5	61	67
65	50	91	47	**68**	50	110	50	33	73	80
66	65	107	52	**69**	65	133.5	63	36	91	98

ANSI Type

How to order: CODE
Sealing Cap with Chain for Firefighting and deckwash valve, ANSI Type, SIZE



CODE	Size	Thread Per Inch	Basic O.D. Male Part
75 61 19	1-1/2"	9	1.990"
20	2-1/2"	7-1/2	3.0686"

DIN Cocks

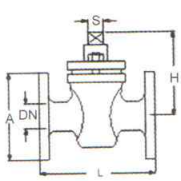
Plug Valves (DIN)
Bronze, DIN Flanges, 2-way and 3-way

Llave de Empaquetadura de Bronce (según DIN)
DIN型青銅プラグバルブ　DIN型青铜密封旋阀

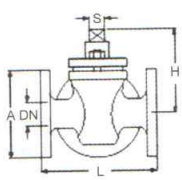
Flanged plug valves are available in a 2 and 3 way patterns. The 3-way pattern is available with L or T-plug. All versions are executed with gland packing. Cock wrench is available in separated order.



2 way



2 way



3 way

Pressure and Temperature Range: 10 bar - 90°C

Material Specification

Component	Material	EN and/or (DIN)
Body, Plug	Bronze	- (CuSn8)

How to order: CODE
Plug valve (DIN), bronze, DIN flanges, TYPE, SIZE DN

2 way Type

Unit Per Pc.

CODE	DN	Size mm L	Size mm A	Size mm H	Size mm S	Weight Kg
75 61 21	15	120	95	72	10	1.7
22	20	130	105	90	12	2.5
23	25	150	115	94	14	3.1
24	32	170	140	105	17	4.7
25	40	190	150	118	22	5.3
75 61 26	50	200	165	133	27	7.5
27	65	230	185	159	30	12
28	80	260	200	176	32	21
29	100	310	220	241	46	26

3 way L-Plug Type

Unit Per Pc.

CODE	DN	Size mm L	Size mm A	Size mm H	Size mm S	Weight Kg
75 61 31	15	120	95	72	10	1.7
32	20	130	105	90	12	2.5
33	25	150	115	94	14	3.1
34	32	170	140	105	17	4.7
35	40	190	150	118	22	5.3
75 61 36	50	200	165	133	27	7.5
37	65	230	185	159	30	12
38	80	260	200	176	32	21
39	100	310	220	241	46	26

3 way T-Plug Type

Unit Per Pc.

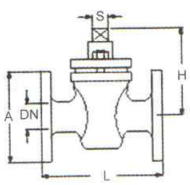
CODE	DN	Size mm L	Size mm A	Size mm H	Size mm S	Weight Kg
75 62 61	15	120	95	72	10	1.7
62	20	130	105	90	12	2.5
63	25	150	115	94	14	3.1
64	32	170	140	105	17	4.7
65	40	190	150	118	22	5.3
75 62 66	50	200	165	133	27	7.5
67	65	230	185	159	30	12
68	80	260	200	176	32	21
69	100	310	220	241	46	26

Plug Valves (DIN)
Cast Iron, DIN Flanges, 2 Way Type

Válvulas de Enchufe (DIN) Hierro Fundido, Bridas DIN
DIN型鋳鉄プラグバルブ　旋塞阀（DIN）铸铁，DIN法兰

Flanged plug valves are available in 2-way patterns. Cock wrench is available in separated order.





Pressure and Temperature Range: 10 bar - 90°C

Material Specification

Component	Material	EN and/or (DIN)
Body, Plug	Cast iron	GJL-200 (GG-20)

How to order: CODE
Plug valve (DIN), cast iron, DIN flanges, 2 way type SIZE DN

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		L	A	H	S	
75 61 61	15	130	95	87	12	2.5
62	20	150	105	102	17	3.3
63	25	160	115	108	19	4.5
64	32	180	140	127	22	7.4
65	40	200	150	147	24	9.0
75 61 66	50	230	165	165	32	13.5
67	65	290	185	204	41	20.5
68	80	310	200	228	46	27
69	100	350	220	275	55	39

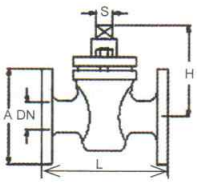
Plug Valves (DIN)

Cast Iron, DIN Flanges, 2 Way Type

Válvulas de obturador (DIN), Hierro fundido, bridas DIN, 2 vías
プラグバルブ（DIN）鋳鉄、DIN フランジ、2 方向タイプ
旋塞阀（DIN）铸铁，DIN 法兰，2 通型

Flanged plug valve in 2-way pattern. All versions are executed with gland packing. Cock wrench is available in separated order.





Pressure and Temperature Range: 10 bar - 90°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Cast iron	GJL-200 (GG-20)
Plug	Bronze	- (CuSn8)

How to order: CODE

Plug valve (DIN), cast iron, DIN flanges, with bronze plug 2 way type, SIZE DN

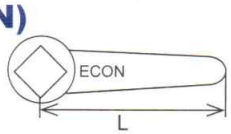
Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		L	A	H	S	
75 61 71	15	130	95	87	12	2.5
72	20	150	105	102	17	3.3
73	25	160	115	108	19	4.5
74	32	180	140	127	22	7.4
75	40	200	150	147	24	9.0
75 61 76	50	230	165	165	32	13.5
77	65	290	185	204	41	20.5
78	80	310	200	228	46	27
79	100	350	220	275	55	39

Cock Wrenches (DIN)

Malleable Iron

Palanca para Llave de Paso (según DIN)
DIN型コックレンチ　DIN型旋阀扳手



How to order: CODE

Cock wrench (DIN), malleable iron, SIZE mm

Unit Per Pc.

CODE	Size mm		CODE	Size mm	
	For S Size	L		For S Size	L
75 61 80	8	100	**75 61 89**	19	190
81	9	100	**90**	22	210
82	10	123	**91**	24	230
83	11	125	**93**	27	250
84	12	135	**95**	32	290
75 61 86	14	150	**75 61 96**	41	360
70	15	130	**97**	46	390
87	17	175	**98**	55	470

DIN Needle Valves

Needle Valves (DIN)

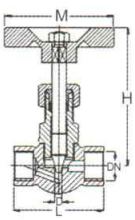
Brass, BSP Female Threaded Ends

Válvulas de aguja (DIN), Latón, extremos roscados hembra BSP
ニードルバルブ（DIN）真鍮、BSP 雌ネジ端
针阀（DIN）黄铜，英制锥螺纹内螺纹端头

Needle valves, especially suitable for accurate regulation of gases and liquids. Not suitable for steam.

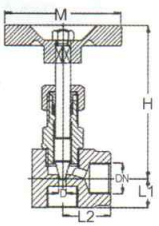


Straight





Angle



Pressure and Temperature Range:
100 bar - 30°C
40 bar - 150°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Brass	CuZn40Pb2
Bonnet	Brass	CuZn39Pb3
Stem with fixed needle tip	Brass	CuZn39Pb3
Gland Packing	PTFE	
Handwheel	PF (Bakelite)	

How to order: CODE

Needle valve (DIN), brass, BSP female threaded ends, STRAIGHT or ANGLE, SIZE DN

Straight Type

Unit Per Pc.

CODE	Threaded Connection	Size mm				Weight Kg
		d	L	H	M	
75 62 02	1/4"	4	46	82	50	0.22
03	3/8"	5	50	95	50	0.30
04	1/2"	6	55	95	65	0.35
05	3/4"	8	64	105	65	0.55
06	1"	8	75	105	65	0.65

Angle Type

Unit Per Pc.

CODE	Threaded Connection	Size mm					Weight Kg
		d	L1	L2	H	M	
75 62 12	1/4"	4	13	24.5	82	50	0.25
14	1/2"	6	16	32	95	65	0.35
16	1/4"	8	13	24.5	82	50	0.55

Needle Valves (DIN)

Stainless Steel, Straight and Angle Pattern BSP/NPT Female Threaded Ends

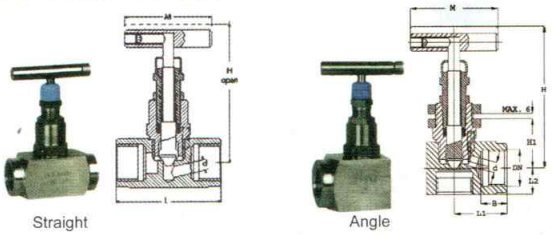
Válvulas de aguja (DIN), Acero inoxidable, modelo recto y en ángulo
ニードルバルブ（DIN）ステンレス鋼、ストレート及びアングルパターン
针阀（DIN）不锈钢，直通型和角型

Needle valve, especially suitable for accurate regulation of gases and liquids.

Features
- Fitted with external screwed stem, making it suitable for high temperatures.
- Secured bonnet.
- "Backseat" construction ; In fully open position, the gland

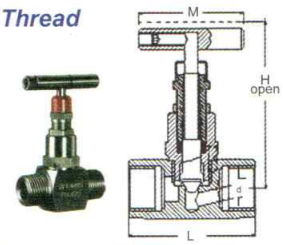
packing is relieved.
- One-piece PTFE gland packing, adjustable by means of secureable gland.
- Stem with non-rotating needle tip ensures 100% sealing.
- Plastic dust cap protects threaded stem.

BSP Female Thread



Straight Angle

NPT Female Thread



Pressure and Temperature Range:
420 bar - 20°C
320 bar - 200°C
250 bar - 250°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Stainless steel	X5CrNiMo17-12 2
Bonnet	Stainless steel	X5CrNiMo17-12 2
Stem	Stainless steel	X5CrNiMo17-12 2
Needle tip	Stainless steel	- (X4CrNiMnMoN19 16 5)
Gland Packing	PTFE	
Lever	Stainless steel	X8CrNiS 18-9 (X12CrNiS18 8)
Dust Cap	Plastic	

How to order: CODE

Needle valve (DIN), stainless steel, BSP or NPT female threaded ends, STRAIGHT or ANGLE, SIZE DN

BSP Female Thread

Straight Type

Unit Per Pc.

CODE	Threaded Connection	Size mm				Weight Kg
		d	L	H	M	
75 62 21	1/4"	3	50	78	50	0.3
22	3/8"	5	55	78	50	0.3
23	1/2"	6	60	80	50	0.7
24	3/4"	8	80	97	60	0.7
25	1"	8	80	99	60	0.7

Angle Type

Unit Per Pc.

CODE	Threaded Connection	Size mm							Weight Kg
		d	B	H	H1	L1	L2	M	
75 62 31	1/4"	3	12	78	12	25	14	50	0.3
32	1/2"	4	15	83	12	30	17.5	50	0.3

NPT Female Thread

Straight Type

Unit Per Pc.

CODE	Threaded Connection	Size mm				Weight Kg
		d	L	H	M	
75 62 41	1/4"	3	50	78	50	0.3
42	3/8"	5	55	78	50	0.3
43	1/2"	6	60	80	50	0.7
44	3/4"	8	80	97	60	0.7
45	1"	8	80	99	60	0.7

DIN Butterfly Valves

Butterfly Valves (DIN)

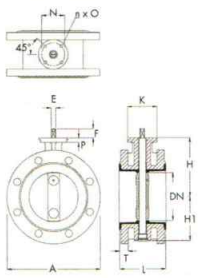
Ductile Cast Iron, Rubber Lined
Flange Type Series 46, Bonded Liner

Válvulas de mariposa (DIN), Fundición dúctil

バタフライバルブ (DIN), ダクタイル鋳鉄　蝶阀 (DIN) 球墨铸铁

Ductile cast iron butterfly valve, double-flanged type with centric disc, one piece shaft supported by bronze radial bearings, rubber lined body. The rubber liner is vulcanized integrally to body and bearings ensuring reduced torque and a long lifetime. This liner extends along the valve faces, eliminating the use of gaskets. The double flanged body is suitable for mounting between flanges acc. to DIN PN10 or PN16. Face to face dimensions are acc. to ISO5752 /EN558 basic series 13, DIN3202 F16 and BS5155. Valve is also suitable for end of line applications. For easy mounting of both manual and automatic actuators the valve is executed with a topflange according to the ISO5211 standard. Further applications of series 46 butterfly valves can be found amongst others in general industrial and maritime systems for media such as (ballast) water, gases, hydrocarbons and light corrosive media up to a maximum of 16 bar.





Features
- Connections: Flange
- Body material: Cast iron, nodular
- Valve butterfly material: Bronze
- Operation: None

Pressure and Temperature Range

Size	Liner	Pressure Raiting	Temperature Range	Max. Operating Pressure
DN50-DN600	NBR or	PN 16	NBR -10° /+80°C or	16 bar
DN200-DN600	EPDM	PN 10	EPDM-10° /+120°C	10 bar

Material Specification

Component	Material	EN and/or (DIN)
Body	Ductile cast iron	GJS-400-15 (GGG-40)
Disc	Aluminium bronze	CuAl10Fe5Ni5-C(G-CuAl10Ni)
Stem	Stainless steel	X39CrMo17-1 (X35CrMo17)
Liner	NBR or EPDM	

How to order: CODE

Butterfly valve (DIN), ductile cast iron, Rubber-lined, flange type, bonded liner (NBR or EPDM), SIZE DN

Unit Per Pc.

CODE	DN	Size mm							Weight Kg
		A	E	H	H1	L	N	T	
75 63 01	50	165	11	118	67	108	70	22	10
02	65	185	11	126	74	112	70	22	12
03	80	200	11	133	82	114	70	22	14
04	100	228	11	147	100	127	70	23	16
05	125	254	14	160	112	140	70	26	20
75 63 06	150	285	14	180	134	140	70	26	27
07	200	243	17	204	159	152	70	29	35
08	250	405	22	245	195	165	102	32	51
09	300	445	22	270	220	178	102	32	62
10	350	505	27	315	282	190	125	32	90
75 63 11	400	565	27	350	307	216	125	33	124
12	450	615	36	375	352	222	140	33	180
13	500	670	36	415	387	229	140	35	210
14	600	780	46	465	452	267	165	36	302

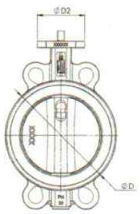
Butterfly Valves (DIN)

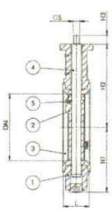
Nudular Cast Iron, Vulcanized Liner, Wafer Type, Bare Stem Parallel

Válvulas de mariposa (DIN), Fundición dúctil, revestida de caucho
バタフライバルブ（DIN）ダクタイル鋳鉄、ゴムライニング
蝶阀（DIN）球墨铸铁，橡胶衬里

Nodular Cast Iron body, vulcanized liner wafer type butterfly valve with Aluminium Bronze disc. Centric free stem with standardized pattern for actuator mounting. Can handle negative pressure (vacuum), due to the meticulous vulcanization process.







Applications

Corrosive fluids, Fuel oil, Lubricating oil, Flammable hydraulic oil, Cargo oil, Non-flammable hydraulic fluid.

Pressure and Temperature Range

Size	Liner	Pressure Raiting	Temperature Range	Max. Operating Pressure
DN50-DN600 DN450-DN600	FKM or NBR of EPDM	PN 16 PN 10	FKM -30°/+180°C, NBR -15°/+80°C EPDM- 20° /+100°C	16 bar 10 bar

Material Specification

Component	Material	EN and/or (DIN)
Body	Ductile iron	GGG-40
Disc	Copper alloy	CC333G
Stem	Stainless steel	1.4401
Liner	FKM or NBR or EPDM	

How to order: CODE

Butterfly valve (DIN), nudular cast iron, rubber-lined, wafer type, bonded liner (FKM or NBR or EPDM), SIZE DN

Unit Per Pc.

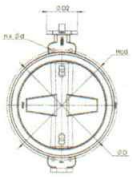
CODE	DN	Size mm						Weight Kg
		D	L	H2	H1	S	D2	
75 63 67	40	72	33	113	67	11	90	1.5
31	50	92	43	118	71	11	90	2.5
32	65	107	46	126	86	11	90	3.1
33	80	126	46	133	88	11	90	3.6
34	100	151	52	147	106	11	90	4.8
75 63 35	125	183	56	160	118	14	90	7.2
36	150	210	56	180	140	14	90	9.0
37	200	266	60	204	167	17	90	14.0
38	250	318	68	270	202	22	90	22.0
39	300	373	78	270	240	22	90	43.0
75 63 40	350	437	78	315	288	27	150	43.0
41	400	492	102	350	305	27	150	70.0
42	450	540	114	375	335	36	175	110.0
43	500	595	127	415	379	36	175	138.0
44	600	697	154	465	431	46	210	208.0

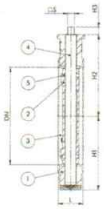
MESON Model No. : 700.2.5.6.1

Semi Lug Type

Nodular Cast Iron body, vulcanized liner semi lug type butterfly valve with Aluminium Bronze disc. Centric free stem with standardized pattern for actuator mounting. Can handle negative pressure (vacuum), due to the meticulous vulcanization process.







Applications

- Boiler feedwater
- Condensate
- Sea water
- Water

How to order: CODE

Butterfly valve (DIN), nudular cast iron, rubber lined, semi lug type, vulcanized liner, SIZE PN10 DN

Material Specification

Component	Material	EN and/or (DIN)
Body	Ductile iron	GGG-40
Disc	Copper alloy	CC333G
Seat	NBR or EPDM or FKM	-
Stem	Stainless steel	1.4401
Liner	Stainless steel	1.4462

Unit Per Pc.

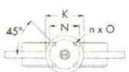
CODE	DN	Size mm							Weight Kg
		HCD	D	L	H2	H1	S	D2	
75 63 68	450	565	540	114	375	335	36	175	110
69	500	620	595	127	415	379	36	175	138
70	600	725	697	154	465	431	46	210	208

MESON Model No. : 700.2.5.6.1

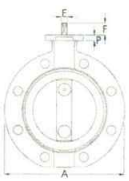
Butterfly Valves (DIN)

Ductile Cast iron, Rubber Lined Mono-flange Type, Bonded Liner

Válvulas de mariposa (DIN), Fundición dúctil
バタフライバルブ（DIN），ダクタイル鋳鉄
蝶阀（DIN）球墨铸铁









Ductile iron butterfly valve, monoflange type with centric disc, one piece shaft supported by bronze radial bearings for smooth operation, rubber lined body. The rubber liner is vulcanized integrally to body and bearings ensuring reduced torque and a long lifetime. This liner extends along the valve faces, eliminating the use of gaskets. The body with monoflange is suitable for mounting between flanges according to DIN PN10 or PN16. Due to the monoflange design this valve can be used as end of line valve. Face to face dimensions are according to ISO5752/ EN558 basic series 20, API609, DIN3202 K1 and BS5155. For easy mounting of both manual and automatic actuators the valve is executed with a topflange according to the ISO5211 standard. Further applications of series 60 butterfly valves can be found amongst others in general industrial and maritime systems for media such as (ballast) water, gases, hydrocarbons and light corrosive media up to a maximum of 16 bar (PN16 execution).

Features

- Connections: Monoflange
- Valve butterfly material: Bronze
- Operation: None

Pressure and Temperature Range

Size	Liner	Pressure Raiting	Temperature Range	Max. Operating Pressure
DN50-DN400	NBR or	PN 16	NBR -10° /+80°C or	16 bar
DN200-DN400	EPDM	PN 10	EPDM-10° /+120°C	10 bar

Remark: Maximum operating pressure as end of line valve, 6 bar.

Material Specification

Component	Material	EN and/or (DIN)
Body	Ductile cast iron	GJS-400-15 (GGG-40)
Disc	Aluminium bronze	CuAl10Fe5Ni5-C(G-CuAl10Ni)
Stem	Stainless steel	X39CrMo17-1 (X35CrMo17)
Liner	NBR or EPDM	

How to order: CODE

Butterfly valve (DIN), ductile cast iron, rubber-lined, mono-flange type, bonded liner (NBR or EPDM), SIZE DN

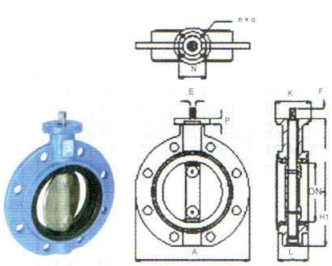
Unit Per Pc.

CODE	DN	Size mm						Weight
		A	E	H	H1	L	N	Kg
75 63 45	50	165	11	118	67	43	70	3.5
46	65	185	11	126	74	46	70	4.6
47	80	200	11	133	82	46	70	5.7
48	100	228	11	147	100	52	70	7.8
49	125	254	14	160	112	56	70	11.9
75 63 50	150	285	14	180	134	56	70	15.0
51	200	340	17	204	159	60	70	24.4
52	250	405	22	245	195	68	102	47.0
53	300	460	22	270	220	78	102	56.6
54	350	533	27	315	282	78	125	78
75 63 55	400	585	27	350	307	102	125	101

Butterfly Valves (DIN)

Cast Iron, Rubber Lined, Mono-flange Type Bonded Liner, Centric Disc

Válvulas de mariposa (DIN), Hierro fundido
バタフライバルブ（DIN）鋳鉄製　蝶阀（DIN）铸铁



Ductile cast iron butterfly valve, the body with monoflange is suitable for mounting between flanges according to DIN PN10. Due to the monoflange design, this valve can be used as end of line valve. Face to face dimensions are according to ISO5752/EN558 basic series 16, API 609, DIN 3202 K3 and BS5155. For easy adaption of both manual and automatic actuators the valve is executed with a topflange according to ISO5211 standard. Further applications of series 60 butterfly valves can be found amongst others in general industrial and maritime systems for media such as (ballast) water, gases, hydrocarbons and light corrosive media up to a maximum of 10 bar.

Pressure and Temperature Range

Size	Liner	Pressure Raiting	Temperature Range	Max. Operating Pressure
DN50-DN400	NBR or EPDM	PN 10	NBR -10° /+80°C or EPDM-10° /+120°C	10 bar

Material Specification

Component	Material	EN and/or (DIN)
Body	Ductile cast iron	GJS-400-15 (GGG-40)
Disc (Rilsan Coating)	Ductile cast iron	GJS-400-15 (GGG-40)
Stem	Stainless steel	X39CrMo17-1 (X35CrMo17)
Liner	NBR or EPDM	

How to order: CODE

Butterfly valve (DIN), ductile cast iron, Rubber-lined, mono-flange type, centric disc, bonded liner (NBR or EPDM), SIZE DN

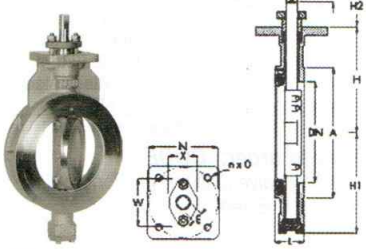
Unit Per Pc.

CODE	DN	Size mm							Weight
		A	E	H	H1	K	L	N	Kg
75 63 56	50	165	11	118	67	90	43	70	3.1
57	65	185	11	126	74	90	46	70	4.2
58	80	200	11	133	82	90	64	70	5.2
59	100	228	11	147	100	90	64	70	7.0
60	125	254	14	160	112	90	70	70	11.0
75 63 61	150	285	14	180	134	90	76	70	14.0
62	200	340	17	204	159	90	89	70	23.0
63	250	405	22	245	195	125	114	102	44.0
64	300	460	22	270	220	125	114	102	54.0
65	350	533	27	315	282	150	127	125	76
75 63 66	400	585	27	350	307	150	140	125	100

Butterfly Valves (DIN)

Stainless Steel and Cast Steel High Performance Type, Ring Type

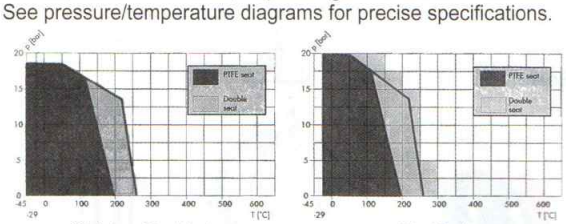
Válvulas de mariposa (DIN), Acero inoxidable y acero fundido
バタフライバルブ（DIN）ステンレス鋼及び鋳鋼
蝶阀（DIN）不锈钢和铸钢



High-Performance butterfly valve, ring type with streamlined double eccentric disc and one-piece anti-blow out shaft, bi-directional sealing, anti-static design. Available in stainless steel and cast steel. Executed with replaceable seat in PTFE, Fire-safe, metal or double-seat version, for in-line sealing. For sealing to the atmosphere the valve is provided with a self-centering and re-adjustable gland packing of PTFE or graphite material. The body with centering holes for easy pipe alignment is suitable for mounting between flanges according to DIN PN 10/16 and ASME 150#. Face to Face dimensions are according to ISO 5752/EN558 basic series 20(DN 350, basic series 25). For easy adaption of both manual and automatic actuators the valve is executed with a topflange according to the ISO 5211 standard. Applications of series 96 butterfly valves can be found amongst others in general industrial and maritime systems for example in corrosive media, gases, steam and hot water up to a maximum of 20 bar (ASME class 150 execution). For application in cargo lines on chemical and liquefied gas tankers this valve has a BV type approval.

Pressure and Temperature Range

20 bar, -45°C to +260°C, depending on choice of material.
See pressure/temperature diagrams for precise specifications.



Stainless Steel Body　　Steel Body

Stainless Steel Body

Material Specification

Component	Material	US
Body	Stainless steel	ASTM A 351-CF8M
Disc	Stainless steel	ASTM A 351-CF8M
Pressure Ring	Stainless steel	AISI-316
Stem, Pins	Stainless steel	AISI-316
Seat and Shaft Seal*	PTFE	PTFE

Remark : * Double seat, fire-safe seat or metal seat is available on request.

How to order: CODE

Butterfly valve (DIN), High-Performance, ring type, stainless steel body, PTFE seat, SIZE DN

Unit Per Pc.

CODE	DN	Size mm						Weight Kg
		A	E	H	H1	L	N	
75 63 71	50	102	12	108	99	43	70	6.0
72	65	122	12	123	112	46	70	6.0
73	80	132	12	133	120	46	70	7.0
74	100	156	12	155	131	52	70	8.0
75	125	188	17	173	159	56	102	12.0
75 63 76	150	216	17	183	170	56	102	15.0
77	200	268	19	218	210	60	125	22.0
78	250	326	22	253	237	68	125	32.0
79	300	375	27	278	278	78	140	43.0
80	350	420	30	318	316	92	140	54.0
75 63 81	400	482	36	363	362	102	165	86.0
82	450	538	41	388	387	114	165	114
83	500	592	46	418	432	127	165	145
84	600	694	50	478	506	154	254	219

Cast Steel Body

Material Specification

Component	Material	US
Body	Cast steel	ASTM A216-WCB
Disc	Stainless steel	ASTM A351-CF8M
Pressure Ring	Forged steel	ASTM A105(N)
Stem, Pins	Stainless steel	AISI-316
Seat and Shaft Seal*	PTFE	PTFE

Remark : * Double seat, fire-safe seat or metal seat is available on request.

How to order: CODE

Butterfly valve (DIN), High-Performance, Ring type, stainless steel body, PTFE seat, SIZE DN

Unit Per Pc.

CODE	DN	Size mm						Weight Kg
		A	E	H	H1	L	N	
75 63 85	50	102	12	108	99	43	70	6.0
86	65	122	12	123	112	46	70	6.0
87	80	132	12	133	120	46	70	7.0
88	100	156	12	155	131	52	70	8.0
89	125	188	17	173	159	56	102	12.0
75 63 90	150	216	17	183	170	56	102	15.0
91	200	268	19	218	210	60	125	22.0
92	250	326	22	253	237	68	125	32.0
93	300	375	27	278	278	78	140	43.0
94	350	420	30	318	316	92	140	54.0
75 63 95	400	482	36	363	362	102	165	86.0
96	450	538	41	388	387	114	165	114
97	500	592	46	418	432	127	165	145
98	600	694	50	478	506	154	254	219

DIN Cast Iron Butterfly Valves

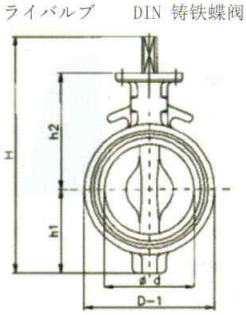
Series ISO 5752 S-20

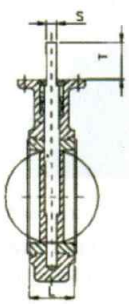
Válvulas de mariposa de fundición DIN

DIN 鋳鉄製バタフライバルブ　　DIN 铸铁蝶阀

Wafer Type Series 50







Material Table

Part	Material	DIN code	ASTM Code
Body	Cast Iron	GG 25	ASTM A126 C1.B
Disc	Ductile Iron	GGG 40	ASTM A536 Gr 65-45-12
Stem	Stainless Steel	X2 CrNiMo 18.10	ASTM A276 316
Seat	NBR	Nitrile Rubber	Tem Range –25°C/+100°C
Packing	NBR	Nitrile Rubber	Tem Range –25°C/+100°C

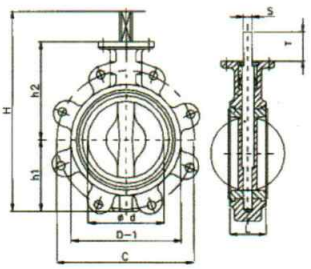
Unit Per Pc.

CODE	Nom. Size	Body Size mm						Stem Size mm		Weight Kg
		D-1	d	L	H	h1	h2	S	T	
75 44 01	50	102	52	43	240	78	130	10	-	3.7
02	65	115	65	46	247	88	130	10	-	4.0
03	80	128	80	46	266	93	143	10	-	4.4
04	100	153	100	52	298	105	161	10	-	5.9
05	125	183	125	56	331	125	177	12	-	8.9
75 44 06	150	210	150	56	363	140	191	15	-	9.0
07	200	259	198	60	412	163	217	15	-	11.0
08	250	328	248	68	506	205	267	18	-	20.0
09	300	374	298	78	538	249	295	20	-	32.0
10	350	416	327	78	675	271	324	20	45	43.0
75 44 11	400	475	387	102	817	343	369	-	60	64.0
12	450	535	438	114	877	366	406	-	60	99.0
13	500	586	477	127	1,008	421	485	-	60	115.0
14	600	695	560	154	1,180	493	570	-	60	215.0

Name of Mfr.: World Wide Metric

Lug Type Series 52





Material Table

Part	Material	DIN code	ASTM Code
Body	Cast Iron	GG 25	ASTM A126 C1.B
Disc	Ductile Iron	GGG 40	ASTM A536 Gr 65-45-12
Stem	Stainless Steel	X2 CrNiMo 18.10	ASTM A276 316
Seat	NBR	Nitrile Rubber	Tem Range –25°C/+100°C
Packing	NBR	Nitrile Rubber	Tem Range –25°C/+100°C

PN6

Unit Per Pc.

CODE	Nom. Size	Body Size mm				Stem Size mm		Bolt Hose mm		Weight Kg
		D-1	d	L	H	S	T	C	Bolt	
75 44 16	50	102	52	43	240	10	-	110	4x14	4.1
17	65	115	65	46	247	10	-	130	4x14	5.5
18	80	128	80	46	266	10	-	150	4x18	6.8
19	100	153	100	52	298	10	-	170	4x18	8.6
20	125	183	125	56	331	12	-	200	8x18	10.5
75 44 21	150	210	150	56	363	15	-	225	8x18	12.5
22	200	259	198	60	412	15	-	280	8x18	21.4
23	250	328	248	68	506	18	-	335	12x18	29.3
24	300	374	298	78	538	20	-	395	12x22	44.0
25	350	416	327	78	675	20	45	445	12x22	62.2
75 44 26	400	475	387	102	817	-	60	495	16x22	112.0
27	450	535	438	114	877	-	60	550	16x22	153.0
28	500	586	477	127	1,008	-	60	600	20x22	199.0
29	600	695	560	154	1,180	-	60	705	20x26	283.0

Name of Mfr.: World Wide Metric

PN10

Unit Per Pc.

CODE	Nom. Size	Body Size mm				Stem Size mm		Bolt Hose mm		Weight Kg
		D-1	d	L	H	S	T	C	Bolt	
75 44 31	50	102	52	43	240	10	-	125	4x18	4.1
32	65	115	65	46	247	10	-	145	4x18	5.5
33	80	128	80	46	266	10	-	160	8x18	6.8
34	100	153	100	52	298	10	-	180	8x18	8.6
35	125	183	125	56	331	12	-	210	8x18	10.5
75 44 36	150	210	150	56	363	15	-	240	8x22	12.5
37	200	259	198	60	412	15	-	295	8x22	21.4
38	250	328	248	68	506	18	-	350	12x22	29.3
39	300	374	298	78	538	20	-	400	12x22	44.0
40	350	416	327	78	675	20	45	460	16x22	62.2
75 44 41	400	475	387	102	817	-	60	515	16x26	112.0
42	450	535	438	114	877	-	60	565	20x26	153.0
43	500	586	477	127	1,008	-	60	620	20x26	199.0
44	600	695	560	154	1,180	-	60	725	20x30	283.0

Name of Mfr.: World Wide Metric

PN16

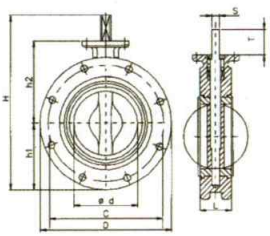
Unit Per Pc.

CODE	Nom. Size	Body Size mm				Stem Size mm		Bolt Hose mm		Weight Kg
		D-1	d	L	H	S	T	C	Bolt	
75 44 46	50	102	52	43	240	10	-	125	4x18	4.1
47	65	115	65	46	247	10	-	145	4x18	5.5
48	80	128	80	46	266	10	-	160	8x18	6.8
49	100	153	100	52	298	10	-	180	8x18	8.6
50	125	183	125	56	331	12	-	210	8x18	10.5
75 44 51	150	210	150	56	363	15	-	240	8x22	12.5
52	200	259	198	60	412	15	-	295	12x22	21.4
53	250	328	248	68	506	18	-	355	12x26	29.3
54	300	374	298	78	538	20	-	410	12x26	44.0
55	350	416	327	78	675	20	45	470	16x26	62.2
75 44 56	400	475	387	102	817	-	60	525	16x30	112.0
57	450	535	438	114	877	-	60	585	20x30	153.0
58	500	586	477	127	1,008	-	60	650	20x33	199.0
59	600	695	560	154	1,180	-	60	770	20x36	283.0

Name of Mfr.: World Wide Metric

Flanged Type Series 55





Material Table

Part	Material	DIN code	ASTM Code
Body	Cast Iron	GG 25	ASTM A126 C1.B
Disc	Ductile Iron	GGG 40	ASTM A536 Gr 65-45-12
Stem	Stainless Steel	X2 CrNiMo 18.10	ASTM A276 316
Seat	NBR	Nitrile Rubber	Tem Range –25°C/+100°C
Packing	NBR	Nitrile Rubber	Tem Range –25°C/+100°C

PN6

Unit Per Pc.

CODE	Nom. Size	Body Size mm				Stem Size mm		Bolt Hose mm		Weight Kg
		D-1	d	L	H	S	T	C	Bolt	
75 44 61	50	140	52	43	240	10	-	110	4x14	6.8
62	65	160	65	46	247	10	-	130	4x14	8.9
63	80	190	80	46	266	10	-	150	4x18	10.2
64	100	210	100	52	298	10	-	170	4x18	14.5
65	125	240	125	56	331	12	-	200	8x18	16.8
75 44 66	150	265	150	56	363	15	-	225	8x18	19.8
67	200	320	198	60	412	15	-	280	8x18	31.2
68	250	375	248	68	506	18	-	335	12x18	46.2
69	300	440	298	78	538	20	-	395	12x22	58.8
70	350	490	327	78	675	20	45	445	12x22	67.0
75 44 71	400	540	387	102	817	-	60	495	16x22	96.0
72	450	595	438	114	877	-	60	550	16x22	147.0
73	500	645	477	127	1,008	-	60	600	20x22	161.0
74	600	755	560	154	1,180	-	60	705	20x26	292.0

Name of Mfr.: World Wide Metric

PN10

Unit Per Pc.

CODE	Nom. Size	Body Size mm				Stem Size mm		Bolt Hose mm		Weight Kg
		D-1	d	L	H	S	T	C	Bolt	
75 44 76	50	165	52	43	240	10	-	125	4x18	6.8
77	65	185	65	46	247	10	-	145	4x18	8.9
78	80	200	80	46	266	10	-	160	8x18	10.2
79	100	220	100	52	298	10	-	180	8x18	14.5
80	125	250	125	56	331	12	-	210	8x18	16.8
75 44 81	150	285	150	56	363	15	-	240	8x22	19.8
82	200	340	198	60	412	15	-	295	8x22	31.2
83	250	395	248	68	506	18	-	350	12x22	46.2
84	300	445	298	78	538	20	-	400	12x22	58.8
85	350	505	327	78	675	20	45	460	16x22	67.0
75 44 86	400	565	387	102	817	-	60	515	16x26	96.0
87	450	615	438	114	877	-	60	565	20x26	147.0
88	500	670	477	127	1,008	-	60	620	20x26	161.0
89	600	780	560	154	1,180	-	60	725	20x30	292.0

Name of Mfr.: World Wide Metric

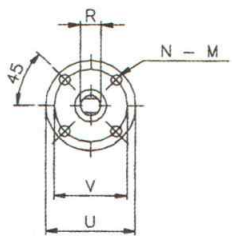
PN16

Unit Per Pc.

CODE	Nom. Size	Body Size mm				Stem Size mm		Bolt Hose mm		Weight Kg
		D-1	d	L	H	S	T	C	Bolt	
75 45 01	50	165	52	43	240	10	-	125	4x18	6.8
02	65	185	65	46	247	10	-	145	4x18	8.9
03	80	200	80	46	266	10	-	160	8x18	10.2
04	100	220	100	52	298	10	-	180	8x18	14.5
05	125	250	125	56	331	12	-	210	8x18	16.8
75 45 06	150	285	150	56	363	15	-	240	8x22	19.8
07	200	340	198	60	412	15	-	295	12x22	31.2
08	250	405	248	68	506	18	-	350	12x26	46.2
09	300	460	298	78	538	20	-	400	12x26	58.8
10	350	520	327	78	675	20	45	470	16x26	67.0
75 45 11	400	580	387	102	817	-	60	525	16x30	96.0
12	450	640	438	114	877	-	60	585	20x30	147.0
13	500	715	477	127	1,008	-	60	650	20x33	161.0
14	600	840	560	154	1,180	-	60	770	20x36	292.0

Name of Mfr.: World Wide Metric

Top Flange Dimensions to ISO 5711



The following specifications are applicable to those butterfly valves series 50, 52 and 55.

Nominal Size mm	Size mm				
	R	U	V	N	M
50	14	90	70	4	9
65	14	90	70	4	9
80	14	90	70	4	9
100	16	90	70	4	9
125	19	90	70	4	9
150	19	90	70	4	9
200	22	90	70	4	9
250	28	125	102	4	12
300	28	125	102	4	12
350	32	125	102	4	12
400	35	175	140	4	18
450	38	175	140	4	18
500	45	210	165	4	22
600	50	210	165	4	22

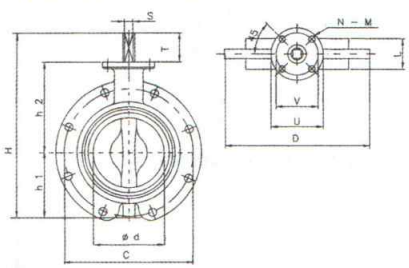
DIN Cast Iron Butterfly Valves

Flanged Series ISO 5752

Válvulas de mariposa de fundición DIN

DIN 鋳鉄製バタフライバルブ　　DIN 铸铁蝶阀

Mono Flanged Type Series 56



Material Table

Part	Material	DIN code	ASTM Code
Body	Cast Iron	GG 25	ASTM A126 C1.B
Disc	Ductile Iron	GGG 40	ASTM A536 Gr 65-45-12
Stem	Stainless Steel	X2 CrNiMo 18.10	ASTM A276 316
Seat	NBR	Nitrile Rubber	Tem Range –25°C/+100°C
Packing	NBR	Nitrile Rubber	Tem Range –25°C/+100°C

PN6

Unit Per Pc.

CODE	Nom. Size	Body Size mm			Stem Size mm		Bolt Hose mm		Weight Kg
		d	H	L	S	T	C	Bolt	
75 45 21	50	50	215	43	10	34	110	4x14	2.8
22	65	65	231	46	10	34	130	4x14	3.6
23	80	80	245	64	10	34	150	4x18	6.5
24	100	100	277	64	12	34	170	4x18	7.5
25	125	125	303	70	12	34 *	200	8x18	11.0
75 45 26	150	150	347	76	16	34	225	8x18	14.0
27	200	200	396	89	16	34	280	8x18	18.0
28	250	250	484	114	24	45	335	12x18	28.0
29	300	300	534	114	24	45	395	12x22	38.0
30	350	336	616	127	24	45	445	12x22	50.0
75 45 31	400	386	721	140	30	50	495	16x22	95.0
32	450	436	772	152	30	50	550	16x22	115.0
33	500	486	823	152	30	50	600	20x22	155.0
34	600	586	986	178	40	50	705	20x26	230.0

Name of Mfr.: World Wide Metric

PN10

Unit Per Pc.

CODE	Nom. Size	Body Size mm			Stem Size mm		Bolt Hose mm		Weight Kg
		d	H	L	S	T	C	Bolt	
75 45 36	50	50	215	43	10	34	125	4x18	2.8
37	65	65	231	46	10	34	145	4x18	3.6
38	80	80	245	64	10	34	160	4x18	6.5
39	100	100	277	64	12	34	180	4x18	7.5
40	125	125	303	70	12	34	210	8x18	11.0
75 45 41	150	150	347	76	16	34	240	8x22	14.0
42	200	200	396	89	16	34	295	8x22	18.0
43	250	250	484	114	24	45	350	12x22	28.0
44	300	300	534	114	24	45	400	12x22	38.0
45	350	336	616	127	24	45	460	12x22	50.0
75 45 46	400	386	721	140	30	50	515	16x26	95.0
47	450	436	772	152	30	50	565	20x26	115.0
48	500	486	823	152	30	50	620	20x26	155.0
49	600	586	986	178	40	50	725	20x30	230.0

Name of Mfr.: World Wide Metric

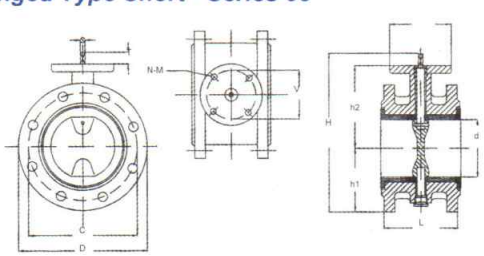
PN16

Unit Per Pc.

CODE	Nom. Size	Body Size mm			Stem Size mm		Bolt Hose mm		Weight Kg
		d	H	L	S	T	C	Bolt	
75 45 51	50	50	215	43	10	34	125	4x18	2.8
52	65	65	231	46	10	34	145	4x18	3.6
53	80	80	245	64	10	34	160	8x18	6.5
54	100	100	277	64	12	34	180	4x18	7.5
55	125	125	303	70	12	34	210	8x18	11.0
75 45 56	150	150	347	76	16	34	240	8x22	14.0
57	200	200	396	89	16	34	295	12x22	18.0
58	250	250	484	114	24	45	355	12x26	28.0
59	300	300	534	114	24	45	410	12x26	38.0
60	350	336	616	127	24	45	470	16x26	50.0
75 45 61	400	386	721	140	30	50	525	16x30	95.0
62	450	436	772	152	30	50	585	20x30	115.0
63	500	486	823	152	30	50	650	20x33	155.0
64	600	586	986	178	40	50	770	20x36	230.0

Name of Mfr.: World Wide Metric

Flanged Type Short - Series 53



Material Table

Part	Material	DIN code	ASTM Code
Body	Cast Iron	GG 25	ASTM A126 C1.B
Disc	Ductile Iron	GGG 40	ASTM A536 Gr 65-45-12
Stem	Stainless Steel	X2 CrNiMo 18.10	ASTM A276 316
Seat	NBR	Nitrile Rubber	Tem Range –25°C/+100°C
Packing	NBR	Nitrile Rubber	Tem Range –25°C/+100°C

PN6

Unit Per Pc.

CODE	Nom. Size	Body Size mm			Stem Size mm		Bolt Hose mm			Weight Kg
		d	H	L	S	T	D	C	Bolt	
75 45 66	50	50	215	108	10	34	140	110	4x14	8.0
67	65	65	231	112	10	34	160	130	4x14	8.5
68	80	80	245	114	10	34	190	150	4x18	9.0
69	100	100	277	127	12	34	210	170	4x18	11.0
70	125	125	303	140	12	34	240	200	8x18	13.0
75 45 71	150	150	347	140	16	34	265	225	8x18	17.0
72	200	200	396	152	16	34	320	280	8x18	23.0
73	250	250	484	165	24	45	375	335	12x18	32.0
74	300	300	534	178	24	45	440	395	12x22	50.0
75	350	336	616	190	24	45	490	445	12x22	65.0
75 45 76	400	386	721	216	30	50	540	495	16x22	95.0
77	450	436	772	222	30	50	595	550	16x22	130.0
78	500	486	823	229	30	50	645	600	20x22	150.0
79	600	586	986	267	40	50	755	705	20x26	200.0

Name of Mfr.: World Wide Metric

PN10

Unit Per Pc.

CODE	Nom. Size	Body Size mm			Stem Size mm		Bolt Hose mm			Weight Kg
		d	H	L	S	T	D	C	Bolt	
75 45 81	50	50	215	108	10	34	165	125	4x18	8.0
82	65	65	231	112	10	34	185	145	4x18	8.5
83	80	80	245	114	10	34	200	160	8x18	9.0
84	100	100	277	127	12	34	220	180	8x18	11.0
85	125	125	303	140	12	34	250	210	8x18	13.0
75 45 86	150	150	347	140	16	34	285	240	8x22	17.0
87	200	200	396	152	16	34	340	295	8x22	23.0
88	250	250	484	165	24	45	395	350	12x22	32.0
89	300	300	534	178	24	45	445	400	12x22	50.0
90	350	336	616	190	24	45	505	460	16x22	65.0
75 45 91	400	386	721	216	30	50	565	515	16x26	95.0
92	450	436	772	222	30	50	615	565	20x26	130.0
93	500	486	823	229	30	50	670	620	20x26	150.0
94	600	586	986	267	40	50	780	725	20x30	200.0

Name of Mfr.: World Wide Metric

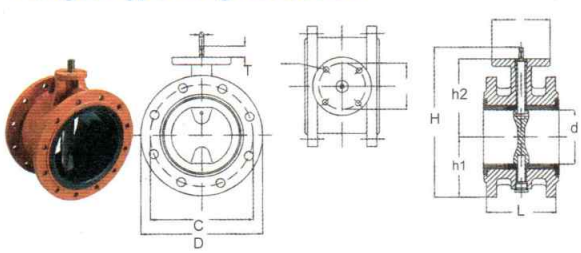
PN16

Unit Per Pc.

CODE	Nom. Size	Body Size mm			Stem Size mm		Bolt Hose mm			Weight Kg
		d	H	L	S	T	D	C	Bolt	
75 46 01	50	50	215	108	10	34	165	125	4x18	8.0
02	65	65	231	112	10	34	185	145	4x18	8.5
03	80	80	245	114	10	34	200	160	8x18	9.0
04	100	100	277	127	12	34	220	180	8x18	11.0
05	125	125	303	140	12	34	250	210	8x18	13.0
75 46 06	150	150	347	140	16	34	285	240	8x22	17.0
07	200	200	396	152	16	34	340	295	12x22	23.0
08	250	250	484	165	24	45	405	355	12x26	32.0
09	300	300	534	178	24	45	460	410	12x26	50.0
10	350	336	616	190	24	45	520	470	16x26	65.0
75 46 11	400	386	721	216	30	50	580	525	16x30	95.0
12	450	436	772	222	30	50	640	585	20x30	130.0
13	500	486	823	229	30	50	715	650	20x33	150.0
14	600	586	986	267	40	50	840	770	20x36	200.0

Name of Mfr.: World Wide Metric

Flanged Type Long - Series 54



Material Table

Part	Material	DIN code	ASTM Code
Body	Cast Iron	GG 25	ASTM A126 C1.B
Disc	Ductile Iron	GGG 40	ASTM A536 Gr 65-45-12
Stem	Stainless Steel	X2 CrNiMo 18.10	ASTM A276 316
Seat	NBR	Nitrile Rubber	Tem Range –25°C/+100°C
Packing	NBR	Nitrile Rubber	Tem Range –25°C/+100°C

PN6

Unit Per Pc.

CODE	Nom. Size	Body Size mm			Stem Size mm		Bolt Hose mm			Weight Kg
		d	H	L	S	T	D	C	Bolt	
75 46 21	50	50	215	150	10	34	140	110	4x14	10.6
22	65	65	231	170	10	34	160	130	4x14	12.5
23	80	80	245	180	10	34	190	150	4x18	17.0
24	100	100	277	190	12	34	210	170	4x18	20.0
25	125	125	303	200	12	34	240	200	8x18	26.0
75 46 26	150	150	347	210	16	34	265	225	8x18	31.0
27	200	200	396	230	16	34	320	280	8x18	45.0
28	250	250	484	250	24	45	375	335	12x18	70.0
29	300	300	534	270	24	45	440	395	12x22	90.0
30	350	336	616	290	24	45	490	445	12x22	120.0
75 46 31	400	386	721	310	30	50	540	495	16x22	165.0
32	450	436	772	330	30	50	595	550	16x22	200.0
33	500	486	823	350	30	50	645	600	20x22	230.0
34	600	586	986	390	40	50	755	705	20x26	320.0

Name of Mfr.: World Wide Metric

PN10

Unit Per Pc.

CODE	Nom. Size	Body Size mm			Stem Size mm		Bolt Hose mm			Weight Kg
		d	H	L	S	T	D	C	Bolt	
75 46 36	50	50	215	150	10	34	165	125	4x18	10.6
37	65	65	231	170	10	34	185	145	4x18	12.5
38	80	80	245	180	10	34	200	160	8x18	17.0
39	100	100	277	190	12	34	220	180	8x18	20.0
40	125	125	303	200	12	34	250	210	8x18	26.0
75 46 41	150	150	347	210	16	34	285	240	8x22	31.0
42	200	200	396	230	16	34	340	295	8x22	45.0
43	250	250	484	250	24	45	395	350	12x22	70.0
44	300	300	534	270	24	45	445	400	12x22	90.0
45	350	336	616	290	24	45	505	460	16x22	120.0
75 45 46	400	386	721	310	30	50	565	515	16x26	165.0
47	450	436	772	330	30	50	615	565	20x26	200.0
48	500	486	823	350	30	50	670	620	20x26	230.0
49	600	586	986	390	40	50	780	725	20x30	320.0

Name of Mfr.: World Wide Metric

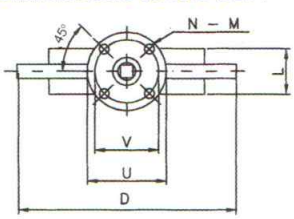
PN16

Unit Per Pc.

CODE	Nom. Size	Body Size mm			Stem Size mm		Bolt Hose mm			Weight Kg
		d	H	L	S	T	D	C	Bolt	
75 46 51	50	50	215	150	10	34	165	125	4x18	10.6
52	65	65	231	170	10	34	185	145	4x18	12.5
53	80	80	245	180	10	34	200	160	8x18	17.0
54	100	100	277	190	12	34	220	180	8x18	20.0
55	125	125	303	200	12	34	250	210	8x18	26.0
75 46 56	150	150	347	210	16	34	285	240	8x22	31.0
57	200	200	396	230	16	34	340	295	12x22	45.0
58	250	250	484	250	24	45	405	355	12x26	70.0
59	300	300	534	270	24	45	460	410	12x26	90.0
60	350	336	616	290	24	45	520	470	16x26	120.0
75 46 61	400	386	721	310	30	50	580	525	16x30	165.0
62	450	436	772	330	30	50	640	585	20x30	200.0
63	500	486	823	350	30	50	715	650	20x33	230.0
64	600	586	986	390	40	50	840	770	20x36	320.0

Name of Mfr.: World Wide Metric

Top Flange Dimensions to ISO 5211



The following specifications are applicable to those butterfly valves Series 56, 53 and 54.

Nominal Size mm	Size mm			
	U	V	N	M
50	90	70	4	9
65	90	70	4	9
80	90	70	4	9
100	90	70	4	9
125	90	70	4	9
150	90	70	4	9
200	90	70	4	9
250	125	102	4	11
300	125	102	4	11
350	125	102	4	11
400	175	140	4	17
450	175	140	4	17
500	210	140	4	17
600	210	140	4	17

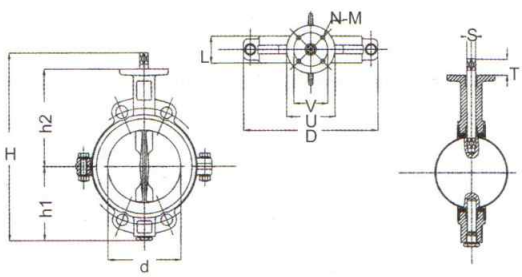
DIN Cast Iron Butterfly Valves

Teflon Lined Series ISO 5752 S-20

Válvulas de mariposa de fundición DIN

DIN 鋳鉄製バタフライバルブ　　DIN 铸铁蝶阀

Series 58



Material Table

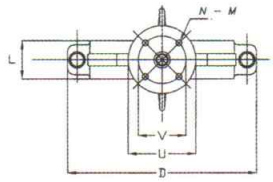
Part	Material	DIN code	ASTM Code
Body	Cast Iron	GG 25	ASTM A126 C1.B
Disc	Ductile Iron	GGG 40	ASTM A536 Gr 65-45-12
Stem	Stainless Steel	X2 CrNiMo 18.10	ASTM A276 316
Seat	NBR	Nitrile Rubber	Tem Range –25°C/+100°C
Packing	NBR	Nitrile Rubber	Tem Range –25°C/+100°C

Unit Per Pc.

CODE	Nom. Size	Body Size mm						Stem Size mm		Weight Kg
		D	d	L	H	h1	h2	S	T	
75 46 71	50	102	52	43	227	67	130	10	38	4.3
72	65	115	65	46	241	71	140	10	38	4.5
73	80	128	80	46	263	83	150	10	38	4.9
74	100	153	100	52	290	95	163	10	38	6.8
75	125	183	125	56	319	110	178	12	38	8.9
75 46 76	150	210	150	56	347	124	191	15	38	9.4
77	200	259	198	60	433	163	238	18	38	11.5
78	250	328	248	68	546	227	285	20	45	21.0
79	300	374	298	78	601	252	315	20	45	32.0
80	350	416	327	78	675	271	324	20	45	44.0
75 46 81	400	475	387	102	817	343	369	-	60	64.0
82	450	535	438	114	877	366	406	-	60	100.0
83	500	586	477	127	1,008	421	485	-	60	115.0
84	550	643	543	154	1,085	440	528	-	60	164.0
85	600	695	560	154	1,180	493	570	-	60	215.0

Name of Mfr.: World Wide Metric

Top Flange Dimensions to ISO 5211



The following specifications are applicable to butterfly valve series 58.

Nominal Size mm	Size mm			
	U	V	N	M
50	90	70	4	9
65	90	70	4	9
80	90	70	4	9
100	90	70	4	9
125	90	70	4	9
150	90	70	4	9
200	90	70	4	9
250	125	102	4	12
300	125	102	4	12
350	125	102	4	12
400	175	140	4	18
450	175	140	4	18
500	210	165	4	22
550	210	165	4	22
600	210	165	4	22

Face to Face Dimension Chart for DIN Butterfly Valves

Unit in mm

Nominal Diameter		Wafer-Lug			Flanged		
mm	Inch	Series 20 ISO5752	Series 16 ISO 5752	700S	722F/720F Hull Valves	Series 13 ISO 5752	Series 14 ISO 5752
40	1-1/2	43/33	-	-	-	-	-
50	2	43	43	45	-	108	150
65	2-1/2	46	46	45	-	112	170
80	3	46	64	50	-	114	180
100	4	52	64	50	-	127	190
125	5	56	70	55	100	140	200
150	6	56	76	60	100	140	210
200	8	60	89	65	100	152	230
250	10	68	114	80	110	165	250
300	12	78	114	90	110	178	270
350	14	78	127	100	120	190	290
400	16	102	140	110	130	216	310
450	18	114	152	120	150	222	330
500	20	127	152	140	160	229	350
550	22	154	170	150	170	-	-
600	24	154	178	160	170	267	390
650	26	165	210	170	170	-	-
700	28	165	229	180	180	292	430
750	30	190	230	190	200	318	470
800	32	190	241	200	200	318	470
900	36	203	241	230	230	330	510
1000	40	216	300	250	250	410	550

Flange Dimension Chart for Butterfly Valve

Size	JIS				ANSI	
	5kgf/cm²		10kgf/cm²		150Lbs	
	C	n-h Bolt	C	n-h Bolt	C	n-h Bolt
40	95	4x15	105	4x19	98	4x16
50	105	4x15	120	4x19	121	4x20
65	130	4x15	140	4x19	140	4x20
80	145	4x19	150	8x19	152	8x20
100	165	8x19	175	8x19	190	8x20
125	200	8x19	210	8x23	216	8x23
150	230	8x19	240	8x23	241	8x23
200	280	8x23	290	12x23	298	8x23
250	345	12x23	355	12x25	362	12x26
300	390	12x23	400	16x25	432	12x26
350	435	12x25	445	16x25	476	12x28
400	495	16x25	510	16x27	540	16x27
450	555	16x25	565	20x27	578	16x32
500	605	20x25	620	20x27	635	20x32
550	665	20x27	680	20x33	-	-
600	715	20x27	730	24x33	750	20x35
650	770	24x27	780	24x33	807	24x33
700	820	24x27	840	24x33	864	28x35
750	880	24x33	900	24x33	914	28x35
800	930	24x33	950	28x33	978	28x41
900	1,030	24x33	1,050	28x33	1,086	32x41
1000	1,130	28x33	1,160	28x39	1,200	36x41

Notation : C = Bolt Circle, n-h = Number of Holes, Bolt = Size of Hole

Size	DIN					
	PN6		PN10		PN16	
	C	n-h Bolt	C	n-h Bolt	C	n-h Bo
40	100	4x14	110	4x18	110	4x1
50	110	4x14	125	4x18	125	4x1
65	130	4x14	145	4x18	145	4x1
80	150	4x18	160	8x18	160	8x1
100	170	4x18	180	8x18	180	8x1
125	200	8x18	210	8x18	210	8x1
150	225	8x18	240	8x22	240	8x2
200	280	8x18	295	8x22	295	12x2
250	335	12x18	350	12x22	355	12x2
300	395	12x22	400	12x22	410	12x2
350	445	12x22	460	16x22	470	16x2
400	495	16x22	515	16x26	525	16x3
450	550	16x22	565	20x26	585	20x3
500	600	20x22	620	20x26	650	20x3
550	-	-	-	-	-	-
600	705	20x26	725	20x30	770	20x3
650	-	-	-	-	-	-
700	810	24x27	840	24x30	840	24x3
750	-	-	-	-	-	-
800	920	24x30	950	24x33	950	24x3
900	1,020	24x30	1,050	28x33	1,050	28x3
1000	1,120	28x30	1,160	28x36	1,170	28x4

Notation : C = Bolt Circle, n-h = Number of Holes, Bolt = Size of Hole

Available materials for butterfly valve series: 50, 52, 53, 54, 55, 56 and 58

Part	Material	DIN Code	ASTM Code
Body	Cast Iron	GG 25	ASTM A126 C1.B
	Ductile Iron	GGG 40	ASTM A536 Gr 65-45-12
	Carbon Steel	GS-C 25	ASTM A216 WCB
	Stainless Steel	G-X6 CrNiMo 18.10	ASTM A351 Gr CF8-CF8M
	Bronze	RG5	ASTM B62
Disc	Ductile Iron	GGG 40	ASTM A536 Gr 65-45-12
	Stainless Steel	G-X6 CrNiMo 18.10	ASTM A351 Gr CF8-CF8M
	Aluminium Bronze	G-CuA110Ni	ASTM B 148 C1. C 95500
Stem	Stainless Steel	X2 CrNiMo 18.10	ASTM A276 316
Seat	NBR	Nitrile Rubber	Tem Range -25°C / +100°C
	EPDM	Copolymer EPDM	Tem Range -35°C / +130°C
	Viton	Fluoelastomer	Tem Range -20°C / +200°C
	Teflon	PTFE	Tem Range -80°C / +232°C
Packing	NBR	Nitrile Rubber	Tem Range -25°C / +100°C
	EPDM	Copolymer EPDM	Tem Range -35°C / +130°C
	Viton	Fluoelastomer	Tem Range -20°C / +200°C

When ordering butterfly valves, please specify the following information:

1) Type of Butterfly: Wafer, Lug, Mono, Double Flanged, or High Performance.
2) Nominal Size: Millimeters or Inches.
3) Face to Face: Reference the charts above.
4) Flange Drilling: Reference the chart above.
5) Actuation: Manual lock lever and manual worm gear. For pneumatic, electric and hydraulic actuators, include specifications.
6) Manufacturer: Manufacturer and model number is helpful in cases where dimensions are not provided, and essential when ordering replacement parts (seat rings, discs, etc.···).
7) Material: Specify the required materials for the body, disc, and Seat.
   - Body: Cast Iron, Ductile Iron, Cast Steel, Stainless, Steel, or Bronze.
   - Disc: Ductile Iron, Stainless Steel, Aluminium/Bronze, or Coated.
   - Seat: EPDM, NBR, Viton, Neoprene, or Teflon (PTFE).
8) Medium: Oil, Gas, Water, etc.···
9) Working Temperature: Degrees Celsius or Fahrenheit.

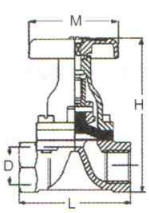
DIN Diaphragm Valves

Diaphragm Valves (DIN)

Bronze, BSP Female Threaded Weir Type

Válvulas de diafragma (DIN), Bronce, rosca hembra BSP
ダイヤフラムバルブ（DIN）青銅、BSP 雌ネジ切り
隔膜阀（DIN）青铜，英制内螺纹





Weir type bronze diaphragm valve, BSP female threaded ends acc. to DIN 259, rising stem and handwheel.

Application :
In cold and warm water circuits for both tap water and central heating systems. As main valve in water and gas pipelines and in various industrial applications. The valve is KIWA type approved.

Pressure and Temperature Range

Diaphragm	EPDM	Neoprene (CR)
Max. Operating Pressure	10 bar	10 bar
Max. Temperature	120°C	60°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Bronze	CuSn5Zn5Pb5-C (G CuSn5ZnPb (Rg 5))
Bonnet	Brass	CuZn40Pb2
Stem	Brass	CuZn40Pb2
Handwheel	Steel	

How to order: CODE

Diaphragm valve (DIN), bronze, BSP female threaded, weir typ SIZE DN

Unit Per Pc.

CODE	DN	Size mm			Weight Kg
		L	H	M	
75 64 12	1/2"	65	84	55	0.5
13	3/4"	77	93	65	0.84
14	1"	93	118	72	1.4
15	1-1/4"	113	132	80	2.6
16	1-1/2"	132	147	100	3.4
75 64 17	2"	160	165	120	5

Diaphragm Valves (DIN)

Cast iron, Flanged Ends
Full Bore, Pressure Rating PN 10

Válvulas de diafragma (DIN), Hierro fundido, extremos con bridas
ダイヤフラムバルブ（DIN）鋳鉄製、フランジ形
隔膜阀（DIN）铸铁，法兰端

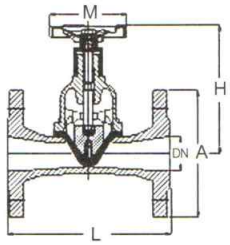
Full bore cast iron diaphragm valve, lined and unlined body. Flanged ends DIN PN 16. Position indicator with integrated stem protector and rising handwheel.

Application: Cold and hot water, portable water, air, oil, abrasive and aggressive media.

Suitability for application is partly depending on selected diaphragm and/or lining material.

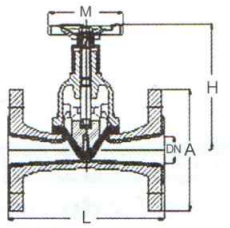


No Lining





Hard Rubber Lining



Pressure and Temperature Range

Diaphragm	EPDM	Butyl (IIR)	Hypalon (CSM)
Max. Operating Pressure	10 bar	10	10
Max. Temperature	140°C	120	100
Diaphragm	Nitrile (NBR)	Natural Rubber (NR)	-
Max. Operating Pressure	10 bar	10	-
Max. Temperature	90°C	80	

No Lining

Material Specification

Component	Material	EN and/or (DIN)
Body and Bonnet	Cast iron	GJL-250 (GG-25)
Stem	Stainless steel	X14CrMoS17 (X12CrMoS17)
Handwheel (DN15-DN20)	ABS	
Handwheel (DN25-DN200)	Steel	
Diaphragm	EPDM	

Remark: The following diaphragm materials are available upon request : Butyl (IIR), Hypalon (CSM), Nitrile (NBR) or Natural Rubber (NR).

How to order: CODE

Diaphragm valve (DIN), cast iron, flanged ends, full bore, pressure rating PN 10, no lining, SIZE DN

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		A	L	H max.	M	
75 65 15	15	95	130	93	63	2
16	20	105	150	93	63	3.5
17	25	115	160	155	100	4
18	32	140	180	155	100	6.5
19	40	150	200	155	100	7
75 65 20	50	165	230	220	125	10.3
21	65	185	290	280	200	16
22	80	200	310	320	200	20
23	100	220	350	370	250	26.5
24	125	250	400	360	320	55
75 65 25	150	285	480	440	400	75
26	200	340	600	560	500	125

Hard Rubber Lined

Material Specification

Component	Material	EN and/or (DIN)
Body and Bonnet	Cast iron	GJL-250 (GG-25)
Stem	Stainless steelABS	X14CrMoS17(X12CrMoS17)
Handwheel (DN15-DN20)	ABS	
Handwheel (DN25-DN200)	Steel	
Body Lining	Hard rubber (NR-H)	
Diaphragm Material	Butyl (IIR)	

Remark: The following diaphragm materials are available upon request : EPDM, Hypalon (CSM), Nitrile (NBR) or Natural Rubber (NR).

How to order: CODE

Diaphragm valve (DIN), cast iron, flanged ends, full bore, pressure rating PN 10, hard rubber lining, SIZE DN

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		A	L	H max.	M	
75 65 31	15	95	130	93	63	2
32	20	105	150	93	63	3.5
33	25	115	160	155	100	4
34	32	140	180	155	100	6.5
35	40	150	200	155	100	7
75 65 36	50	165	230	220	125	10.3
37	65	185	290	280	200	16
38	80	200	310	320	200	20
39	100	220	350	370	250	26.5
40	125	250	400	360	320	55
75 65 41	150	285	480	440	400	75
42	200	340	600	560	500	125

DIN Pressure Reducing Valves

Pressure Reducing Valves

Gunmetal & Stainless Steel with Flange Connection

Válvulas reductoras de presión , Bronce de cañón y acero inoxidable con conexión de brida

フランジ式砲金＆ステンレス鋼減圧弁

炮铜和不锈钢，带法兰连接 减压阀

Marine Type Approvals held for these valves:

- DNV
- American Bureau of Shipping
- Russian Maritime Register of Shipping
- Lloyds Register EMEA
- Bureau Veritas,
- Registro Italiano Navale

Pressure reducer with flange connection made of gunmetal with balanced single seat valve and built-in dirt trap for the protection of domestic water supply systems and commercial and industrial plants against an excess supply pressure. Pressure reducers are used, if within a piping system despite of varying pressures on the inlet side a certain pressure must not be exceeded on the outlet side. The pressure can be adjusted via a non-rising valve stem. Flange connection according to DIN EN 1092-3. Pressure reducer equipped with pressure gauge ports; gauge connection G 1/4".

Available three models with

- EPDM (ethylene propylene diene) seal suitable for water, neutral and non-sticking liquids, compressed air and neutral gases.
- FKM (Fluorocarbon) seal suitable for non-neutral media i.e. oils, fuels, oil-laden compressed air, etc..

- Low pressure: 682/482mGFO-LP EPDM and FKM
- Standard pressure: 682/482mGFO-SP EPDM and FKM
- High pressure: 682/482mGFO-HP EPDM and FKM

Mesh sizes: DN15 to DN32 = 0.6 mm
DN40 and DN80 = 0.75 mm (682)
DN40 and DN100 = 0.75 mm (482)

Seats for 682:
DN15 to DN50 made of gunmetal/stainless steel
DN65 to DN100 made of stainless steel

All models also available in **Stainless Steel**: series **482**.

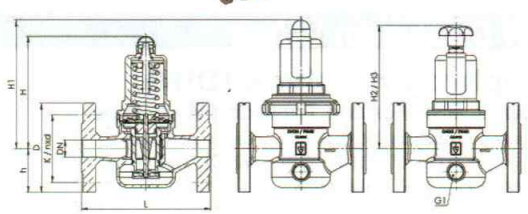
How to order: CODE

Pressure Reducing Valve (DIN), Gunmetal or Stainless Steel, with Flange Connection, SIZE DIN, Type of Pressure Rating (LOW, STANDARD, or HIGH), SPECIFY THE SEALS FROM "EPDM" or "FKM"

Series 682 (Gunmetal):

Component	Material	DIN EN	ASTM/AISI
Inlet body	Gunmetal	CC499K	CC499K
Outlet body	Gunmetal	CC499K	CC499K
Inner parts, wetted	Gunmetal Stainless steel	CC499K 1.4404	CC499K 316 L
Spring	Spring steel with anti-rust protection	1,1200	ASTM A228
Strainer	Stainless steel	1.4404	316 L





Model 682mGFO-LP (Low Pressure)

Unit Per Pc.

CODE	DN	PN	Size mm					Weight Kg
			D	L	H1	h	K/nxd	
75 65 44	15	40	95	130	128	46	65/4 x M12	3.1
54	20	40	105	150	150	50	75/4 x M12	4.6
58	25	40	115	160	150	55	85/4 x M12	5.1
59	32	40	140	180	150	68	100/4 x M16	6.3
60	40	40	150	200	185	73	110/4 x M16	9.3
75 65 67	50	40	165	230	185	80	125/4 x M16	11.2
Inlet Pressure			Up to 25 bar					
Outlet Pressure			0.5 - 2 bar					

Goetze KG: 682mGFO-LP
**Please specify the seal from EPDM or FKM when ordering.

Model 682m GFO-SP (Standard Pressure)

Unit Per Pc.

CODE	DN	PN	Size mm					Weight Kg
			D	L	H1	h	K/n × d	
75 65 45	15	40	95	130	102	46	65/4 x M12	2.8
68	20	40	105	150	130	50	75/4 x M12	4.2
69	25	40	115	160	130	55	85/4 x M12	4.7
70	32	40	140	180	130	68	100/4 x M16	5.9
76	40	40	150	200	165	73	110/4 x M16	8.6
75 65 77	50	40	165	230	165	80	125/4 x M16	10.5
55	65	16	185	290	235	89	145/4 x M16	20
56	65	40	185	290	235	89	145/8 x M16	20
57	80	40	200	310	235	96	160/8 x M16	22
46	100	16	200	350	320	112	180/8 x M16	40
Inlet Pressure			Up to 40 bar (PN40) & 16 bar (PN16)					
Outlet Pressure			1 - 8 bar					

Goetze KG: 682mGFO-SP
**Please specify the seal from EPDM or FKM when ordering.

Model 682mGFO-HP (High Pressure)

Unit Per Pc.

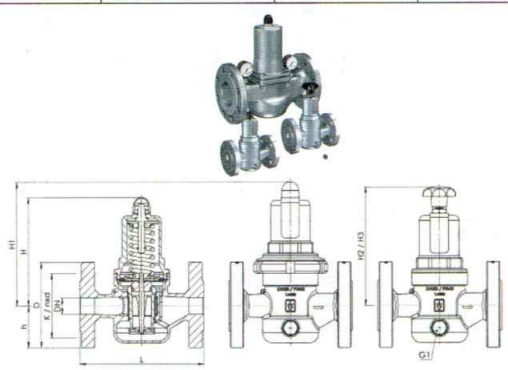
CODE	DN	PN	Size mm					Weight Kg
			D	L	H1	h	K/n × d	
75 65 47	15	40	95	130	102	46	65/4 x M12	2.8
78	20	40	105	150	130	50	75/4 x M12	4.2
79	25	40	115	160	130	55	85/4 x M12	4.7
80	32	40	140	180	130	68	100/4 x M16	5.9
81	40	40	150	200	165	73	110/4 x M16	8.6
75 65 82	50	40	165	230	165	80	125/4 x M16	10.5
Inlet Pressure			Up to 40 bar					
Outlet Pressure			5 - 15 bar					

Goetze KG: 682mGFO-HP
**Please specify the seal from EPDM or FKM when ordering.

Series 482 (Stainless Steel):

Seats for version 482: made of stainless steel

Component	Material	DIN EN	ASME
Inlet body	Stainless Steel	1.4408	CF8M
Outlet body	Stainless Steel	1.4408	CF8M
Internal Parts	Stainless Steel	1.4408/1.4404	CF8M/316 L
Spring	Spring steel with anti-rust protection	1.1200	ASTM A228
Strainer	Stainless steel	1.4404	316 L



Model 482mGFO-LP (Low Pressure)

Unit Per Pc.

CODE	DN	PN	Size mm					Weight Kg
			D	L	H1	h	K/n × d	
75 65 48	15	40	95	130	128	46	65/4 x M12	2.9
83	20	40	105	150	150	50	75/4 x M12	4.3
84	25	40	115	160	150	55	85/4 x M12	4.7
85	32	40	140	180	150	68	100/4 x M16	5.9
86	40	40	150	200	185	73	110/4 x M16	9.1
87	50	40	165	230	185	80	125/4 x M16	10.9
Inlet Pressure			Up to 25 bar					
Outlet Pressure			0.5 - 2 bar					

Goetze KG: 482mGFO-LP
**Please specify the seal from EPDM or FKM when ordering.

Model 482mGFO-SP (Standard Pressure)

Unit Per Pc.

CODE	DN	PN	Size mm					Weight Kg
			D	L	H1	h	K/n × d	
75 65 49	15	40	95	130	102	46	65/4 x M12	2.7
88	20	40	105	150	130	50	75/4 x M12	3.9
99	25	40	115	160	130	55	85/4 x M12	4.3
75 66 00	32	40	140	180	130	68	100/4 x M16	5.5
12	40	40	150	200	165	73	110/4 x M16	8.4
75 66 13	50	40	165	230	165	80	125/4 x M16	10.2
75 65 51	65	16	185	290	235	89	145/4 x M16	18.7
52	65	40	185	290	235	89	145/8 x M16	19
53	80	40	200	310	235	96	160/8 x M16	20.5
43	100	16	220	350	320	112	180/8 x M16	37
Inlet Pressure			Up to 40 bar					
Outlet Pressure			1 - 8 bar					

Goetze KG: 482mGFO-SP
**Please specify the seal from EPDM or FKM when ordering.

Model 482mGFO-HP (High Pressure)

Unit Per Pc.

CODE	DN	PN	Size mm					Weight Kg
			D	L	H1	h	K/n × d	
75 65 50	15	40	95	130	102	46	65/4 x M12	2.7
75 66 14	20	40	105	150	130	50	75/4 x M12	3.9
23	25	40	115	160	130	55	85/4 x M12	4.3
24	32	40	140	180	130	68	100/4 x M16	5.5
33	40	40	150	200	165	73	110/4 x M16	8.4
75 66 34	50	40	165	230	165	80	125/4 x M16	10.2
75 67 00	100	16	220	350	340	112	180/8 x M16	40
Inlet Pressure			Up to 40 bar (PN40) & 16 bar (PN16)					
Outlet Pressure			5 - 15 bar (DN100: 5-13 bar)					

Goetze KG: 482mGFO-HP
**Please specify the seal from EPDM or FKM when ordering.

Pressure Reducing Valves

Gunmetal & Stainless Steel with Threaded Connections

Válvulas Reductoras de Presión, Bronce de cañón y acero inoxidable con conexión roscada

ネジ式砲金・ステンレス鋼減圧弁

减压阀 ， 炮铜和不锈钢，带螺纹连接

Marine Type Approvals held for these valves:

- DNV
- American Bureau of Shipping
- Russian Maritime Register of Shipping
- Lloyd´s Register EMEA
- Bureau Veritas,
- Registro Italiano Navale

Pressure reducer with threaded connections made of gunmetal with balanced single seat valve and built-in dirt trap. Spring made of steel with anti-rust protection, and strainer made of stainless steel. Fabric reinforced diaphragm made of high-quality, heat-resistant moulded elastomer. Body with G 1/4" connection for pressure gauge on both sides. Adjustment by means of non-rising spindle.

Standard thread: BSPTm. Also available in female BSP-P and female NPT for sizes up to 1" (PLEASE CLEARLY INDICATE IN THE ORDER: "f/f", "BSPTm/BSPTm", or "NPTf/NPTf")

Available three models with

- EPDM (ethylene propylene diene, seals and diaphragm suitable for water, neutral and, non-sticking liquids, compressed air and neutral gases.
- FKM (Fluorocarbon) seals and diaphragm suitable for non-neutral media i.e. oils, fuels, oil-laden compressed air, etc.

- Low pressure 681/481mGFO-LP EPDM and FKM
- Standard pressure 681/481mGFO-SP EPDM and FKM
- High pressure 681/481mGFO-HP EPDM and FKM

Mesh sizes: DN15 to DN32 = 0.6 mm
DN40 and DN50 = 0.75 mm

Inlet pressure: up to 40 bar
Outlet pressure: 0.5 - 15 bar

All models also available in **Stainless Steel**: series **481**.

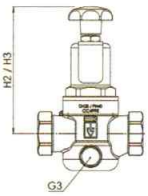
How to order: CODE

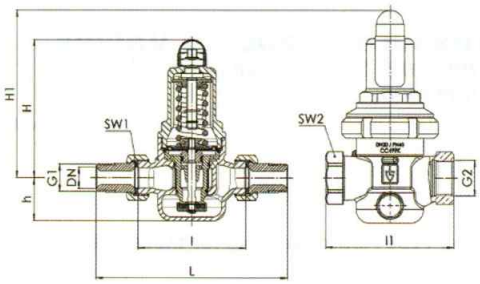
Pressure Reducing Valve (DIN), with threaded connection, Gunmetal or Stainless Steel, Type of Pressure Rating (LOW, STANDARD, and HIGH), SIZE DIN, SPECIFY THE SEALS FROM "EPDM" or "FKM"

Series 681 (Gunmetal):

Component	Material	DIN EN	ASTM/AISI
Inlet body	Gunmetal	CC499K	CC499K
Outlet body	Gunmetal	CC499K	CC499K
Internal Parts	Gunmetal/ Stainless Steel	CC499K/ 1.4404	CC499K/ 316L
Spring	Spring steel with anti-rust protection	1.1200	ASTM A228
Strainer	Stainless steel	1.4404	316L







Model 681mGFO-LP (Low Pressure)

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		L	l	H1	h	
75 66 43	15	142	80	128	33	1.5
44	20	158	90	128	33	1.6
53	25	180	100	150	45	2.9
54	32	193	105	150	45	3.1
63	40	226	130	185	70	6.2
75 66 64	50	252	140	185	70	6.7
Inlet Pressure		Up to 25 bar				
Outlet Pressure		0.5 - 2 bar				

Goetze KG: 681mGFO-LP

**Please specify the seal from EPDM or FKM when ordering.

Model 681mGFO-SP (Standard Pressure)

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		L	l	H1	h	
75 65 61	15	142	80	102	33	1.2
62	20	158	90	102	33	1.3
63	25	180	100	130	45	2.4
64	32	193	105	130	45	2.6
65	40	226	130	165	70	5.5
75 65 66	50	252	140	165	70	6.0
Inlet Pressure		Up to 40 bar				
Outlet Pressure		1 - 8 bar				

Goetze KG: 681mGFO-SP

**Please specify the seal from EPDM or FKM when ordering.

Model 681mGFO-HP (High Pressure)

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		L	l	H1	h	
75 66 97	15	142	80	102	33	1.2
98	20	158	90	102	33	1.3
99	25	180	100	130	45	2.4
75 69 16	32	193	105	130	45	2.6
17	40	226	130	165	70	5.5
75 69 18	50	252	140	165	70	6.0
Inlet Pressure		Up to 40 bar				
Outlet Pressure		5 - 15 bar				

Goetze KG: 681mGFO-HP

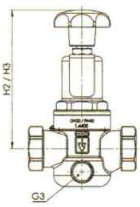
**Please specify the seal from EPDM or FKM when ordering.

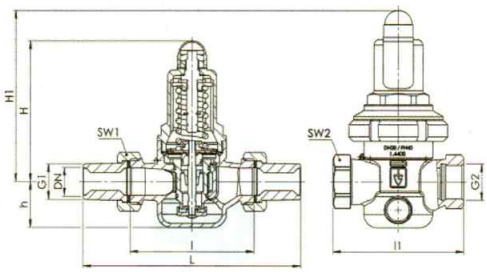
Series 481 (Stainless Steel):

Seats for version 481: DN15 to DN50 made of stainless steel

Component	Material	DIN EN	ASME/ANSI
Body	Stainless Steel	1.4408	CF8M
Internal Parts	Stainless Steel	1.4408/1.4404	CF8M/316 L
Pressure Spring	Spring steel with anti-rust protection	1.1200	ASTM A228
Strainer	Stainless steel	1.4404	316 L







Model 481mGFO-LP (Low Pressure)

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		L	l	H1	h	
75 69 19	15	142	80	128	33	1.5
20	20	158	90	128	33	1.6
27	25	180	100	150	45	2.8
28	32	193	105	150	45	3.0
29	40	226	130	185	70	5.9
75 69 30	50	252	140	185	70	6.4
Inlet Pressure		Up to 25 bar				
Outlet Pressure		0.5 - 2 bar				

Goetze KG: 481mGFO-LP

**Please specify the seal from EPDM or FKM when ordering.

Model 481mGFO-SP (Standard Pressure)

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		L	l	H1	h	
75 69 37	15	142	80	102	33	1.2
38	20	158	90	102	33	1.3
39	25	180	100	130	45	2.3
40	32	193	105	130	45	2.5
49	40	226	130	165	70	5.2
75 69 50	50	252	140	165	70	5.7
Inlet Pressure		Up to 40 bar				
Outlet Pressure		1 - 8 bar				

Goetze KG: 481mGFO-SP

**Please specify the seal from EPDM or FKM when ordering.

Model 481mGFO-HP (High Pressure)

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		L	l	H1	h	
75 69 59	15	142	80	102	33	1.2
60	20	158	90	102	33	1.3
68	25	180	100	130	45	2.3
69	32	193	105	130	45	2.5
70	40	226	130	165	70	5.2
75 69 78	50	252	140	165	70	5.7
Inlet Pressure		Up to 40 bar				
Outlet Pressure		5 - 15 bar				

Goetze KG: 481mGFO-HP

**Please specify the seal from EPDM or FKM when ordering.

Pressure Reducing Valves

Gunmetal & Stainless Steel with Threaded Connection

Válvulas Reductoras de Presión, Gunmetal con conexión roscada

ネジ式砲金减压弁　减压阀，炮铜色，带螺纹连接

Marine Type Approvals held for these valves:

- DNV
- Bureau Veritas,
- Lloyd's Register EMEA
- Russian Maritime Register of Shipping

Balanced single seat pressure reducing valves with threaded connections made of gunmetal/ stainless steel.
Either with Fabric reinforced diaphragm made of high-quality, heat-resistant moulded elastomer or with piston. Body with pressure gauge connection G1/4" on both sides of body.

Available in various versions:

- Version code: **mXXXSM**:
  with elastomere moulded diaphragm and seal made of FKM or EPDM
  max. inlet pressure: 60 bar, outlet pressure: 0.5 to 15 bar.

- Version code: **kXXXSK / kXXXHK**:
  with piston made of brass and seals made of FKM or EPDM
  kXXXSK: max. inlet pressure: 60 bar, outlet pressure: 5 to 30 bar
  kXXXHK: max. inlet pressure: 60 bar, outlet pressure:10 to 50 bar

- Version code: **xGSXX**:
  for compressed air and gases with secondary venting (for non-neutral, poisonous gases only in combination with ducted exhaust)

- Version code: **xGFOXX**:
  for liquids & gases (without secondary venting)

Also available in **Stainless Steel:** series **484**.

How to order: CODE

Pressure Reducing Valve (DIN), with threaded connection, Gunmetal, Version with diaphragm or piston – depending on pressure rating (mXXXSM, kXXXSK or kXXXHK), Version for which kind of medium (xGSXX or xGFOXX), SIZE DIN

Example code:
684mGSSM-20-f/f-20/20 FKM
series 684 **mXXXSM**: **diaphragm**
xGSXX: **with secondary venting**
20-f/f-20/20: size DN**20** with female BSP-P threads
FKM: seals and diaphragm made of FKM

Series 684:

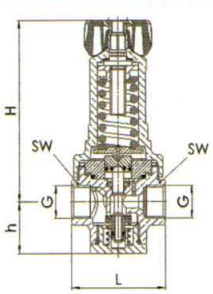
Component	Material	DIN EN	ASME
Body	Gunmetal	CC499K	CC499K
Internal Parts	Brass	CW617N	CW617N
Spring	Spring steel with anti-rust protection	1.1200	ASTM A228



DN8 to DN25



DN40 & DN50



Model 684mGSSM

with elastomer moulded diaphragm and seals for gases & compressed air **with secondary venting**.

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		L	H	h	SW	
75 74 56	8	68	120	33	26	1.2
57	10	68	120	33	26	1.2
58	15	60	120	33	26	1.2
59	20	78	180	40	32	2.8
60	25	102	215	56	44	5.3
75 74 61	40	136	260	63	58	9.4
62	50	136	270	70	70	10.2
Inlet Pressure		Up to 60 bar				
Outlet Pressure		0.5 - 15 bar				

Goetze KG: 684mGSSM

Model 684mGFOSM

with elastomer moulded diaphragm and seals for liquids & gases **without secondary venting**.

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		L	H	h	SW	
75 74 63	8	68	120	33	26	1.2
64	10	68	120	33	26	1.2
65	15	60	120	33	26	1.2
66	20	78	180	40	32	2.8
67	25	102	215	56	44	5.3
75 74 68	40	136	260	63	58	9.4
69	50	136	270	70	70	10.2
Inlet Pressure		Up to 60 bar				
Outlet Pressure		0.5 - 15 bar				

Goetze KG: 684mGFOSM

Model 684kGSSK

with piston made of brass and seal made of FKM or EPDM for gases & compressed air **with secondary venting**.

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		L	H	h	SW	
75 74 70	8	68	120	33	26	1.2
71	10	68	120	33	26	1.2
72	15	60	120	33	26	1.2
73	20	78	180	40	32	2.8
74	25	102	215	56	44	5.3
75 74 75	40	136	260	63	58	9.4
76	50	136	270	70	70	10.2
Inlet Pressure		Up to 60 bar				
Outlet Pressure		5 - 30 bar				

Goetze KG: 684kGSSK

Model 684kGFOSK

with piston made of brass and seals made of FKM or EPDM for liquids & gases **without secondary venting**.

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		L	H	h	SW	
75 74 77	8	68	120	33	26	1.2
78	10	68	120	33	26	1.2
79	15	60	120	33	26	1.2
80	20	78	180	40	32	2.8
81	25	102	215	56	44	5.3
75 74 82	40	136	260	63	58	9.4
83	50	136	270	70	70	10.2
Inlet Pressure		Up to 60 bar				
Outlet Pressure		5 - 30 bar				

Goetze KG: 684kGFOSK

Model 684kGSHK
with piston made of brass and seals made of FKM or EPDM for gases & compressed air **with secondary venting**.

Unit Per Pc.

CODE	DN	Size mm				Weight
		L	H	h	SW	Kg
75 74 84	8	68	120	33	26	1.2
85	10	68	120	33	26	1.2
86	15	60	120	33	26	1.2
87	20	78	180	40	32	2.8
88	25	102	215	56	44	5.3
75 74 89	40	136	260	63	58	9.4
90	50	136	270	70	70	10.2
Inlet Pressure		Up to 60 bar				
Outlet Pressure		10 - 50 bar				

Goetze KG: 684kGSHK

Model 684kGFOHK
with piston made of brass and seals made of FKM or EPDM for liquids & gases **without secondary venting**.

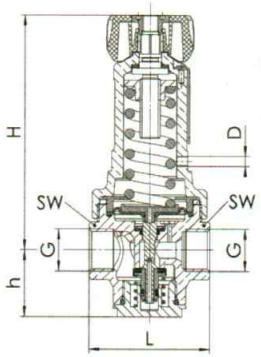
Unit Per Pc.

CODE	DN	Size mm				Weight
		L	H	h	SW	Kg
75 74 91	8	68	120	33	26	1.2
92	10	68	120	33	26	1.2
93	15	60	120	33	26	1.2
94	20	78	180	40	32	2.8
95	25	102	215	56	44	5.3
75 74 96	40	136	260	63	58	9.4
97	50	136	270	70	70	10.2
Inlet Pressure		Up to 60 bar				
Outlet Pressure		10 - 50 bar				

Goetze KG: 684kGFOHK

Series 484 (Stainless Steel)





Component	Material	DIN EN	ASME
Body	Stainless steel	1.4408	CF8M
Internal Parts	Stainless steel	1.4404	316 L
Spring	Stainless steel	1.4568	631

Model 484mGSSM
with elastomer moulded diaphragm and seals made of FKM or EPDM for gases & compressed air **with secondary venting**.

Unit Per Pc.

CODE	DN	Size mm				Weight
		L	H	h	SW	Kg
75 78 01	8	68	120	33	26	1.1
02	10	68	120	33	26	1.1
03	15	60	120	33	26	1.1
04	20	78	180	40	32	2.5
05	25	102	215	56	44	4.5
75 78 06	40	136	260	63	58	8.1
07	50	136	270	70	70	8.8
Inlet Pressure		Up to 60 bar				
Outlet Pressure		0.5 - 15 bar				

Goetze KG: 484mGSSM

Model 484mGFOSM
with elastomer moulded diaphragm and seals made of FKM or EPDM for liquids & gases **without secondary venting.**

Unit Per Pc.

CODE	DN	Size mm				Weight
		L	H	h	SW	Kg
75 78 08	8	68	120	33	26	1.1
09	10	68	120	33	26	1.1
10	15	60	120	33	26	1.1
11	20	78	180	40	32	2.5
12	25	102	215	56	44	4.5
75 78 13	40	136	260	60	58	8.1
14	50	136	270	70	70	8.8
Inlet Pressure		Up to 60 bar				
Outlet Pressure		0.5 - 15 bar				

Goetze KG: 484mGFOSM

Model 484kGSSK
with piston made of Stainless steel and seals made of FKM or EPDM for gases & compressed air **with secondary venting.**

Unit Per Pc.

CODE	DN	Size mm				Weight
		L	H	h	SW	Kg
75 78 15	8	68	120	33	26	1.1
16	10	68	120	33	26	1.1
17	15	60	120	33	26	1.1
18	20	78	180	40	32	2.5
19	25	102	215	56	44	4.5
75 78 20	40	136	260	63	58	8.1
21	50	136	270	70	70	8.8
Inlet Pressure		Up to 60 bar				
Outlet Pressure		5 - 30 bar				

Goetze KG: 484kGSSK

Model 484kGFOSK
with piston made of Stainless steel and seals made of FKM or EPDM for liquids & gases **without secondary venting.**

Unit Per Pc.

CODE	DN	Size mm				Weight
		L	H	h	SW	Kg
75 78 22	8	68	120	33	26	1.1
23	10	68	120	33	26	1.1
24	15	60	120	33	26	1.1
25	20	78	180	40	32	2.5
26	25	102	215	56	44	4.5
75 78 27	40	136	260	63	58	8.1
28	50	136	270	70	70	88
Inlet Pressure		Up to 60 bar				
Outlet Pressure		5 - 30 bar				

Goetze KG: 484kGFOSK

Model 484kGSHK
with piston made of Stainless steel and seals made of FKM or EPDM for neutral gases (compressed air) **with secondary venting.**

Unit Per Pc.

CODE	DN	Size mm				Weight
		L	H	h	SW	Kg
75 78 29	8	68	120	33	26	1.1
30	10	68	120	33	26	1.1
31	15	60	120	33	26	1.1
32	20	78	180	40	32	2.5
33	25	102	215	56	44	4.5
75 78 34	40	136	260	60	58	8.1
35	50	136	270	70	70	8.8
Inlet Pressure		Up to 60 bar				
Outlet Pressure		10 - 50 bar				

Goetze KG: 484kGSHK

Model 484kGFOHK
with piston made of Stainless steel and seals made of FKM or EPDM for liquids & gases **without secondary venting.**

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		L	H	h	SW	
75 78 36	8	68	120	33	26	1.1
37	10	68	120	33	26	1.1
38	15	60	120	33	26	1.1
39	20	78	180	40	32	2.5
40	25	102	215	56	44	4.5
75 78 41	40	136	260	63	58	8.1
42	50	136	270	70	70	8.8
Inlet Pressure		Up to 60 bar				
Outlet Pressure		10 - 50 bar				

Goetze KG: 484kGFOHK

Pressure Reducing Valves

Gunmetal with Female Connections

Válvulas Reductoras de Presión, Bronce de cañón con conexiones hembra
ソケット式砲金減圧弁　　减压阀，炮铜色，内螺纹连接

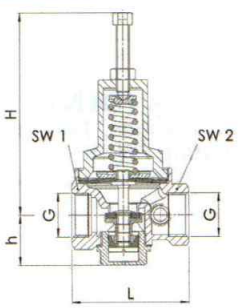
Marine Type Approvals held for these valves:
- DNV
- American Bureau of Shipping
- Russian Maritime Register of Shipping
- Lloyd's Register EMEA
- Bureau Veritas

Pressure reducer with female connections made of gunmetal with balanced single seat valve for use in shipbuilding and offshore plants. Suitable for compressed air and neutral gases. Body with G 1/4" connection for pressure gauge on both sides.

Largest reduction ratio: 10:1

Component	Material	DIN EN	ASME
Body, Insert	Gunmetal	CC499K	CC499K
Outlet body	Gunmetal	CC499K	CC499K
Internal parts	Brass	CW617N	CW617N
Spring	Spring steel	1.1200	ASTM A228





Unit Per Pc.

CODE	DN	Size mm			Weight Kg
		L	H	h	
75 65 71	10	73	100	22	0.5
72	15	73	100	22	0.5
73	20	70	120	30	0.8
74	25	87	165	35	1.4
75	32	100	175	43	2.0
Inlet Pressure		Up to 50 (DN32 – 30 bar)			
Outlet Pressure		1.5 - 10 bar			

Goetze KG: 683GO

Pressure Relief Valves

Gunmetal with threaded connections

Válvulas de alivio de presión, Gunmetal con conexiones roscadas
砲金・減圧安全弁
泄压阀，炮铜材质，螺纹连接

Marine Type Approvals held for these valves:
- DNV
- American Bureau of Shipping
- Russian Maritime Register of Shipping
- Lloyd's Register EMEA
- Bureau Veritas

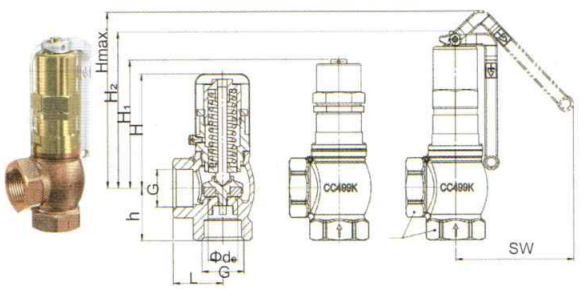
Pressure relief valve for the protection of pressure tanks, systems for neutral / non-neutral vapours, gases and liquids, steam boilers and steam plants.

Available models:
- 628 sGFL with lifting lever
- 628 tGFO gastight version without lifting lever

Available seals:
- NBR
- FKM
- PTFE

Series 628 (Gunmetal):

Component	Material	DIN EN	ASTM/AISI
Body	Gunmetal	CC499K	CC499K
Internal parts	Brass/Gunmetal	CW617N / CC499K	CW617N / CC499K
Spring	Stainless steel	1.4310	302



628 sGFL with lifting lever

Unit Per Pc.

CODE		75 78 51	75 78 52	75 78 53	75 78 54	75 78 55	75 78 56	75 78 57
Nom Dia (DN)		10	15	20	25	32	40	50
Range of Adjustment		0.2 - 20 bar						
Size mm	L	27	30	33	40	45	50	60
	Lmax	84	84	84	84	120	120	120
	H/H1	55/66	62/74	73/83	90/100	11-/117	130/136	135/146
	H2/Hmax	73/100	82/108	89/117	108/134	127/168	149/190	158/197
	h	26	30	35	41	45	51	60
	d0	10	13	19	25	30	38	50
Weight Kg		0.3	0.4	0.6	1.0	1.6	2.3	3.2

Goetze KG: Model 628 sGFL

628 tGFO gastight version (without lifting lever)

Unit Per Pc.

CODE		75 78 58	75 78 59	75 78 60	75 78 61	75 78 62	75 78 63	75 78 64
Nom Dia (DN)		10	15	20	25	32	40	50
Range of Adjustment		0.2 - 20 bar						
Size mm	L	27	30	33	40	45	50	60
	Lmax	84	84	84	84	120	120	120
	H1	66	74	83	100	117	136	146
	h	26	30	35	41	45	51	60
	d0	10	13	19	25	30	38	50
Weight Kg		0.3	0.4	0.6	1.0	1.6	2.3	3.2

Goetze KG: Model 628 tGFO

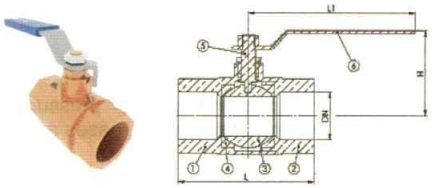
DIN Ball Valves

Ball Valves (DIN)

Bronze, BSP Female Threaded Ends
Pressure Rating PN40

Bronce, extremos roscados hembra BSP
DIN 型青銅 BSP 雌ネジボールバルブ　　青铜，BSP 内螺纹端头

Two piece, full bore, bronze body ball valve with hard chromed brass ball and PTFE seat. BSPP female threaded ends.



Pressure and Temperature Range: PN40, -10°C/+120°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Copper Alloy	CC491K
Ball	Brass	CW617N
Seat	Plastic	PTFE
Stem	Brass	CW614N
Lever	DN8-65	AISI304
Lever	DN80	Galvanized steel

How to order: CODE

Ball valve (DIN), bronze, BSP female threaded ends, pressure rating PN40, SIZE DN

Unit Per Pc.

CODE	DN	Inch	Size mm			Weight Kg
			L	H	L1	
75 66 01	8	1/4"	51	47.5	85	0.2
02	10	3/8"	51	47.5	85	0.2
03	15	1/2"	62	45	85	0.3
04	20	3/4"	70	57.5	104	0.4
05	25	1"	85	57.5	104	0.6
75 66 06	32	1-1/4"	99	75	122	1.0
07	40	1-1/2"	110	77.5	122	1.3
08	50	2"	134	93	153	2.4
09	65	2-1/2"	142	119.5	200	3.5
10	80	3"	178	134	280	6.0

MESON Model No.: 503.5.5.7.1

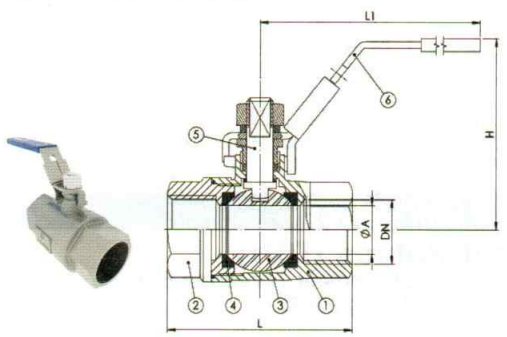
Ball Valves (DIN)

Stainless Steel, BSP Female Threaded Ends, Full Bore

Válvulas de bola (DIN), Acero inoxidable, extremos roscados, hembra BSP Paso total
ボールバルブ（DIN）ステンレス鋼、BSP 雌ネジフルボア
球阀（DIN）不锈钢，BSP 内螺纹端全孔

Two-piece ball valve with full bore, stainless steel body, stainless steel ball and PTFE seat, BSP or NPT female thread connection. Actuated by means of a lockable lever with PVC sleeve.

Applications:
Corrosive fluid, Fuel oil, Lubricating oil, Flammable hydraulic oil, Cargo oil, Non-flammable hydraulic fluid, Boiler feedwater, Condensate, Sea water, Water.



Pressure and Temperature Range: 69 bar, -20°C to +170°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Stainless steel	A351 CF8M
Cap	Stainless steel	A351 CF8M
Ball	Stainless steel	A351 CF8M
Seat	PTFE	PTFE
Stem	Stainless steel	AISI 316
Handle	Stainless steel	AISI 304

BSP Female Threaded Ends

How to order: CODE

Ball valve (DIN), stainless steel, BSP female threaded ends, full bore, SIZE DN

Unit Per Pc.

CODE	DN	Inch	Size mm				Weight Kg
			ΦA	H	L	L1	
75 66 65	8	1/4"	9.2	54	54	110	0.2
66	10	3/8"	12.8	55	54	110	0.2
67	15	1/2"	15	58	57	115	0.3
68	20	3/4"	20	61	68	115	0.5
69	25	1"	25	77	80	128	0.8
75 66 70	32	1-1/4"	32	81	91	128	1.0
71	40	1-1/2"	38	90	103	155	1.5
72	50	2"	50	108	124	155	2.7
73	65	2-1/2"	65	132	160	260	4.9
74	80	3"	80	145	185	260	7.2

MESON Model No.: 503.4.4.7.6

NPT Female Threaded Ends

How to order: CODE

Ball valve (DIN), stainless steel, NPT female threaded ends, full bore, SIZE DN

Unit Per Pc.

CODE	DN	Inch	Size mm				Weight Kg
			ΦA	H	L	L1	
75 65 89	8	1/4"	9.2	54	54	110	0.2
90	10	3/8"	12.8	55	54	110	0.2
91	15	1/2"	15	58	57	115	0.3
92	20	3/4"	20	61	68	115	0.5
93	25	1"	25	77	80	128	0.8
75 65 94	32	1-1/4"	32	81	91	128	1.0
95	40	1-1/2"	38	90	103	155	1.5
96	50	2"	50	108	124	155	2.7
97	65	2-1/2"	65	132	160	260	4.9
98	80	3"	80	145	185	260	7.2

MESON Model No.: 503.4.4.7.6

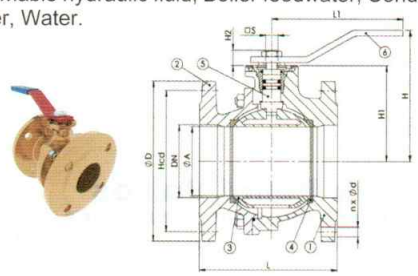
Ball Valves (DIN)

Bronze, DIN Flanges, Two-Piece, Full Bore Pressure Rating PN 16

Válvulas de bola (DIN) Bronce, bridas DIN, dos piezas, paso total
ボールバルブ（DIN）青銅、DIN フランジ、ツーピース、フルボア
球阀（DIN）青铜，DIN 法兰，两件式，全孔

Two-piece bronze body ball valve with full bore, stainless steel ball and PTFE seat, raised face flange connection rated DIN PN 16. Actuated by lever.

Applications:
Fuel oil, Lubricating oil, Flammable hydraulic oil, Cargo oil, Non-flammable hydraulic fluid, Boiler feedwater, Condensate, Sea water, Water.



Pressure and Temperature Range: 16 bar, -20°C to +150°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Bronze	CC491K
Ball	Stainless steel	AISI316
Cap	Bronze	CC491K
Seat	PTFE	PTFE
Stem	Stainless steel	AISI316

How to order: CODE

Ball valve (DIN), bronze, DIN flanges, two-piece, full bore, pressure rating PN 16, SIZE DN

Unit Per Pc.

CODE	DN	Size mm					Weight
		Hcd	Φd	H	L	L1	Kg
75 69 98	15	65	95	84	115	160	2.8
75 66 75	20	75	105	84	120	160	3.0
76	25	85	115	96	125	170	4.8
77	32	100	140	101	130	170	6.5
78	40	110	150	125	140	230	9.3
75 66 79	50	125	165	135	150	230	11.5
80	65	145	185	143	170	230	16.0
81	80	160	200	165	180	280	20.6
82	100	180	220	180	190	360	28.4
83	125	210	250	225	200	520	41.2

MESON Model No.: 500.5.4.7.1

Ball Valves (DIN)

Cast Iron, DIN Flanges, 2-way, Full Bore Pressure Rating PN 16

Válvulas de bola (DIN), Hierro fundido, bridas DIN, 2 vías, paso total
ボールバルブ（DIN）鋳鉄、DIN フランジ、2 方向、フルボア
球阀（DIN）铸铁，DIN 法兰，2 通，全孔

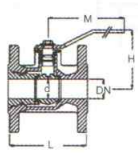
Ball valve with full bore, floating ball and flange connection rated DIN PN 16. Actuated by lever. Also available with a pneumatic or electric actuator. This type of ball valve is generally used in heating, air conditioning and industrial systems for water and gases up to a maximum of 16 bar (PN 16 version).

Pressure and Temperature Range

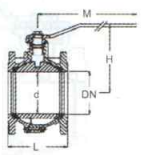
Size	Pressure Rating	Temperature Range	-10°C	+70°C	+90°C	+150°C
DN20-DN200	PN 16	-10°C /+150°C	16 bar	16	16	8

Brass Ball & Stem Type





DN 20 - DN 40



DN 50 - DN 200

Material Specification

Component	Material	EN and/or (DIN)
Body	Cast iron	GJL-250 (GG-25)
Ball and Stem	Brass	CuZn40Pb2
Ball Seat (+ Graphite)	PTFE	
Lever (Lacquered)	Steel	
O-rings	NBR	

How to order: CODE

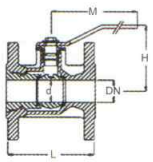
Ball valve (DIN), Cast Iron, DIN flanges, 2-way, full bore, brass ball and stem, pressure rating PN 16 SIZE DN

Unit Per Pc.

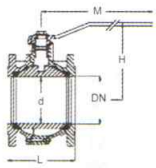
CODE	DN	Size mm				Weight
		d	H	L	M	Kg
75 66 86	20	20	85	120	130	2.5
87	25	25	95	125	170	3.2
88	32	32	100	130	170	4.4
89	40	40	118	140	220	5.5
90	50	50	125	150	220	8.5
75 66 91	65	63	152	170	284	11.5
92	80	76	166	180	284	15.5
93	100	95	180	190	360	20
94	125	120	225	200	447	30
95	150	145	242	210	560	36
75 66 96	200	190	320	400	1,000	93

Stainless Steel Ball & Stem Type





DN 20 - DN 40



DN 50 - DN 200

Material Specification

Component	Material	EN and/or (DIN)
Body	Cast iron	GJL-250 (GG-25)
Ball and Stem	Stainless steel	X5CrNi18-10
Ball Seat (+ Graphite)	PTFE	
Lever (Lacquered)	Steel	
O-rings	NBR	

How to order: CODE

Ball valve (DIN), cast iron, DIN flanges, 2-way, full bore, pressure rating PN 16, stainless steel ball and stem, SIZE DN

Unit Per Pc.

CODE	DN	Size mm				Weight
		d	H	L	M	Kg
75 67 01	20	20	85	120	130	2.5
02	25	25	95	125	170	3.2
03	32	32	100	130	170	4.4
04	40	40	118	140	220	5.5
05	50	50	125	150	220	8.5
75 67 06	65	63	152	170	284	11.5
07	80	76	166	180	284	15.5
08	100	95	180	190	360	20
09	125	120	225	200	447	30
10	150	145	242	210	560	36
75 67 11	200	190	320	400	1,000	93

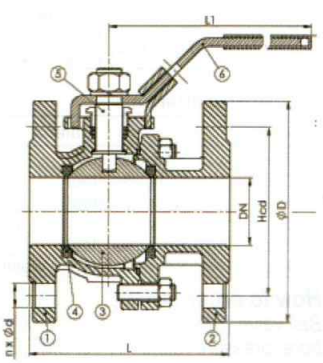
Ball Valves (DIN)

Cast Steel, DIN Flange, Non-direct Mounting Pad, Pressure Rating PN40

Válvulas de bola (DIN), Acero fundido, brida DIN, pie de montaje no directo
ボールバルブ（DIN）鋳鋼、DIN フランジ
球阀（DIN），铸钢，DIN 法兰，非直接安装垫板

Two piece, full bore, cast steel body ball valve with stainless steel ball with relief hole and TFM4215 seat. Raised face flanges, pressure rating PN40.





Applications:
Steam, Thermal oil, Fuel oil, Lubricating oil, Flammable hydraulic oil, Cargo oil, Non-flammable hydraulic fluid, Boiler feedwater, Condensate, Sea water, Water.

Material Specification

Component	Material	EN and/or (DIN)
Body	Stainless steel	A351 CF8M
Cap	Stainless steel	A351 CF8M
Ball	Stainless steel	A351 CF8M
Seat	PTFE	PTFE
Stem	Stainless steel	AISI 316
Handle	Stainless steel	AISI 304

How to order: CODE

Ball valve (DIN), cast steel, DIN flanged, non-direct mounting pad, pressure rating PN 40, SIZE DN

Unit Per Pc.

CODE	DN	Size mm				Weight
		Hcd	Φd	L	L1	Kg
75 67 51	15	65	95	115	153	2.5
52	20	75	105	120	153	3.1
53	25	85	115	125	188	4.6
54	32	100	140	130	188	5.6
55	40	110	150	140	245	7.1
75 67 56	50	125	165	150	245	9.7
18	65	145	185	170	288	14.8

MESON Model No. : 500.3.4.9.1

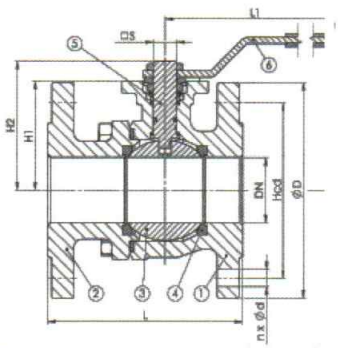
Ball Valves (DIN)

Stainless Steel, DIN Flanges, Two Pieces, Full Bore Pressure Rating PN 16 - 40

Válvulas de bola (DIN), Acero inoxidable, bridas DIN, dos piezas, paso total
ボールバルブ（DIN），ステンレス鋼、DIN フランジ
球阀（DIN），不锈钢，DIN 法兰，两件式，全孔

Two-piece, full bore, stainless steel body ball valve with stainless steel ball and SS+PTFE seat. Raised face flanges. With direct mounting pad. Pressure Rating is PN 16 – 40.





Applications: Corrosive Fluids

Pressure and Temperature Range

Size	Temp. Range	-30°C	+60°C	+100°C	+150°C	+180°C	+230°C
PN 16							
DN15-DN150	-30°C/+230°C	16 bar	16	15	8	0	0
DN200		16 bar	16	15	8	0	0
PN 40							
DN15-DN150	-30°C/+230°C	43 bar	43	30	15	0	0
DN200		43 bar	43	30	15	0	0

Material Specification

Component	Material	EN and/or (DIN)
Body	Stainless steel	A351-CF8M
Cap	Stainless steel	A351-CF8M
Ball	Stainless steel	A351-CF8M
Seat	Plastic	PTFE
Stem	Stainless steel	AISI 316
Handle	Stainless steel + plastic cover	AISI 430

How to order: CODE

Ball valve (DIN), stainless steel, DIN flanges, two-pieces, full bore, pressure rating PN 16, SIZE DN

PN16

Unit Per Pc.

CODE	DN	Size mm						Weight
		Hcd	Φd	L	H2	L1	H1	Kg
75 67 71	65	145	185	170	137.0	277.5	118.5	14.8
72	80	160	200	180	148.0	277.5	129.5	19.0
73	100	180	220	190	163.5	377.5	145.0	26.5
74	125	210	250	325	205.0	415.0	158.0	48.0
75	150	240	285	350	222.0	415.0	175.0	65.5
75 67 76	200	295	340	400	304.0	920.0	268.0	118.7

MESON Model No.: 500.4.4.7.1

How to order: CODE

Ball valve (DIN), stainless steel, DIN flanges, two-pieces, full bore, pressure rating PN 40, SIZE DN

PN40

Unit Per Pc.

CODE	DN	Size mm						Weight
		Hcd	Φd	L	H2	L1	H1	Kg
75 67 65	15	65	95	115	56	110	46.6	2.2
66	20	75	105	120	61	110	51.5	3.0
67	25	85	115	125	67	136	57.5	3.8
68	32	100	140	130	87	175	71.5	5.8
69	40	110	150	140	92	203	76.5	6.9
75 67 70	50	125	165	150	99	203	83.5	9.5
75 68 00	65	145	185	170	137	277.5	118.5	15.7
24	80	160	200	180	148	277.5	129.5	20.4
39	100	190	235	190	163.5	337.5	145.0	30.0
40	125	220	270	325	202.1	500	158.5	50.0
75 68 41	150	250	300	350	221.3	600	175.0	67.4

MESON Model No.: 500.4.4.7.1

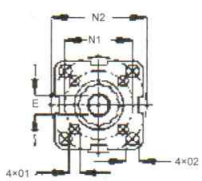
Ball Valves (DIN)

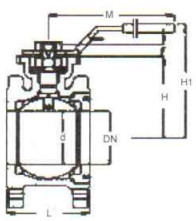
Cast Steel, DIN wafer Type, 2-way Pressure Rating PN 16 and 40

Válvulas de bola (DIN), Acero fundido, Tipo oblea DIN, 2 vías
ボールバルブ（DIN）鋳鋼、DIN ウェハータイプ
球阀（DIN），铸钢，DIN 对夹式，2 通

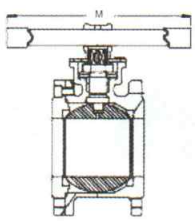
Wafer type ball valve with full bore, floating ball and flange connection to DIN PN16 or PN40. Actuated by means of a lever or T-bar. This type of ball valve is generally used in industrial systems such as steam, water, gases, and corrosive media, up to a maximum of 40 bar (PN40 version).







DN 15 - DN 80



DN 100 - DN 150

Material Specification

Component	Material	EN and/or (DIN)
Body	Cast steel	GP240GH (GS-C25)
Ball	Stainless steel	GX5CrNi19-10(G-X6CrNi18 9)
Stem	Stainless steel	X5CrNi18-10
Ball Seat	PTFE(TFM1600)	
Stem Seal	PTFE	
O-ring	FKM(Viton)	
Body Gasket	PTFE	
Lever(DN15-80) *1	Stainless steel	X5CrNi18-10
T-bar(DN100-150) *1	Galvanized Steel	

*1 Covered with PVC sleeve, colour blue.

PN 16

Pressure and Temperature Range

Size	Pressure Rating	Temp. Range	-30°C	+50°C	+100°C	+150°C	+200°C	+230°C
DN15 - DN150	PN16	-30°C / +230°C	16 bar	15	13	13	11	7.6

How to order: CODE

Ball valve (DIN), cast steel, DIN wafer type, 2-way, pressure rating PN 16, SIZE DN

Unit Per Pc.

CODE	DN	Size mm					Weight Kg
		d	L	M	H	H1	
75 68 43	15	15	42	145	49	77	1.4
44	20	20	44	145	55	82	1.8
45	25	25	50	175	62	94	2.4
46	32	32	60	175	72	104	3.9
47	40	38	65	194	78	114	4.9
75 68 48	50	50	80	194	86	120	8.6
75 67 87	65	63.5	110	265	108	158	10.1
88	80	76	120	265	116	165	14.5
89	100	95	150	400	139	182	22.7
75 68 49	125	118	180	600	176	224	50
75 68 50	150	142	225	800	192	268	70

PN 40

Pressure and Temperature Range

Size	Pressure Rating	Temp. Range	-30°C	+50°C	+100°C	+150°C	+200°C	+230°C
DN15 -DN50	PN40	-30°C / +230°C	39 bar	37	34	32	19	7.6
DN65 -DN100			39 bar	37	34	28	16	7.6
DN125-DN150			30 bar	28	25	19	12	7.6

How to order: CODE

Ball valve (DIN), cast steel, DIN wafer type, 2-way, pressure rating PN 40, SIZE DN

Unit Per Pc.

CODE	DN	Size mm					Weight Kg
		d	L	M	H	H1	
75 67 81	15	15	42	145	49	77	1.4
82	20	20	44	145	55	82	1.8
83	25	25	50	175	62	94	2.4
84	32	32	60	175	72	104	3.9
85	40	38	65	194	78	114	4.9
75 67 86	50	50	80	194	86	120	8.6
75 68 57	65	63.5	110	265	108	158	10.1
58	80	76	120	265	116	165	14.5
59	100	95	150	400	139	182	22.7
60	125	118	180	600	176	224	50
75 68 64	150	142	225	800	192	268	70

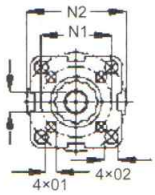
Ball Valves (DIN)

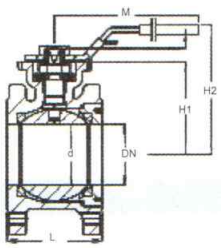
Stainless Steel, DIN Wafer Type, 2-way
Pressure rating PN 16 and 40

Válvulas de bola (DIN), Acero inoxidable, DIN Tipo Wafer, 2 vías
ボールバルブ（DIN），ステンレス鋼、DIN ウエハータイプ
球阀（DIN），不锈钢，DIN 对夹式，2 通

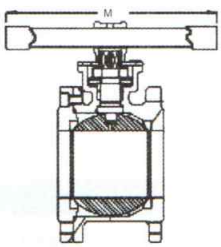
Wafer type ball valve with full bore, floating ball and flange connection to DIN PN16 or PN40. Actuated by means of a lever or T-bar. This type of ball valve is generally used in industrial systems such as steam, water, gases, and corrosive media, up to a maximum of 40 bar (PN40 version).







DN 15 - DN 80



DN 100 - DN 150

Material Specification

Component	Material	EN and/or (DIN)
Body	Stainless steel	GX5CrNiMo19-11-2 (G-X6CrNiMo 18-10)
Ball	Stainless steel	GX5CrNiMo19-11-2 (G-X6CrNiMo 18-10)
Stem	Stainless steel	X5CrNiMo 17-12-2
Ball Seat (Reinforced)	PTFE(TFM1600)	
Stem Seal	PTFE	
O-ring	FKM (Viton)	
Body Gasket	PTFE	
Lever(DN15-80) *1	Stainless steel	X5CrNi18-10
T-bar(DN100-150) *1	Galvanized steel	

*1 Covered with PVC sleeve, color blue.

PN 16

Pressure and Temperature Range

Size	Pressure Rating	Temp. Range	-30°C	+50°C	+100°C	+150°C	+200°C	+230°C
DN15 - DN150	PN16	-30°C / +230°C	16 bar	15	13	13	11	7.6

How to order: CODE

Ball valve (DIN), stainless steel,DIN wafer type, 2-way, pressure rating PN 16, SIZE DN

Unit Per Pc.

CODE	DN	Size mm					Weight Kg
		d	L	M	H	H1	
75 68 74	15	15	42	145	49	77	1.4
92	20	20	44	145	55	82	1.8
93	25	25	50	175	62	94	2.4
94	32	32	60	175	72	104	3.9
95	40	38	65	194	78	114	4.9
75 68 96	50	50	80	194	86	120	8.6
75 67 97	65	63.5	110	265	108	158	10.1
98	80	76	120	265	116	165	14.5
99	100	95	150	400	139	182	22.7
75 68 97	125	118	180	600	176	224	50
75 68 98	150	142	225	800	192	268	70

PN 40

Pressure and Temperature Range

Size	Pressure Rating	Temp. Range	-30°C	+50°C	+100°C	+150°C	+200°C	+230°C
DN15 -DN50	PN40	-30°C / +230°C	39 bar	37	33	30	19	7.6
DN65 -DN100			39 bar	37	33	28	16	7.6
DN125 -DN150			30 bar	28	25	19	12	7.6

How to order: CODE

Ball valve (DIN), stainless steel, DIN wafer type, 2-way, pressure rating 40, SIZE DN

Unit Per Pc.

CODE	DN	Size mm					Weight Kg
		d	L	M	H	H1	
75 67 91	15	15	42	145	49	77	1.4
92	20	20	44	145	55	82	1.8
93	25	25	50	175	62	94	2.4
94	32	32	60	175	72	104	3.9
95	40	38	65	194	78	114	4.9
75 67 96	50	50	80	194	86	120	8.6
75 68 99	65	63.5	110	265	108	158	10.1
75 69 00	80	76	120	265	116	165	14.5
12	100	95	150	400	139	182	22.7
13	125	118	180	600	176	224	50
75 69 14	150	142	225	800	192	268	70

DIN Strainers

Strainers (DIN)

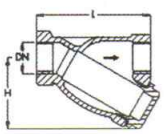
Bronze, Y-Type. Standard Type

Filtros (DIN) Bronce, Tipo Y. Tipo estándar
ストレーナ（DIN）青銅 Y タイプ
过滤器（DIN）青铜，Y 型。标准类型

BSP female threaded connection acc. to DIN 259 or DIN flanged ends, stainless steel strainer element and threaded cap.
Suitable for use in horizontal and vertical pipelines with a downward flow.

BSP Female Threaded





Perforation Size

Size	Perforation Size		
	Standard Φ mm	Fine Φ mm	Coarse Φ mm
1/4" thru 2"	1.0	0.25	3.0
2-1/2" thru 3"	1.25	0.25	3.0

Material Specification

Component	Material	EN and/or (DIN)
Body	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Threaded Cap	Brass	
Strainer Element	Stainless steel	X5CrNi18-10

Pressure and Temperature Range
Maximum operating pressure 16 bar
Maximum operating temperature 200°C

How to order: CODE

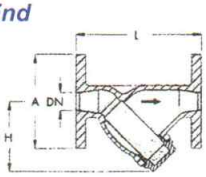
Strainer (DIN), bronze, Y-type, BSP female threaded, SIZE DN

Unit Per Pc.

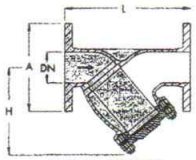
CODE	DN	Size mm		Weight Kg	Strainer		
		L	H		Diam.	Height	Area [cm²]
					mm		
75 68 01	1/4"	72	45	0.4	18	48	27
02	3/8"	72	45	0.4	18	48	27
03	1/2"	85	55	0.5	23	56	40
04	3/4"	100	65	0.8	28	68	60
05	1"	120	75	1.2	36	82	93
75 68 06	1-1/4"	140	90	1.9	42	98	129
07	1-1/2"	160	100	2.5	50	114	179
08	2"	205	160	6.0	62	119	230
09	2-1/2"	245	185	11	79	134	330
10	3"	265	205	13	90	149	419

DIN Flanged End





DN 15 - DN 40



DN 50 - DN 250

Perforation Size

Size	Perforation Size		
	Standard Φ mm	Fine Φ mm	Coarse Φ mm
DN 15 thru DN 50	1.0		
DN 65 and DN 80	1.25	0.25	3.0
DN 100 thru DN 250	0.6		

Material Specification

Component	Material	EN and/or (DIN)
Body	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Threaded Cap thru DN80	Brass	
Bolted Cover starting from DN100	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Strainer Element up to DN80	Stainless steel	X5CrNi18-10
Strainer Element from DN 100	Nickel	

How to order: CODE

Strainer (DIN), bronze, Y-type, DIN flanged end, SIZE DN

Unit Per Pc.

CODE	DN	Size mm			Weight Kg	Strainer		
		A	L	H		Diam.	Height	Area [cm²]
						mm		
75 68 11	15	95	125	70	1.5	23	56	40
12	20	105	140	80	2.4	28	68	60
13	25	115	160	95	3.2	36	82	93
14	32	140	180	115	5.5	42	98	129
15	40	150	200	125	6.6	50	114	179
75 68 16	50	165	230	165	11	62	119	230
17	65	185	265	185	15	79	134	330
18	80	200	285	205	20	90	149	419
19	100	220	360	295	35.5	105	265	874
20	125	250	420	330	58	130	310	1,265
75 68 21	150	285	460	380	87	155	340	1,655
22	200	340	590	485	128	205	450	2,897
23	250	395	750	640	210	258	595	4,820

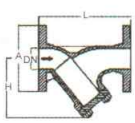
Strainers (DIN)

Cast Iron , DIN Flanged Ends
Pressure Rating PN 16

Filtros (DIN) Hierro fundido , DIN Extremos con bridas
ストレーナー（DIN） 鋳鉄、DIN フランジ
过滤器（DIN） 铸铁 , DIN 法兰端

Suitable for use in horizontal and vertical pipelines with a downward flow.





Perforation Size

Size	Perforation Size		
	Standard Φ mm	Fine Φ mm	Coarse Φ mm
DN 10 thru DN 50	1.0		
DN 65 and DN 80	1.25	0.25	3.0
DN 100 thru DN 400	1.6		

Material Specification

Component	Material	EN and/or (DIN)
Body	Cast iron	GJL-250 (GG-25)
Bolted Cover	Cast iron	GJL-250 (GG-25)
Strainer Element	Stainless steel	X5CrNi18-10

Pressure and Temperature Range
16 bar – 120°C
13 bar – 200°C

How to order: CODE
Strainer (DIN), cast iron, Y-type, DIN flanged end, pressure rating PN 16, SIZE DN

Unit Per Pc.

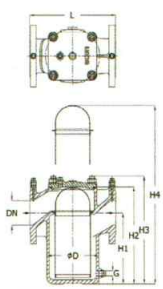
CODE	DN	Size mm			Weight Kg	Strainer		
						Diam.	Height	Area
		A	L	H		mm		[cm²]
75 68 25	15	95	130	90	4	23	56	40
26	20	105	150	100	5	28	68	60
27	25	115	160	115	6	36	82	93
28	32	140	180	125	8	42	98	129
29	40	150	200	150	10	50	114	179
75 68 30	50	165	230	160	13	61.5	119	230
31	65	185	290	180	19	78.5	134	330
32	80	200	310	215	24.5	89.5	149	419
33	100	220	350	235	35	109.5	169	581
34	125	250	400	275	51	138	199	859
75 68 35	150	285	480	305	71	160	224	1,125
36	200	340	600	390	144	210	284	1,873
37	250	395	730	540	175	258	434	3,516
38	300	445	850	680	290	308	555	5,368
75 69 15	400	580	1,100	835	461	415	695	8,947

Strainers (DIN)
Single Basket, DIN Flanges PN10/16
Ductile Cast Iron

Filtros (DIN), Cesta simple, bridas DIN PN10/16, Fundición dúctil
ストレーナー（DIN）DIN フランジ　ダクタイル鋳鉄
过滤器（DIN）单篮筐，DIN 法兰 PN10/16，球墨铸铁

Simplex Basket Strainer for general use. Fitted with a fluid drain plug and suitable for use in horizontal pipe lines only. Ductile Cast Iron body with epoxy coating treatment on the surface (internal and external). Maximum differential pressure at 20°C is 1 bar.





Material specification

Component	Material	EN and/or (DIN)
Body and cover	Ductile cast iron	GJS-500-7(GGG-50)
Cover seal	NBR	
Drain plug	Stainless Steel	
Material bleed screw	Stainless steel	

How to order: CODE
Strainer (DIN), single, basket, ductile cast iron, DIN flanges PN 10/16, SIZE DN

Unit Per Pc.

CODE	DN	L	D	H1	H2	H3	H4	G	Weiht Kg
87 20 52	20	171	81	156	178	220	330	3/8"	6
53	25	171	81	156	178	220	330	3/8"	6
54	32	189	102	164	214	250	420	3/8"	15
55	40	189	102	164	214	250	420	3/8"	15
56	50	189	102	164	214	250	420	3/8"	15
87 20 57	65	230	127	214	282	315	530	3/8"	25
58	80	279	168	235	313	350	610	3/8"	28
59	100	317	176	324	427	465	810	3/8"	42
60	125	379	222	324	452	510	900	3/8"	55
61	150	461	262	389	540	580	1,090	3/8"	75

(to be continued)

Unit Per Pc.

CODE	DN	L	D	H1	H2	H3	H4	G	Weiht Kg
87 20 62	200	605	322	489	694	745	1,340	3/8"	140
63	250	604	402	605	815	880	1,550	3/8"	195
64	300	719	472	730	974	1,035	1,860	3/8"	300

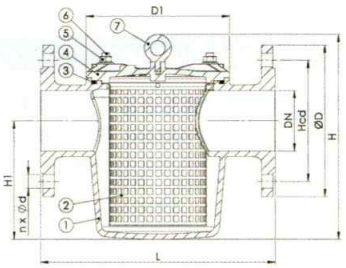
DIN Mud Boxes

Cast Iron Mud Boxes (DIN)
Basket Type, Raised face flanged according to DIN PN 10

Cajas de lodo de hierro fundido (DIN)
Tipo cesta, cara elevada con brida según DIN PN 10
鋳鉄製マッドボックス（DIN）
铸铁泥浆箱（DIN），篮式，
凸面法兰，符合 DIN PN 10
标准

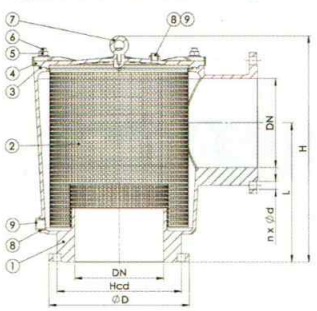


Sraight





Angle



Mud boxes are installed in suction pipes aboard vessels to protect pumps against large solids. Straight type, Cast Iron body and bonnet mud box with Stainless Steel strainer. Fitted with bonnet lifting eyebolt. Raised face flanges.

Material Specification

Component	Material	EN and/or (DIN)
Body	Cast Iron	GG-25
Disk	Stainless Steel	1.4432
O-ring	Rubber	NBR
Bonnet	Cast Iron	GG25

Applications
Fuel oil, Lubricating oil, Flammable hydraulic oil, Sea water, Water.

How to order : CODE
Mud box (DIN), basket type, cast iron, flat flanged according to DIN PN 10, STRAIGHT or ANGLE, SIZE DN

Straight

Unit per Pc.

CODE	DN	Size mm						Weight kg
		Hcd	D	L	H	D1	H1	
87 20 65	40	110	150	200	191	111	95	6.9
66	50	125	165	230	208	136	106	10
67	65	145	185	290	239	172	134	14
68	80	160	200	310	270	190	156	17
69	100	180	220	350	309	350	185	24
87 20 70	125	210	250	400	385	400	229	36
71	150	240	285	480	436	480	268	47
73	200	295	340	600	538	387	335	84
74	250	350	395	600	589	479	355	116
84	300	400	478	600	640	479	380	135

MESON Model No.: 100.1.9.9.1

Angle

Unit per Pc.

CODE	DN	Size mm						Weight kg
		Hcd	D	L	H	D_1	H_2	
87 20 75	40	110	150	125	228	136	179	8.9
76	50	125	165	135	241	172	198	12
77	65	145	185	150	265	190	231	15
78	80	160	200	175	297	229	263	21
79	100	180	220	195	347	270	318	27
87 20 80	125	210	250	220	381	302	365	38
81	150	240	285	270	455	387	424	56
83	200	295	340	300	523	479	528	92
85	250	350	395	390	635	479	655	113
86	300	400	478	450	729	639	769	172
87 20 87	350	460	505	400	735	665	862	250

MESON Model No.: 101.1.9.9.1

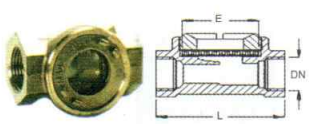
DIN Sight Glasses

Sightglasses (DIN)

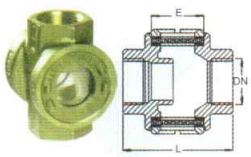
Brass, BSP Female Threaded Ends

Mirillas (DIN), Latón, extremos roscados hembra BSP
サイトグラス（DIN）、黄銅、BSP 雌ネジ端
视镜（DIN）黄铜，英制锥螺纹内螺纹端头

The small sizes are generally used to check the operation of the steam traps. For checking the liquid flow in open systems as well as a possible discolouring of liquids in open and closed systems (such as lubricating oil).



Single-window



Double-window

Material Specification

Component	Material	EN and/or (DIN)
Single-window		
Body	Brass	
Glass	Soda lime	
Gaskets	Graphite	
Double-window		
Body and cover (1/2" thru 1")	Brass	
Body (DN 1/" thru 2")	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Glass	Soda lime	
Gaskets	Graphite	

Pressure and Temperature Range

Pressure and Temperature Range	Max. Pressure	Max. Temperature
5 bar – 90°C/3.5 bar – 148°C	5 bar	148°C

Single Window Type

How to order: CODE

Sight glass (DIN), brass BSP female threaded ends, single window, SIZE DN

Unit Per Pc.

CODE	DN	Size mm		Weight Kg	CODE	DN	Size mm		Weight Kg
		E	L				E	L	
75 68 61	1/2"	50	89	0.6	**75 68 63**	1"	50	89	0.9
62	3/4"	50	89	0.7					

Double Window Type

How to order: CODE

Sight glass (DIN), brass or bronze, BSP female threaded ends, double window, SIZE DN

Unit Per Pc.

CODE	d	Size mm		Weight Kg	CODE	d	Size mm		Weight Kg
		E	L				E	L	
75 68 75	1/2"	50	89	0.9	**75 68 78**	1-1/4"	50	108	1.8
76	3/4"	50	89	0.9	**79**	1-1/2"	50	108	1.9
77	1"	50	89	1.2	**80**	2"	50	114	2.5

Note: Material of body 1/2" to 1" = Brass, 1-1/4" to 2"= Bronze

DIN Overflow Valves

Overflow & Pressure Control Valves

Gunmetal

Válvulas de rebose y de control de presión, Bronce de cañón
DIN 型砲金圧力逃がし弁
溢流阀和压力控制阀，炮铜色

Marine Type Approvals held for these valves:

- DNV
- Lloyd's Register EMEA
- American Bureau of Shipping
- Bureau Veritas
- Russian Maritime Register of Shipping

Overflow and pressure control valves made of gunmetal with stainless steel spring. Suitable for liquids, steam and gaseous media.

Available models:
- **618 tGFO** Gastight version

Available seals:
- **NBR**
- **PTFE**
- **FKM**

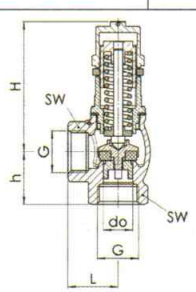
Ranges of adjustment: 0.2 - 0.8 bar
0.5 - 2.5 bar
2.0 - 12 bar
12 - 20 bar with PTFE seal

Valves can be delivered unset within a pressure range or set and sealed at the factory.

Component	Material	DIN EN	ASME
Inlet body	Gunmetal	CC499K	CC499K
Outlet body	Gunmetal	CC499K	CC499K
Internal parts	Brass/Gunmetal	CW617N/CC499K	CW617N/CC499K
Spring	Stainless steel	1.4310	302



618tGFO



618tGFO Gastight version

NBR Seal

Unit Per Pc.

CODE	DN	Size mm					Weight Kg
		L	H	h	SW	d0	
75 69 71	G3/8"	27	66	26	24	10	0.3
72	G1/2"	29	74	30	28	13	0.4
73	G3/4"	34	83	35	34	19	0.7
74	G1"	42	100	43	41	25	1.2
75	G1-1/4"	46	117	46	52	30	1.9
75 69 76	G1-1/2"	51	136	52	58	38	2.5
77	G2"	60	146	61	70	50	3.8
Range of Adjustment		0.2 - 20 bar					

Goetze KG : Models 618tGFO NBR

PTFE Seal

Unit Per Pc.

CODE	DN	Size mm					Weight
		L	H	h	SW	d0	Kg
75 69 61	G3/8"	27	66	26	24	10	0.3
62	G1/2"	29	74	30	28	13	0.4
63	G3/4"	34	83	35	34	19	0.7
64	G1"	42	100	43	41	25	1.2
65	G1-1/4"	46	117	46	52	30	1.9
75 69 66	G1-1/2"	51	136	52	58	38	2.5
67	G2"	60	146	61	70	50	3.8
Range of Adjustment		0.2 - 20 bar					

Goetze KG : Models 618tGFO PTFE

Overflow Valves

Gunmetal & Stainless Steel

Válvulas de rebose , Bronce de cañón y acero inoxidable
砲金ステンレス製オーバーフロー弁
溢流阀 、炮铜和不锈钢

Marine Type Approvals held for these valves:
- DNV
- Lloyd's Register EMEA
- American Bureau of Shipping
- Bureau Veritas
- Russian Maritime Register of Shipping

Overflow and pressure control valves made of gunmetal with stainless steel spring. Suitable for liquids, steam and gaseous media. Adjustable under operating conditions without medium escaping in the atmosphere. Gastight version of spring housing.

Available models:
- **617tGFO gastight version for gases and liquids - without lifting device**

Available seals :
- **NBR**
- **FKM**
- **EPDM**
- **PTFE**

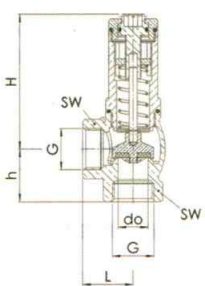
Ranges of adjustment: 0.5 – 2.5 bar
2.0 – 8.0 bar
2.0 – 12 bar
12 – 20 bar (with PTFE seal)

Valves can be delivered unset within a pressure range or set and sealed at the factory.
All models are also available in **Stainless Steel** : series **417**.

Series 617 (Gunmetal)

Component	Material	DIN EN	ASME
Inlet Body	Gunmetal	CC499K	CC499K
Outlet Body	Gunmetal	CC499K	CC499K
Internal Parts	Brass	CW617N	CW617N
Spring	Stainless steel	1.4310	302





How to order: CODE

Overflow Valve (DIN), Gunmetal, MODEL "617tGFO", SIZE DN, SPECIFY THE SEALS FROM "NBR", "FKM", or "PTFE"

Model 617tGFO gastight version for gases and liquids - without lifting device

Unit Per Pc.

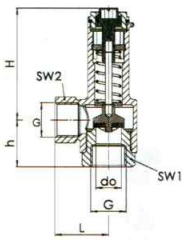
CODE	DN	Size mm					Weight
		L	H	h	SW	d0	Kg
75 71 61	G3/8"	27	60	26	24	10	0.3
62	G1/2"	30	69	30	28	13	0.4
63	G3/4"	33	86	35	34	19	0.7
64	G1"	40	101	41	41	25	1.2
65	G1-1/4"	45	118	45	52	30	1.9
75 71 66	G1-1/2"	50	139	51	58	38	2.5
67	G2"	60	149	60	70	50	3.8
Range of Adjustment		0.2 - 20 bar					

Goetze KG : Models 617tGFO
**Please specify the seal from NBR, FKM and PTFE when ordering.

Series 417 (Stainless Steel)

Component	Material	DIN EN	ASTM / AISI
Inlet Body	Stainless steel	1.4404/1.4408	316L/CF-8M
Outlet body	Stainless steel	1.4404/1.4408	316L/CF-8M
Internal Parts	Stainless steel	1.4404	316L
Spring	Stainless steel	1.4310	302





How to order: CODE

Overflow Valve (DIN), Stainless Steel, MODEL "417tGFO", SIZE DN, SPECIFY THE SEALS FROM "NBR", "FKM", or "PTFE"

Model 417tGFO gastight version for gases and liquids without lifting device

Unit Per Pc.

CODE	DN	Size mm						Weight
		L	H	h	SW1	SW2	d0	Kg
75 71 68	G3/8"	30	60	29	26	24	10	0.3
69	G1/2"	34	69	33	30	27	13	0.4
70	G3/4"	40	86	36	36	31	19	0.7
71	G1"	46	101	48	46	41	25	1.2
72	G1-1/4"	50	118	52	55	50	30	1.9
75 71 73	G1-1/2"	61	139	60	58	65	38	2.5
74	G2"	67	149	66	70	70	50	3.8
Range of Adjustment		0.2 - 20 bar						

Goetze KG : Models 417tGFO
**Please specify the seal from NBR, FKM and PTFE when ordering.

Overflow Valves

Gunmetal & Stainless Steel with Stainless Steel Spring

Válvulas de rebose , Bronce de cañón y acero inoxidable con muelle de acero inoxidable
砲金ステンレス製オーバーフロー弁
溢流阀 、炮铜和不锈钢材质，带不锈钢弹簧

Marine Type Approvals held for these valves:
- DNV
- Lloyd's Register EMEA
- American Bureau of Shipping
- Bureau Veritas
- Russian Maritime Register of Shipping
- Resistro Italiano Navale

Angular shaped spring loaded overflow valves made of gunmetal with stainless steel spring – externally adjustable. Suitable for the protection of pumps against overloading in closed circuits for neutral / non neutral, non-sticking liquids and for the control of systems under pressure for neutral / non-neutral gases and vapours and – depending on the sealing material – also for steam. with bellows without lifting device.

Available models:
- **853 bGFO**
  with bellows, for gases and liquids
  without lifting device

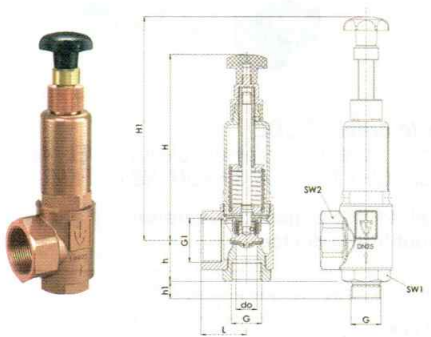
Available seals :
- **NBR**
- **EPDM**
- **FKM**
- **PTFE**
- **FFKM**

Valves can be delivered unset within a pressure range or set and sealed at the factory.

Series also available in **Stainless Steel**: Series **453**.

Series 853 (Gunmetal)

Component	Material	DIN EN	ASME
Inlet body	Gunmetal	CC499K	CC499K
Outlet body	Gunmetal	CC499K	CC499K
Internal parts	Stainless steel	1.4404	316L
Bellows	Stainless steel	1.4571	316Ti
Spring	Stainless steel	1.4310	302



How to order: CODE

Overflow Valve (DIN), Gunmetal, with Stainless Steel Spring, MDL "853bGFO", SIZE DN, SPECIFY THE SEALS FROM "NBR", "EPDM", "FKM", "PTFE", or "FFKM"

Model 853bGFO

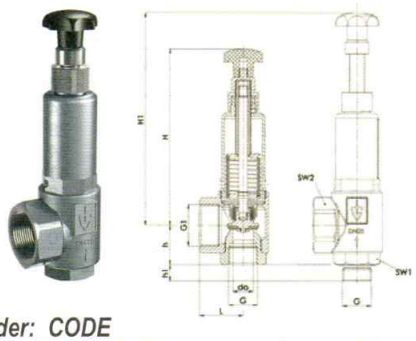
Unit Per Pc.

CODE	DN	Connec-tion	Size mm									Weight Kg
			G1	L	H	H1	h	h1	SW1	SW2	d0	
75 71 75	15	G1/2"	1"	40	102	120	30	16	30	40	16	0.5
76	20	G3/4"	1-1/4"	43	169.5	190.5	39	14	36	50	18	1
77	25	G1"	1-1/2"	50	223	248.5	45	19	46	58	23	2
78	32	G1-1/4"	2"	61	318	344	55	21	55	70	30	4.2
79	32	G1-1/2"	2"	61	318	344	69	22.5	55	70	30	4.5
75 71 80	32	G2"	2"	61	318	344	74	25	70	70	30	4.7
Range of Adjustment			0.5 - 50 bar									

Goetze KG: 853bGFO
**Please specify the seal from NBR, EPDM, FKM, PTFE or FFKM when ordering.

Series 453 (Stainless Steel)

Component	Material	DIN EN	ASME
Inlet body	Stainless Steel	1.4404	316L
Outlet body	Stainless Steel	1.4408	CF8M
Internal parts	Stainless Steel	1.4404	316L
Bellows	Stainless Steel	1.4571	316Ti
Spring	Stainless Steel	1.4310	302



How to order: CODE

Overflow Valve (DIN), Stainless Steel, with Stainless Steel Spring, MDL "453bGFO", SIZE DN, SPECIFY THE SEALS FROM "NBR", "EPDM", "FKM", "PTFE", or "FFKM"

Model 453bGFO

Unit Per Pc.

CODE	DN	Connec-tion	Size mm									Weight Kg
			G1	L	H	H1	h	h1	SW1	SW2	d0	
75 71 81	15	G1/2"	1"	40	102	120	30	16	30	40	16	0.5
82	20	G3/4"	1-1/4"	43	169.5	190.5	39	14	36	50	18	1
83	25	G1"	1-1/2"	50	223	248.5	45	19	46	58	23	2
84	32	G1-1/4"	2"	61	318	344	55	21	55	70	30	4.2
85	32	G1-1/2"	2"	61	318	344	69	22.5	55	70	30	4.5
75 71 86	32	G2"	2"	61	318	344	74	25	70	70	30	4.7
Range of Adjustment			0.5 - 70 bar									

Goetze KG: 453bGFO
**Please specify the seal from NBR, EPDM, FKM, PTFE or FFKM when ordering.

Overflow Valves

Gunmetal & Stainless Steel

Válvulas de rebose de bronce industrial y acero inoxidable
砲金/ステンレス製オーバーフロー弁
炮铜/不锈钢制 溢流阀

Marine Type Approvals held for these valves:
- DNV
- Lloyd's Register EMEA
- American Bureau of Shipping
- Bureau Veritas
- Russian Maritime Register of Shipping
- Resistro Italiano Navale

Overflow and pressure control valves made of gunmetal and spring made of Spring steel with anti-rust protection with threaded connections. For protection of pumps against overloading in closed circuits for neutral, non-neutral, non-sticking liquids and for control of systems under pressure for air, neutral / non-neutral gases and vapours.

Standard thread: BSPTm. Also available in female BSP-P for sizes up to 1" (PLEASE CLEARLY INDICATE IN THE ORDER:"f/f" or "BSPTm/BSPTm").

Valves can be delivered unset within a pressure range or set and sealed at the factory (against surcharge).

Set pressure: 0.5 – 10 bar

Ranges of adjustment: 0.5 – 2 bar
1.5 – 6 bar
5.5 – 10 bar

Available seals : EPDM, FKM

Also available in **Stainless Steel**: **series 430**.

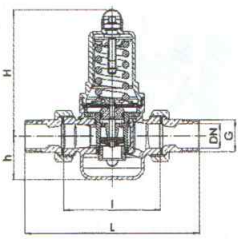
How to order: CODE

Overflow Valve (DIN), Gunmetal, MDL "630mGFO" SIZE DN, SPECIFY THE SEALS FROM "EPDM" or "FKM"

Series 630 (Gunmetal)

Component	Material	DIN EN	ASME
Inlet body	Gunmetal	CC499K	CC499K
Outlet body	Gunmetal	CC499K	CC499K
Internal parts	Gunmetal brass	CC499K/	CC499K/CW617N
	Stainless steel	CW617N	316L
Valve seat	Stainless steel	1.4404	ASTM A228
Spring	Spring steel with anti-rust protection	1.1200	





Unit Per Pc.

CODE	DN	Size mm				Weight
		L	l	H	h	Kg
75 71 87	15	142	80	102	33	1.2
88	20	158	90	102	33	1.4
89	25	180	100	130	45	2.4
90	32	193	105	130	45	2.6
91	40	226	130	165	70	5.5
75 71 92	50	252	140	165	70	6
Range of Adjustment		0.5 - 10 bar				

Goetze KG: 630mGFO
**Please specify the seal from EPDM or FKM when ordering.

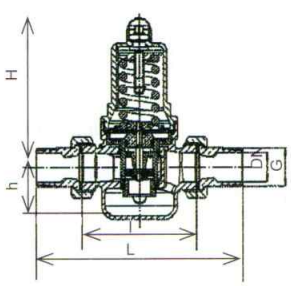
Series 430 (Stainless Steel)

Component	Material	DIN EN	ASME
Body	Stainless steel	1.4408	CF-8M
Internal parts	Stainless steel	1.4408/1.4404	CF-8M / 316L
Valve seat	Stainless steel	1.4404	316L
Spring	Spring steel with anti-rust protection	1.1200	ASTM A228

How to order: CODE

Overflow Valve (DIN), Stainless Steel, MDL "430mGFO" SIZE DN, SPECIFY THE SEALS FROM "EPDM" or "FKM"





Unit Per Pc.

CODE	DN	Size mm				Weight
		L	l	H	h	Kg
75 71 93	15	142	80	102	33	1.2
94	20	158	90	102	33	1.3
95	25	180	100	130	45	2.3
96	32	193	105	130	45	2.5
97	40	226	130	165	70	5.2
75 71 98	50	252	140	165	70	5.7
Range of Adjustment		0.5 - 10 bar				

Goetze KG: 430mGFO
**Please specify the seal from EPDM or FKM when ordering.

Overflow & Pressure Control Valves

Stainless Steel

Válvulas de rebose y de control de presión, Acero inoxidable
ステンレス製オーバーフロー弁
溢流阀和压力控制阀、不锈钢

Marine Type Approvals held for these valves:
- DNV
- Lloyd's Register EMEA
- American Bureau of Shipping
- Bureau Veritas
- Russian Maritime Register of Shipping

Overflow and pressure control valves made of Stainless steel. Suitable for liquids, steam and gaseous media. Gastight version of spring housing.

Available models:
- **418tGFO gastight version for gases and liquids - without lifting device**

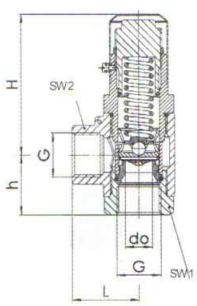
Available seals :
- **NBR**
- **FKM**
- **PTFE**
- **EPDM**

Ranges of adjustment: 0.2 – 1.2 bar
1.2 – 3.0 bar
2.0 – 12 bar
12 – 30 bar

Valves can be delivered unset within a pressure range or set and sealed at the factory.

Component	Material	DIN EN	ASME
Inlet body	Stainless steel	1.4404	316L
Outlet body	Stainless steel	1.4408	CF8M
Internal parts	Stainless steel	1.4404	316L
Spring	Stainless steel	1.4310	302





How to order: CODE

Overflow Valve (DIN), Stainless Steel, SIZE DN, MODEL "418tGFO", SPECIFY THE SEAL FROM "NBR", "FKM", "EPDM", or "PTFE"

Model 418tGFO

Unit Per Pc.

CODE	DN	Size mm						Weight
		L	H	h	SW1	SW2	d0	Kg
75 69 79	G3/8"	34	73	33	30	28	10	0.5
80	G1/2"	34	73	33	30	28	14	0.5
88	G3/4"	40	84	36	36	32	16	0.8
89	G1"	50	98	48	50	41	25	1.8
90	G1-1/4"	50	98	48	50	50	25	1.9
Range of Adjustment		0.2 - 30 bar						

Goetze KG: 418tGFO
**Please specify the seal from NBR, FKM, EPDM, and PTFE when ordering.

Overflow Valves

Gunmetal & Stainless Steel

Válvulas de rebose , Bronce de cañón y acero inoxidable
砲金・ステンレス製オーバーフロー弁
溢流阀 、炮铜和不锈钢

Marine Type Approvals held for these valves:

- DNV
- Lloyd's Register EMEA
- American Bureau of Shipping
- Bureau Veritas
- Russian Maritime Register of Shipping
- Resistro Italiano Navale

Overflow and pressure control valves made of gunmetal and spring made of Spring steel with anti-rust protection with flange connections. For protection of pumps against overloading in closed circuits for neutral, non-neutral, non-sticking liquids and for control of systems under pressure for air, neutral / non-neutral gases and vapours.

Ranges of adjustment:

0.5 – 2 bar	(From DN15 to DN 50)
1.5 – 6 bar	(From DN15 to DN 50)
5.5 – 10 bar	(From DN15 to DN 50)
1 – 5.5 bar	(DN100)
1 - 6 bar	(DM65 and DN80)

Available seals: EPDM, FKM

Also available in **Stainless Steel: series 431**.

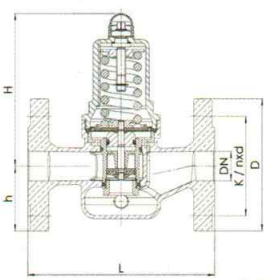
How to order: CODE

Overflow Valve (DIN), Gunmetal, MDL "631mGFO" SIZE DN, SPECIFY THE SEALS FROM "EPDM" or "FKM"

Series 631 (Gunmetal)

Component	Material	DIN EN	ASME
Body	Gunmetal	CC499K	CC499K
Internal parts	Gunmetal Brass Stainless steel	CC499K CW617N 1.4404	CC499K CW617N 316L
Valve seat	Stainless steel	1.4404	316L
Spring	Spring steel with anti-rust protection	1.1200	ASTM A228





Unit Per Pc.

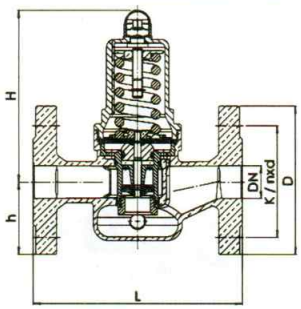
CODE	DN	PN	Size mm				Weight Kg
			L	D	H	h	
75 71 99	15	40	130	95	102	46	2.8
75 72 09	20	40	150	105	130	50	4.2
10	25	40	160	115	130	55	4.7
18	32	40	180	140	130	68	5.9
19	40	40	200	150	166	73	8.6
75 72 20	50	40	230	165	166	80	10.5
27	65	16	290	185	245	89	20
28	65	40	290	185	245	89	20
29	80	40	310	200	245	97	22
75 72 00	100	16	350	220	320	112	40
Range of Adjustment			0.5 - 10 bar (depending on size)				

Goetze KG : 631mGFO
**Please specify the seal from EPDM or FKM when ordering.

Series 431 (Stainless Steel)

Component	Material	DIN EN	ASME
Body	Stainless Steel	1.4408	CF-8M
Internal Parts	Stainless Steel	1.4408/1.4404	CF-8M/316L
Valve seat	Stainless Steel	1.4404	316M
Pressure Spring	Spring steel with anti-rust protection.	1.1200	ASTM A228





How to order: CODE

Overflow Valve (DIN), Stainless Steel, MDL "431mGFO", SIZE DN, SPECIFY THE SEALS FROM "EPDM" or "FKM"

Unit Per Pc.

CODE	DN	PN	Size mm				Weight Kg
			L	D	H	h	
75 73 00	15	40	130	95	102	46	2.8
75 72 30	20	40	150	105	130	50	3.9
37	25	40	160	115	130	55	4.3
38	32	40	180	140	130	68	5.5
39	40	40	200	150	166	73	8.4
75 72 40	50	40	230	165	166	80	10.2
53	65	16	290	185	245	89	18.7
54	65	40	290	185	245	89	19
55	80	40	310	200	245	97	20.5
75 77 81	100	16	350	220	320	112	38
Range of Adjustment			0.5 - 10 bar (depending on size)				

Goetze KG : 431mGFO
**Please specify the seal from EPDM or FKM when ordering.

DIN Safty Valves

Safety Relief Valves (DIN)

Brass, Spring-loaded, BSP Female Threaded Ends Low Capacity Maximum 10 bar

Válvulas de Seguridad de Latón (según DIN)
DIN型真ちゅうネジ式安全弁　　DIN型黄铜安全阀

Safety relief valves with threaded connection, can be used for many simple applications. Suitable for gases, vapours and liquids.

Specific features and applications:

Viton Disc Seal:	Saturated steam and hot water, available including Stoomwezen/Lloyd's Register test certificate on request.
Nitrile Disc Seal:	Including diaphragm, for water, air and other non-aggressive gases.

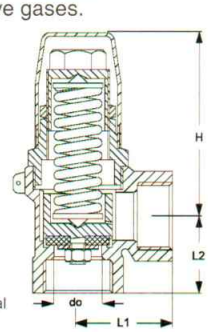


Viton Disc Seal

W/O Disc Lever　W/Disc Lever



Nitrile Disc Seal



Material Specification

Component	Material	EN and/or (DIN)
Viton Disc Seal		
Body, Disc, Bonnet Disc Sealing Ring Spring	Brass FPM(Viton) Spring steel	CuZn39Pb3
Nitrile Disc Seal		
Body, Bonnet Diaphragm Spring	Brass NBR Spring steel	CuZn40Pb2

Temperature Range
Viton Disc Seal +150°C
Nitril Disc Seal +95°C (for oil +30°C)

Viton Disc Seal without Disc Lever

How to order: CODE

Safety relief valve (DIN), brass, spring-loaded, BSP female threaded ends, viton disc seal w/o disc lever, SIZE DN

Unit Per Pc.

CODE	DN	Size mm				Weight
		do	L1	L2	H	Kg
75 70 01	1/2"	13	32	26	70	0.4
02	3/4"	19	37	30	75	0.6
03	1"	25	43	36	105	1.0
04	1-1/4"	31	50	40	105	1.4
05	1-1/2"	36	60	40	125	2.3
75 70 06	2"	50	70	52	130	3.2

Viton Disc Seal with Disc Lever

How to order: CODE

Safety relief valve (DIN), brass, spring-loaded, BSP female threaded ends, viton disc seal w/o disc lever, SIZE DN

Unit Per Pc.

CODE	DN	Size mm				Weight
		do	L1	L2	H	Kg
75 70 11	1/2"	13	32	26	110	0.8
12	3/4"	19	37	30	121	1.0
13	1"	25	43	36	147	1.5
14	1-1/4"	31	50	40	150	2.0
15	1-1/2"	36	60	40	175	3.3
75 70 16	2"	50	70	52	171	4.0

Nitrile Disc Seal with Disc Lever

How to order: CODE

Safety relief valve (DIN), brass, spring-loaded, BSP female threaded ends, nitrile disc deal w/disc lever, SIZE DN

Unit Per Pc.

CODE	DN	Size mm				Weight
		do	L1	L2	H	Kg
75 70 21	1/2"	13	26	21	95	0.4
22	3/4"	14	30	26	116	0.6
23	1"	16	36	30	123	0.7

Overflow Valves (DIN)

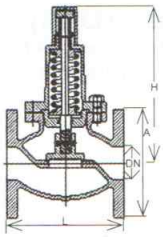
Bronze, DIN Flanges, Globe Type Straight and Angle Pattern

Válvulas de Seguridad de Alivio (según DIN)
DIN型青銅安全レリーフ弁　DIN型安全溢流阀

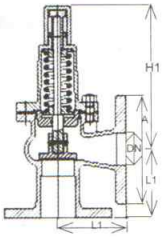
Bronze overflow valves are primarily applied in the maritime segment for pressure regulation in liquid systems. Suitable for salt and fresh water, oil, steam and air.

Remark: This valve may also be used as a safety valve aboard ships. In connection with the PED guidelines, this is not permitted for installations on land, if the set pressure is >0.5 bar.





Straight



Angle

Temperature Range: 120°C

Material Specification

Component	Material	EN and/or (DIN)
Body	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))
Disc, Stem, Guide Bush	Brass	CuZn39Pb3
Spring	Spring steel	
Gasket	Graphite	
Bonnet DN15-DN20	Brass	CuZn39Pb3
Bonnet DN25-DN125	Bronze	CuSn5Zn5Pb5-C (G-CuSn5ZnPb (Rg 5))

Capacity for Water in kg/hour at 20°C

P	DN [mm]									
[bar]	15	20	25	32	40	50	65	80	100	125
0.5	341	607	948	1553	2427	3792	6408	9706	15166	23697
1	483	858	1341	2196	3432	5362	9062	13727	21448	33513
1.5	591	1051	1642	2690	4203	6567	11098	16812	26268	41044
2	682	1213	1896	3106	4853	7583	12815	19412	30332	47394
3	836	1486	2322	3804	5944	9287	15695	23775	37148	58044
4	965	1716	2681	4393	6863	10724	18124	27453	42896	67025
5	1079	1918	2997	4911	7673	11990	20262	30693	47958	
6	1182	2101	3284	5380	8406	13134	22196	33623	52536	
7	1277	2270	3547	5811	9079	14187	23975	36317		
8	1365	2427	3792	6212	9706	15166	25631	38825		
9	1448	2574	4021	6589	10295	16086	27184			
10	1526	2713	4239	6945	10852	16956	28656			
11	1601	2845	4446	7284	11381	17784				
12	1672	2972	4644	7608	11887	18574				
13	1740	3093	4833	7919	12373	19333				
14	1806	3210	5016	8218	12840	20063				
15	1869	3323	5192	8506	13291	20767				
16	1930	3432	5362							

How to order: CODE

Overflow valve (DIN), bronze, DIN flanges, STRAIGHT or ANGLE, SIZE DN

Straight

Unit Per Pc.

CODE	DN	Max. Set Pressure (bar)	Size mm			Weight
			A	L	H	Kg
75 70 31	15	0 - 16	95	120	185	4.0
32	20	0 - 16	105	120	185	4.1
33	25	0 - 16	115	140	200	5.5
34	32	0 - 15	140	150	200	7.8
35	40	0 - 15	150	155	235	9.8
75 70 36	50	0 - 15	165	180	245	14.0
37	65	0 - 10	185	200	330	18.0
38	80	0 - 8	200	240	345	23.2
39	100	0 - 6	220	270	435	35.5
40	125	0 - 4	250	320	450	50

Angle

Unit Per Pc.

CODE	DN	Max. Set Pressure (bar)	Size mm			Weight
			A	L1	H1	Kg
75 70 41	15	0 - 16	95	65	175	4.0
42	20	0 - 16	105	65	175	4.1
43	25	0 - 16	115	70	185	5.5
44	32	0 - 15	140	90	185	7.8
45	40	0 - 15	150	90	220	9.8
75 70 46	50	0 - 15	165	105	225	14.0
47	65	0 - 10	185	115	320	18.0
48	80	0 - 8	200	125	335	23.2
49	100	0 - 6	220	145	395	35.5
50	125	0 - 4	250	174	490	50

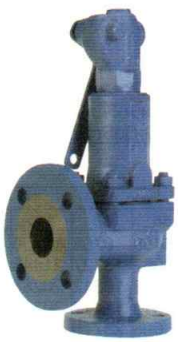
Safety Valves (DIN)

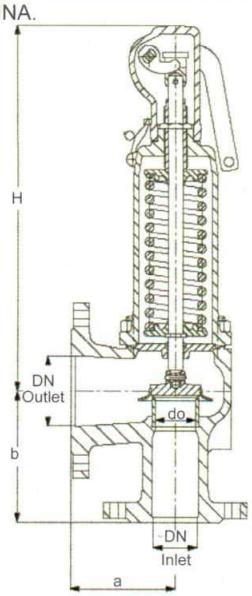
Cast Steel, Spring-Loaded, DIN Flanges, High Capacity Pressure Rating PN 40/16

Válvulas de Alivio de Seguridad (DIN) Acero Fundido, Brida DIN

DIN型鋳鋼フランジ式安全弁　　安全阀（DIN）铸钢，DIN法兰

Full lift Safety Valves are mainly applied to vapours (including steam) and gases. Suitable for liquids in large volumes.
Type of Approval: TUV-SV,,, -576 D/G/F, PED, ASME NB, BV, DNV, GL, LROS and RINA.





Material Specification

Component	Material	EN and/or (DIN)
Body	Cast steel	GP240GH +N (GS-C25)
Seat	Stainless steel	X2CrNiMo17-12-2 (G-X2CrNiMo 18 10)
Disc	Stainless steel	X39CrMo17-1 (X35CrMo17)
Stem	Stainless steel	X20Cr13
Spring	Spring steel	
Bonnet	Ductile cast iron	GJS-400-15 (GGG-40)

Temperature Range (DIN EN): -85/+45°C*

*Above 200°C, provided with heat-resistant spring and above 400°C also provided with SS bolts and nuts for the bonnet.

Flange:
Inlet flange (on the bottom) – according to DIN PN40
Outlet flange (on the side) – according to DIN PN16

How to order: CODE

Safety valve (DIN), cast steel, spring-loaded, DIN flanged ends, pressure rating PN 40/16 SIZE DN

Unit Per Pc.

CODE	DN		do	Max. Set Pressure (bar)	a	b	H	Weight Kg
	Inlet	Outlet						
75 70 51	25	40	25	40	100	105	234	9
52	32	50	29	40	110	115	331	12
53	40	65	37	40	115	140	372	16
54	50	80	46	40	120	150	419	22
55	65	100	60	40	140	170	529	32
75 70 56	80	125	74	32	160	195	606	56
57	100	150	92	40	180	220	663	75
58	125	200	98	28	200	250	663	85
59	150	250	125	17	225	285	735	131
60	200	300	165	20	300	290	1,090	285

Capacity Table

I Saturated steam in kg/h
II Air at 0°C and 1,013 mbar in mn^3/h
III Water at 20°C in 10^3 kg/h

DN	20			25			32		
do	18			23			29		
p	I	II	III	I	II	III	I	II	III
0.2	85	99	3.19	139	161	5.21	222	257	8.28
0.5	134	157	4.51	219	257	7.37	348	409	11.7
1	198	237	6.11	324	386	9.97	515	614	15.9
2	317	383	8.64	517	625	14.1	822	993	22.4
3	427	522	10.6	697	852	17.3	1,108	1,354	27.5
4	533	655	12.2	870	1,069	19.9	1,382	1,700	31.7
5	638	788	13.7	1,041	1,287	22.3	1,656	2,047	35.5
6	743	922	15.0	1,213	1,505	24.4	1,928	2,393	38.8
7	845	1,055	16.2	1,380	1,723	26.4	2,193	2,739	42.0
8	949	1,189	17.3	1,550	1,941	28.2	2,464	3,086	44.8
9	1,053	1,322	18.3	1,719	2,159	29.9	2,733	3,432	47.6
10	1,157	1,456	19.3	1,889	2,377	31.5	3,003	3,778	50.1
12	1,365	1,722	21.2	2,228	2,812	34.6	3,542	4,471	54.9
14	1,568	1,989	22.9	2,560	3,248	37.3	4,070	5,164	59.3
16	1,775	2,256	24.4	2,898	3,684	39.9	4,608	5,856	63.4
18	1,983	2,523	25.9	3,237	4,119	42.3	5,147	6,549	67.3
20	2,191	2,790	27.3	3,577	4,555	44.6	5,686	7,242	70.9
22	2,392	3,057	28.7	3,906	4,991	46.8	6,209	7,934	74.4
24	2,600	3,324	29.9	4,246	5,427	48.9	6,750	8,627	77.7
26	2,809	3,590	31.1	4,586	5,862	50.9	7,291	9,320	80.9
28	3,018	3,857	32.3	4,928	6,298	52.8	7,835	10,012	83.9
30	3,228	4,124	35.5	5,271	6,734	54.6	8,379	10,705	86.3
32	3,439	4,391	34.6	5,615	7,169	56.4	8,926	11,398	89.7
34		4,658	35.6		7,605	58.2		12,090	92.5
36		4,925	36.7		8,041	59.8		12,783	95.1
38		5,192	37.7		8,476	61.5		13,476	97.7
40		5,459	38.6		8,912	63.1		14,169	100

DN	40			50			65		
do	37			46			60		
p	I	II	III	I	II	III	I	II	III
0.2	361	418	13.5	558	646	20.8	949	1,099	35.4
0.5	566	665	19.1	875	1,028	29.5	1,489	1,749	50.1
1	839	999	25.8	1,296	1,545	39.9	2,205	2,628	67.9
2	1,339	1,617	36.5	2,069	2,499	56.4	3,520	4,251	69.0
3	1,804	2,204	44.7	2,788	3,406	69.1	4,744	5,795	118
4	2,250	2,768	51.6	3,478	4,278	79.8	5,918	7,278	136
5	2,695	3,331	57.7	4,165	5,149	89.2	7,087	8,761	152
6	3,138	3,895	63.2	4,850	6,021	97.7	8,252	10,243	166
7	3,570	4,459	68.3	5,518	6,892	106	9,388	11,726	180
8	4,010	5,023	73.0	6,198	7,763	113	10,545	13,208	192
9	4,450	5,587	77.4	6,878	8,635	120	11,701	14,691	204
10	4,889	6,150	81.6	7,556	9,506	126	12,856	16,173	215
12	5,766	7,278	89.4	8,913	11,249	138	15,163	19,138	235
14	6,625	8,405	96.6	10,241	12,992	149	17,423	22,104	254
16	7,501	9,533	103	11,594	14,735	160	19,725	25,069	271
18	8,378	10,661	110	12,949	16,478	169	22,030	28,034	288
20	9,256	11,788	115	14,306	18,220	178	24,339	30,999	304
22	10,107	12,916	121	15,623	19,963	187	26,579	33,964	318
24	10,987	14,043	126	16,982	21,706	195	28,892	36,929	333
26	11,869	15,171	132	18,345	23,449	203	31,211	39,894	346
28	12,753	16,298	137	19,712	25,192	211	33,537	42,859	359
30	13,640	17,426	141	21,083	26,935	219	35,869	45,824	372
32	14,530	18,554	146	22,459	28,677	226	38,210	48,790	384
34		19,681	151		30,420	233		51,755	396
36		20,809	155		32,163	239		54,720	407
38		21,936	159		33,906	246		57,685	418
40		23,064	163		35,649	252		60,650	429

DN	80			100			125		
do	74			92			98		
p	I	II	III	I	II	III	I	II	III
0.2	1,444	1,672	53.9	2,232	2,584	83.3	2,532	2,932	94.6
0.5	2,265	2,661	76.3	3,502	4,113	118	3,973	4,667	134
1	3,355	3,998	103	5,185	6,179	160	5,883	7,011	181
2	5,355	6,467	146	8,277	9,995	226	9,392	11,341	256
3	7,216	8,816	179	11,153	13,626	276	12,655	15,461	314
4	9,002	11,071	206	13,913	17,111	319	15,787	19,416	362
5	10,780	13,326	231	16,662	20,597	357	18,906	23,371	45
6	12,552	15,581	253	19,401	24,083	391	22,014	27,326	444
7	14,281	17,836	273	22,073	27,568	422	25,046	31,281	479
8	16,041	20,091	292	24,794	31,054	451	28,133	35,237	512
9	17,799	22,346	310	27,510	34,540	479	31,216	39,192	543
10	19,555	24,601	326	30,225	38,025	505	34,296	43,147	573
12	23,065	29,112	358	35,650	44,997	553	40,452	51,057	627
14	26,502	33,622	386	40,962	51,968	597	46,479	58,967	678
16	30,004	38,132	413	46,376	58,939	638	52,622	66,878	724
18	33,510	42,642	438	51,795	65,910	677	58,772	74,788	768
20	37,023	47,153	462	57,224	72,882	714	64,932	82,698	810
22	40,430	51,663	484	62,491	79,853	748	70,907	90,608	849
24	43,948	56,173	506	67,928	86,824	782	77,078	98,519	887
26	47,475	60,684	526	73,380	93,796	814		106,429	923
28	51,013	65,194	546	78,848	100,767	844		114,339	958
30	54,561	69,704	565	84,333	107,738	874		122,249	992
32	58,121	74,214	584	89,835	114,710	903		130,160	1,024
34		78,725	602		121,681	931		138,070	1,056
36		83,235	619		128,652	957		145,980	1,086
38		87,745	636		135,623	984		153,890	1,116
40		92,255	653		142,595	1,009		161,801	1,145

DN	150			200		
do	125			165		
p	I	II	III	I	II	III
0.2	4,120	4,770	154	7,178	8,311	268
0.5	6,464	7,593	218	11,263	13,230	379
1	9,572	11,407	295	16,678	19,876	513
2	15,280	18,452	417	26,623	32,150	726
3	20,589	25,154	510	35,873	43,828	889
4	25,685	31,589	589	44,753	55,040	1,027
5	30,758	38,023	659	53,593	66,252	1,148
6	35,815	44,458	722	62,404	77,463	1,257
7	40,748	50,893	779	71,000	88,675	1,358
8	45,770	57,327	833	79,750	99,887	1,452
9	50,786	63,762	884	88,489	111,099	1,540
10	55,797	70,197	932	97,221	122,311	1,623
12	65,812	83,066	1,021	114,671	144,734	1,778
14	75,619	95,936	1,102	131,758	167,158	1,921
16	85,612	108,805	1,178	149,170	189,582	2,053
18	95,617	121,674	1,250	166,603	212,005	2,178
20	105,639	134,544	1,317	184,066	234,429	2,296
22	115,361	147,413	1,382	201,005	256,853	2,408
24	124,339	160,282	1,443	218,496	279,276	2,515
26		173,152	1,502			
28		186,021	1,559			
30		198,891	1,614			
32		211,760	1,666			
34		224,629	1,718			
36		237,499	1,768			
38		250,368	1,816			
40		263,238	1,863			

Remark: I - Saturated steam in kg/hour
II - Air in mn^3/hour at 0°C and 1,013 mbar
III - Water at 20°C in 10^3kg/hour

Safety Valves

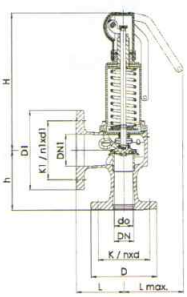
Gunmetal with Stainless Steel Spring

Válvulas de seguridad , Bronce de cañón con muelle de acero inoxidable
砲金安全弁
安全阀 、炮铜色，带不锈钢弹簧

Angular shaped spring-loaded safety valves use for the protection of thermostatically protected closed-circuit water heating systems with flow temperatures of up to 120°C for all static heights or rated output above 350 kW according to TRD 721, DIN 4751 and DIN EN 12828. Should the thermostatic limiting and control unit fail, the safety valve has to blow-off the total heating output of the boiler as hot water and steam. As these valves are completely made of metal they can also be installed at high environmental or radiation temperatures.

Component	Material	DIN EN	ASME
Inlet Body	Gunmetal	CC499K	CC499K
Outlet Body	Gunmetal	CC499K	CC499K
Internal Parts	Stainless steel	1.4404	316L
Spring	Stainless steel	1.4310	302
Bellows	Elastomere	EPDM	-





Unit Per Pc.

CODE		75 62 79	75 62 80
Connection		DN 40 / PN 40	DN 50 / PN 40
Ranges of Adjustment		0.5 - 25 bar	
Size mm	DN1 / PN1	DN 65 / PN 16	DN 80 / PN 16
	H	345	345
	h	140	150
	L	115	120
	Lmax	150	150
	D	150	165
	D1	185	200
	K / n x d	110 / 4 x 18	125 / 4 x 18
	K1 / n1 x d1	145 / 4 x 18	160 / 8 x 18
	d0	37	46
Weight Kg		17	19

Goetze KG : Model 852 bHL

Safety Valves

Gunmetal with Stainless Steel Spring

Válvulas de seguridad , Bronce de cañón con muelle de acero inoxidable
砲金安全弁
安全阀 ， 炮铜色，带不锈钢弹簧

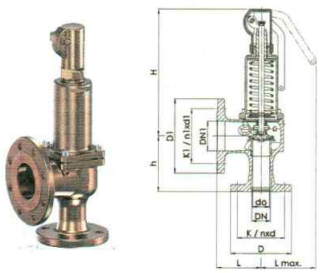
Angular shaped spring-loaded safety valves made of gunmetal with stainless steel spring. Internal parts are made of stainless steel. Suitable for the protection of pressure tanks and systems for neutral / non-neutral vapours, gases and liquids, steam boilers and steam plants, bulk transport vehicles for liquid, granular and dusty goods[1]. Available four versions; Model 852 tGFO gastight without lifting device, Model 852 tGFL gastight with lifting lever, Model 852 bGFO with bellows and without lifting device and Model 852 bGFL with bellows and with lifting lever .

Model 852 tGFO/tGFL:
Sealed cap prevents unauthorized changing of set pressure.

Model 852 bGFO/bGFL:
Set pressure is protected by seal. Spring and sliding parts are protected by bellows.

[1]only for versions with bellows

Component	Material	DIN EN	ASME
Inlet Body	Gunmetal	CC499K	CC499K
Outlet Body	Gunmetal	CC499K	CC499K
Internal Parts	Stainless steel	1.4404	316L
Spring	Stainless steel	1.4310	302
Bellows	Stainless steel	1.4571	316Ti



Model 852tGFO: Gastight without Lifting Device

Unit Per Pc.

CODE		75 62 81	75 62 82
Connection		DN 40 / PN 40	DN 50 / PN 40
Ranges of Adjustment		0.5 - 25 bar	
Size mm	DN1/PN1	DN 65 / PN 16	DN 80 / PN 16
	H	345	345
	h	140	150
	L	115	120
	D	150	165
	D1	185	200
	K / n x d	110 / 4 x 18	125 / 4 x 18
	K1 / n1 x d1	145 / 4 x 18	160 / 8 x 18
	d0	37	46
Weight kg		17	19

Goetze KG : Model 852tGFO

Model 852tGFL: Gastight with Lever for Lifting

Unit Per Pc.

CODE		75 62 83	75 62 84
Connection		DN 40 / PN 40	DN 50 / PN 40
Ranges of Adjustment		0.5 - 25 bar	
Size mm	DN1/PN1	DN 65 / PN 16	DN 80 / PN 16
	H	345	345
	h	140	150
	Lmax	150	150
	D	150	165
	D1	185	200
	K / n x d	110 / 4 x 18	125 / 4 x 18
	K1 / n1 x d1	145 / 4 x 18	160 / 8 x 18
	d0	37	46
Weight Kg		17	19

Goetze KG : Model 852tGFL

Model 852bGFO: with Bellows, without Lifting Device

Unit Per Pc.

CODE		75 62 85	75 62 86
Connection		DN 40 / PN 40	DN 50 / PN 40
Ranges of Adjustment		0.5 - 25 bar	
Size mm	DN1/PN1	DN 65 / PN 16	DN 80 / PN 16
	H[1]	362	362
	h	140	150
	L	115	120
	Lmax.	150	150
	D	150	165
	D1	185	200
	K / n x d	110 / 4 x 18	125 / 4 x 18
	K1 / n1 x d1	145 / 4 x 18	160 / 8 x 18
	d0	37	46
Weight Kg		18	20

[1]for bellow version
Goetze KG : Model 852bGFO

Model 852bGFL: with Bellows with Lever for Lifting

Unit Per Pc.

CODE		75 62 87	75 62 88
Connection		DN 40 / PN 40	DN 50 / PN 40
Ranges of Adjustment		0.5 - 25 bar	
Size mm	DN1 / PN1	DN 65 / PN 16	DN 80 / PN 16
	H[1]	362	362
	h	140	150
	L	115	120
	Lmax	150	150
	D	150	165
	D1	185	200
	K / n x d	110 / 4 x 18	125 / 4 x 18
	K1 / n1 x d1	145 / 4 x 18	160 / 8 x 18
	d0	37	46
Weight Kg		18	20

[1]for bellow version
Goetze KG : Model 852bGFL

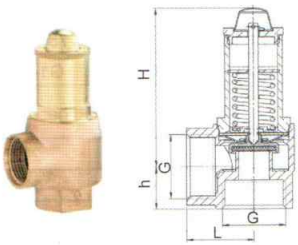
Diaphragm Safety Valves

Red Brass

Válvula de Seguridad de Diafragma Latón Rojo
丹銅ダイヤフラム安全弁　紅銅隔膜式安全阀

Angular shape, spring loaded diaphragm safety valve made of Gunmetal. Seal cap prevents unauthorized changing of set pressure. Twist-type lifting mechanism. Installed diaphragm prevents medium from entering the spring chamber. Suitable for protecting closed-circuit water heating systems from -10°C to +95°C.

Component	Material	DIN EN	ASM
Inlet Body	Gunmetal	CC499K	CC499K
Outlet Body	Gunmetal	CC499K	CC499K
Internal Parts	Brass	CW617N	CW617N
Spring	Spring steel with anti-rust protection	1.1200	ASTM A228



Unit Per Pc.

CODE		75 70 71	75 70 72	75 70 73
Connection		G 1/2"	G 3/4"	G 1"
Ranges of Adjustment		6; 8; 10 bar[1]		
Size mm	L	26	31	35
	H	70	70	80
	h	17	18	22
	SW	27	32	40
	D0	10	13	16
Weight Kg		0.2	0.3	0.5
CODE		75 70 74	75 70 75	75 70 76
Connection		G1-1/4"	G1-1/2"	G 2"
Ranges of Adjustment		6; 8; 10 bar[1]		
Size mm	L	40	46	54
	H	100	140	155
	h	25	28	34
	SW	49	56	68
	D0	18	22	25
Weight Kg		0.7	1.2	1.6

[1]Other set pressures available on request against surcharge.
Goetze KG : Model 651mWIK

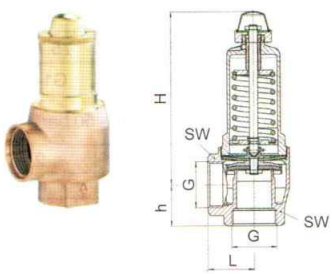
Diaphragm Safety Valves

for heating and cooling, Gunmetal

Válvulas de seguridad de diafragma para calefacción y refrigeración Gunmetal
砲金ダイヤフラム安全弁、冷暖房用
隔膜安全阀　用于加热和冷却 枪色

Angular shaped diaphragm safety valves made of gunmetal. Installed diaphragm prevents medium from entering spring chamber. Suitable for protecting thermostatically protected closed-circuit water heating systems with flow temperatures of up to 120 deg. C.

Component	Material	DIN EN	ASME
Inlet Body	Gunmetal	CC499K	CC499K
Outlet Body	Gunmetal	CC499K	CC499K
Internal Parts	Brass	CW617N	CW617N
Spring	Spring steel with anti-rust protection	1.1200	ASTM A228



Unit Per Pc.

CODE		75 70 81	75 70 82	75 70 83	75 70 84	75 70 85
Connection		G 1/2"	G 3/4"	G 1"	G 1-1/4"	G 1-1/2"
Set Pressures		2.5; 3; 3.5 bar				
Size mm	H	65	72	86	160	183
	h	24	28	30	40	40
	L	26	30	38	42	53
	SW	26	32	39	49	56
Weight Kg		0.25	0.4	0.7	1.6	2.5

[1]Other set pressures available on request against surcharge
Goetze KG : Model 651 mHIK

Safety Valves

Gunmetal & Stainless Steel with Stainless Steel Spring

Válvulas de seguridad, Bronce de cañón y acero inoxidable con muelle de acero inoxidable
砲金ステンレス製安全弁
安全阀 炮铜和不锈钢材质、带不锈钢弹簧

Marine Type Approvals held for these valves:
- DNV
- Lloyd's Register EMEA
- American Bureau of Shipping
- Bureau Veritas
- Russian Maritime Register of Shipping

Angular shaped spring loaded safety valves made of gunmetal/stainless steel with stainless steel spring. Sealing cap prevents unauthorized changing of set pressure. Suitable for the protection of pressure-vessels/-systems for neutral / non-neutral vapours, gases and liquids, steam boilers and steam plants, stationary silos and bulk transport vehicles for liquid, granular and powdery goods.

Available models:
- 851 sGK with twist-type lifting mechanism
- 851 sGL with lifting lever
- 851bGFK with bellows and twist-type lifting mechanism
- 851bGFL with bellows and lifting lever

Available seals:
- NBR
- EPDM
- FKM
- PTFE
- PTFE + carbon (standard from 25 bar)
- FFKM
- metal-to-metal sealing

All models are also available in **Stainless Steel**: series **451**.

Series 851 (Gunmetal)

Component	Material	DIN EN	ASME
Inlet Body	Gunmetal	CC499K	CC499K
Outlet Body	Gunmetal	CC499K	CC499K
Internal Parts	Brass	CW617N	CW617N
Spring	Stainless Steel	1.4310	302
Bellows (optional)	Bronze	CW452K	C51900



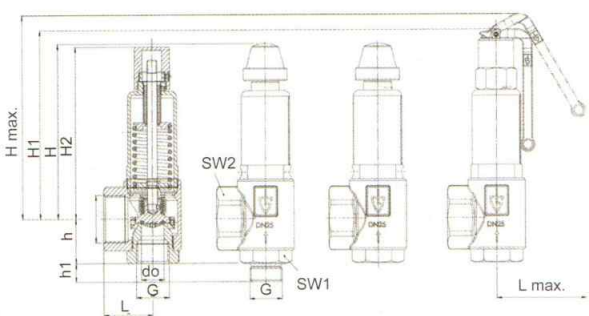
851sGK, 851bGFK
Size G1/2"



851sGK, 851bGFK
Size over G1/2"



851sGL. 851bGFL



851sGK with twist-type lifting mechanism

Unit Per Pc.

CODE		75 70 70	75 70 77	75 70 78	75 70 30	75 70 79
Connection		G 1/2"	G 1/2"	G 1/2"	G 3/4"	G 3/4"
Ranges of Adjustment		0.5-25 bar		25.1-50 bar	0.5-50 bar	
Size mm	G1	G 1/2"	1"	1"	3/4"	1-1/4"
	L	34	40	40	42	43
	Lmax	65	65	65	91	91
	H	79	77	131	137	138
	H1	93	91	149	154	158
	H2	79	77	131	138	139
	Hmax	105	103	164	169	173
	h	28	30	30	31	39
	h1	15	15	15	16	16
	SW1	30	30	30	36	36
	SW2	-	40	40	32	50
	d0	15.8	15.8	15.8	15.8	18
Weight Kg		0.4	0.4	0.8	1	1

Unit Per Pc.

CODE		75 70 80	75 70 95	75 70 96	75 70 97
Connection		G1"	G1-1/4"	G1-1/2"	G 2"
Ranges of Adjustment		0.5 - 50 bar			
Size mm	G1	G 1-1/2"	2"	2"	2"
	L	50	61	61	61
	Lmax	92	92	92	92
	H	178	241	241	241
	H1	192	264	264	264
	H2	175	241	241	241
	Hmax	207	277	277	277
	h	45	55	69	74
	h1	18	20	23	25
	SW1	46	55	55	70
	SW2	58	70	70	70
	d0	23	30.3	30.3	30.3
Weight Kg		1.8	4.0	4.0	4.0

Goetze KG : Model 851sGK

851sGL with lifting lever

Unit Per Pc.

CODE		75 70 98	75 70 99	75 71 09	75 70 90	75 71 10
Connection		G 1/2"	G 1/2"	G 1/2"	G 3/4"	G 3/4"
Ranges of Adjustment		0.5-25 bar		25.1-50 bar	0.5 - 50 bar	
Size mm	G1	G 1/2"	1"	1"	3/4"	G1-1/4"
	L	34	40	40	42	43
	Lmax	65	65	65	91	91
	H	79	77	131	137	138
	H1	93	91	149	154	158
	H2	79	77	131	138	139
	Hmax	105	103	164	169	173
	h	28	30	30	31	39
	h1	15	15	15	16	16
	SW1	30	30	30	36	36
	SW2	-	40	40	32	50
	d0	15.8	15.8	15.8	15.8	18
Weight Kg		0.4	0.4	0.8	1	1

Unit Per Pc.

CODE		75 71 19	75 71 20	75 71 32	75 71 33
Connection		G1"	G1-1/4"	G1-1/2"	G 2"
Ranges of Adjustment		0.5 - 50 bar			
Size mm	G1	G 1-1/2"	2"	2"	2"
	L	50	61	61	61
	Lmax	92	92	92	92
	H	178	241	241	241
	H1	192	264	264	264
	H2	175	241	241	241
	Hmax	207	277	277	277
	h	45	55	69	74
	h1	18	20	23	25
	SW1	46	55	55	70
	SW2	58	70	70	70
	d0	23	30.3	30.3	30.3
Weight Kg		1.8	4.0	4.0	4.0

Goetze KG : Model 851sGL

851bGFK with bellows and twist-type lifting mechanism

Unit Per Pc.

CODE		75 71 34	75 70 86	75 71 35	75 71 00	75 70 87
Connection		G 1/2"	G 1/2"	G 1/2"	G 3/4"	G 3/4"
Ranges of Adjustment		0.5-25 bar		25.1-50 bar	0.5 - 50 bar	
Size mm	G1	G 1/2"	1"	1"	3/4"	G 1-1/4"
	L	34	40	40	42	43
	Lmax	65	65	65	91	91
	H	79	77	131	137	138
	H1	93	91	149	154	158
	H2	79	77	131	138	139
	Hmax	105	103	164	169	173
	h	28	30	30	31	39
	h1	15	15	15	16	16
	SW1	30	30	30	36	36
	SW2	-	40	40	32	50
	d0	15.8	15.8	15.8	15.8	18
Weight Kg		0.4	0.4	0.8	1	1.8

Unit Per Pc.

CODE		75 70 88	75 70 89	75 71 36	75 71 37
Connection		G 1"	G1-1/4"	G1-1/2"	G 2"
Ranges of Adjustment		0.5 - 50 bar			
Size mm	G1	G 1-1/2"	2"	2"	2"
	L	50	61	61	61
	Lmax	92	92	92	92
	H	178	241	241	241
	H1	192	264	264	264
	H2	175	241	241	241
	Hmax	207	277	277	277
	h	45	55	69	74
	h1	18	20	23	25
	SW1	46	55	55	70
	SW2	58	70	70	70
	d0	23	30.3	30.3	30.3
Weight Kg		1.8	4.0	4.0	4.0

Goetze KG : Model 851bGFK

851bGFL with bellows and lifting lever

Unit Per Pc.

CODE		75 71 38	75 70 91	75 71 39	75 71 49	75 70 92
Connection		G 1/2"	G 1/2"	G 1/2"	G 3/4"	G 3/4"
Ranges of Adjustment		0.5-25 bar		25.1-50 bar	0.5 - 50 bar	
Size mm	G1	G 1/2"	1"	1"	3/4"	G 1-1/4"
	L	34	40	40	42	43
	Lmax	65	65	65	91	91
	H	79	77	131	137	138
	H1	93	91	149	154	158
	H2	79	77	131	138	139
	Hmax	105	103	164	169	173
	h	28	30	30	31	39
	h1	15	15	15	16	16
	SW1	30	30	30	36	36
	SW2	-	40	40	32	50
	d0	15.8	15.8	15.8	15.8	18
Weight Kg		0.4	0.4	0.8	1	1

Unit Per Pc.

CODE		75 70 93	75 70 94	75 71 40	75 71 48
Connection		G 1"	G1-1/4"	G1-1/2"	G 2"
Ranges of Adjustment		0.5 - 50 bar			
Size mm	G1	G 1-1/2"	2"	2"	2"
	L	50	61	61	61
	Lmax	92	92	92	92
	H	178	241	241	241
	H1	192	264	264	264
	H2	175	241	241	241
	Hmax	207	277	277	277
	h	45	55	69	74
	h1	18	20	23	25
	SW1	46	55	55	70
	SW2	58	70	70	70
	d0	23	30.3	30.3	30.3
Weight Kg		1.8	4.0	4.0	4.0

Goetze KG : Model 851bGFL

Series 451 (Stainless Steel):

Component	Material	DIN EN	ASTM/AISI
Inlet Body	Stainless Steel	1.4404	316 L
Outlet Body	Stainless Steel	1.4408	CF8M
Internal Parts	Stainless Steel	1.4404	316 L
Spring	Stainless Steel	1.4310	302
Bellos (optional)	Stainless Steel	1.4571	315 Ti



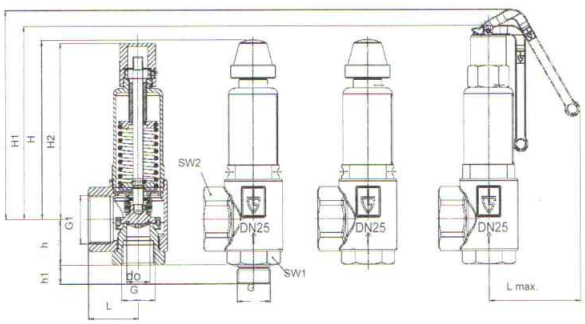
451sGK, 451bGFK
Size G1/2"



451sGK, 451bGFK
Size over G1/2"



451sGL. 451bGFL



451sGK with twist-type lifting mechanism

Unit Per Pc.

CODE		75 72 56	75 72 57	75 72 58	75 71 50	75 72 59
Connection		G 1/2"	G 1/2"	G 1/2"	G 3/4"	G 3/4"
Ranges of Adjustment		0.5-25 bar		25.1-70 bar	0.5 - 70 bar	
Size mm	G1	G 1/2"	1"	1"	3/4"	G1-1/4"
	L	34	40	40	42	43
	Lmax	65	65	65	91	91
	H	79	77	131	137	138
	H1	93	91	149	154	158
	H2	79	77	131	138	139
	Hmax	105	103	164	169	173
	h	28	30	30	31	39
	h1	15	15	15	16	16
	SW1	30	30	30	36	36
	SW2	-	40	40	32	50
	d0	15.8	15.8	15.8	15.8	18
Weight Kg		0.4	0.4	0.8	1	1

Unit Per Pc.

CODE		75 72 60	75 72 68	75 72 69	75 72 70
Connection		G 1"	G1-1/4"	G1-1/2"	G 2"
Ranges of Adjustment		0.5 - 70 bar			
Size mm	G1	G1-1/2"	2"	2"	2"
	L	50	61	61	61
	Lmax	92	92	92	92
	H	178	241	241	241
	H1	192	264	264	264
	H2	175	241	241	241
	Hmax	207	277	277	277
	h	45	55	69	74
	h1	18	20	23	25
	SW1	46	55	55	70
	SW2	58	70	70	70
	d0	23	30.3	30.3	30.3
Weight Kg		1.8	4.0	4.0	4.0

Goetze KG : Model 451sGK

451sGL with lifting lever

Unit Per Pc.

CODE		75 72 78	75 72 79	75 72 80	75 71 58	75 72 81
Connection		G 1/2"	G 1/2"	G 1/2"	G 3/4"	G 3/4"
Ranges of Adjustment		0.5-25 bar		25.1-70 bar	0.5 - 50 bar	
Size mm	G1	G 1/2"	1"	1"	3/4"	G 1-1/4"
	L	34	40	40	42	43
	Lmax	65	65	65	91	91
	H	79	77	131	137	138
	H1	93	91	149	154	158
	H2	79	77	131	138	139
	Hmax	105	103	164	169	173
	h	28	30	30	31	39
	h1	15	15	15	16	16
	SW1	30	30	30	36	36
	SW2	-	40	40	32	50
	d0	15.8	15.8	15.8	15.8	18
Weight Kg		0.4	0.4	0.8	1	1

Unit Per Pc.

CODE		75 72 82	75 72 83	75 72 84	75 72 85
Connection		G 1"	G1-1/4"	G1-1/2"	G 2"
Ranges of Adjustment		0.5 - 70 bar			
Size mm	G1	G 1-1/2"	2"	2"	2"
	L	50	61	61	61
	Lmax	92	92	92	92
	H	178	241	241	241
	H1	192	264	264	264
	H2	175	241	241	241
	Hmax	207	277	277	277
	h	45	55	69	74
	h1	18	20	23	25
	SW1	46	55	55	70
	SW2	58	70	70	70
	d0	23	30.3	30.3	30.3
Weight Kg		1.8	4.0	4.0	4.0

Goetze KG : Model 451sGL

451bGFK with bellows and twist-type lifting mechanism

Unit Per Pc.

CODE		75 72 86	75 72 87	75 72 88	75 71 59	75 72 89
Connection		G 1/2"	G 1/2"	G 1/2"	G 3/4"	G 3/4"
Ranges of Adjustment		1-25 bar		25.1-70 bar	1-70 bar	0.5-70 bar
Size mm	G1	G 1/2"	1"	1"	3/4"	G 1-1/4"
	L	34	40	40	42	43
	Lmax	65	65	65	91	91
	H	79	77	131	137	150
	H1	93	91	149	154	170
	H2	79	77	131	138	151
	Hmax	105	103	164	169	185
	h	28	30	30	31	39
	h1	15	15	15	16	16
	SW1	30	30	30	36	36
	SW2	-	40	40	32	50
	d0	15.8	15.8	15.8	15.8	18
Weight Kg		0.4	0.4	0.8	1	1

Unit Per Pc.

CODE		75 72 90	75 72 91	75 72 92	75 72 93
Connection		G 1"	G1-1/4"	G1-1/2"	G 2"
Ranges of Adjustment		0.5 - 70 bar			
Size mm	G1	G 1-1/2"	2"	2"	2"
	L	50	61	61	61
	Lmax	92	92	92	92
	H	193	263	263	263
	H1	207	286	286	282
	H2	190	263	263	263
	Hmax	223	299	299	299
	h	45	55	69	74
	h1	18	20	23	25
	SW1	46	55	55	70
	SW2	58	70	70	70
	d0	23	30.3	30.3	30.3
Weight Kg		1.8	4.0	4.0	4.0

Goetze KG: Model 451bGFK

451bGFL with bellows and lifting lever

Unit Per Pc.

CODE		75 72 94	75 72 95	75 72 96	75 71 60	75 72 97
Connection		G 1/2"	G 1/2"	G 1/2"	G 3/4"	G 3/4"
Ranges of Adjustment		1-25 bar		25.1-70 bar	1-70 bar	0.5-70 bar
Size mm	G1	G 1/2"	1"	1"	3/4"	G 1-1/4"
	L	34	40	40	42	43
	Lmax	65	65	65	91	91
	H	79	77	131	137	150
	H1	93	91	149	154	170
	H2	79	77	131	138	151
	Hmax	105	103	164	169	185
	h	28	30	30	31	39
	h1	15	15	15	16	16
	SW1	30	30	30	36	36
	SW2	-	40	40	32	50
	d0	15.8	15.8	15.8	15.8	18
Weight Kg		0.4	0.4	0.8	1	1

Unit Per Pc.

CODE		75 72 98	75 72 99	75 73 07	75 73 08
Connection		G 1"	G1-1/4"	G1-1/2"	G 2"
Ranges of Adjustment		0.5 - 70 bar			
Size mm	G1	G 1-1/2"	2"	2"	2"
	L	50	61	61	61
	Lmax	92	92	92	92
	H	193	263	263	263
	H1	207	286	286	286
	H2	190	263	263	263
	Hmax	223	299	299	299
	h	45	55	69	74
	h1	18	20	23	25
	SW1	46	55	55	70
	SW2	58	70	70	70
	d0	23	30.3	30.3	30.3
Weight Kg		1.8	4.0	4.0	4.0

Goetze KG: Model 451bGFL

Safety Valves

Brass & Stainless Steel with Stainless Steel Spring

Válvulas de seguridad de latón y acero inoxidable con resorte de acero inoxidable

真鍮・ステンレス安全弁　黄铜不锈钢安全阀（带不锈钢弹簧）

Atmospheric discharge safety valves made of brass with stainless steel spring. Suitable for the protection of pressure tanks and systems for air and other neutral, non-poisonous and non-flammable gases which can be freely discharge into the environment. with twist-type lifting mechanism.

Available models:
- 810sGK: Available in 1/4" up to 2"

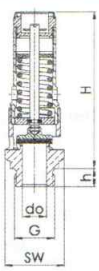
Also available in **Stainless Steel**: series **410**. (Up to 1")

Series 810 (Brass):

- 810sGK FKM with FKM seal (0.2 – 25 bar)
- 810sGK PTFE with PTFE seal (0.2 - 50 bar)

Component	Material	DIN EN	ASME
Body	Brass	CW617N	CW617N
Internal Parts	Brass	CW617N	CW617N
Spring	Stainless steel	1.4568	631





810sGK FKM with FKM seal (0.2 – 25 bar)

Unit Per Pc.

CODE		75 73 09	75 73 10	75 73 17	75 73 18	75 73 19	75 73 40	75 77 10	75 77 11
Connection (DN)		8/¼"	10/3/8"	15/½"	20/3/4"	25/1"	32/1¼"	40/1½"	50/2"
Ranges of Adjustment		0.2 - 50 bar							
Size mm	H	60	65/78	66/79	94/104	111	133	164	171
	h	10	10	12	12	14	20	22	24
	SW	19	24	27	34	41	50	60	68
	d0	7.5	10	11	16	20	25	32	40
Weight Kg		0.1	0.4/0.16	0.17/0.19	0.35/0.4	0.6	0.97	1.85	2.45

Goetze KG : Model 810sGK FKM

810sGK PTFE with PTFE seal (0.2 – 50 bar)

Unit Per Pc.

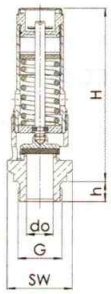
CODE		75 73 20	75 73 29	75 73 30	75 73 38	75 73 39	75 77 12	75 77 13	75 77 14
Connection (DN)		8/¼"	10/3/8"	15/½"	20/3/4"	25/1"	32/1¼"	40/1½"	50/2"
Ranges of Adjustment		0.2 - 50 bar							
Size mm	H	60	65/78	66/79	94/104	111	133	164	171
	h	10	10	12	12	14	20	22	24
	SW	19	24	27	34	41	50	60	68
	d0	7.5	10	11	16	20	25	32	40
Weight Kg		0.1	0.4/0.16	0.17/0.19	0.35/0.4	0.6	0.97	1.85	2.45

Goetze KG : Model 810sGK PTFE

Series 410 (Stainless Steel)

Component	Material	DIN EN	ASME
Body	Stainless steel	1.4404	316L
Internal Parts	Stainless steel	1.4404	316L
Spring	Stainless steel	1.4568	631





410sGK FKM with FKM seal (0.2 – 25 bar) (Also possible with NBR)

Unit Per Pc.

CODE		75 73 48	75 73 49	75 73 50	75 73 51	75 73 52
Connection		DN8/1/4"	DN10/3/8"	DN15/1/2"	DN20/3/4"	DN25/1"
Ranges of Adjustment		0.2 - 25 bar				
Size mm	H	60	78	79	104	111
	h	10	10	12	12	14
	SW	19	24	27	34	41
	d0	7.5	10	11	16	20
Weight Kg		0.1	0.16	0.19	0.4	0.6

Goetze KG: Model 410sGK FKM

410sGK PTFE with PTFE seal (0.2 – 50 bar)

Unit Per Pc.

CODE		75 73 53	75 73 54	75 73 55	75 73 56	75 73 57
Connection		DN8/1/4"	DN10/3/8"	DN15/1/2"	DN20/3/4"	DN25/1"
Ranges of Adjustment		0.2 - 50 bar				
Size mm	H	60	78	79	104	111
	h	10	10	12	12	14
	SW	19	24	27	36	41
	d0	7.5	10	11	16	20
Weight Kg		0.1	0.16	0.19	0.4	0.6

Goetze KG: Model 410sGK PTFE

Safety Valves

Brass & Stainless Steel with Stainless Steel Spring

Válvulas de seguridad de latón y acero inoxidable con resorte de acero inoxidable

真鍮・ステンレス安全弁　黄铜不锈钢安全阀（带不锈钢弹簧）

Marine Type Approvals held for these valves:
- DNV
- Lloyd's Register EMEA
- American Bureau of Shipping
- Bureau Veritas
- Russian Maritime Register of Shipping
- Resistro Italiano Navale

Atmospheric discharge safety valves made of brass (or Stainless Steel) with stainless steel spring. Suitable for the protection of pressure tanks and systems for air and other neutral, non-poisonous and non-flammable gases which can be freely discharge into the environment. With twist-type lifting mechanism.

Available models:
- 812/412 sGK

Available seals:
- NBR
- FKM
- EPDM
- PTFE

Available in 1/2" up to 2".

All models are also available in **Stainless Steel**: Series **412**.

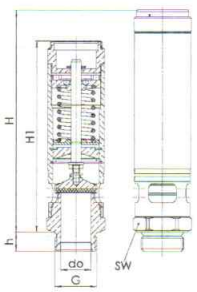
How to order: CODE

Safety Valve (DIN), Brass or Stainless Steel, with Stainless Steel Spring, SIZE DN, SPECIFY THE SEALS FROM "NBR", "FKM", "EPDM" or "PTFE"

Series 812 (Brass)

Component	Material	DIN EN	ASME
Body	Brass	CW617N	CW617N
Internal Parts	Brass/Stainless steel	CW617N/1.4404	CW617N/316 L
Spring	Stainless steel	1.4310/1.4568	302/631
Sealing Cap	Stainless steel	1.4310	304





Model 812 sGK

Unit Per Pc.

CODE	DN	Connection	Size mm H	h	SW	d0	Range of Adjustment	Weight Kg
75 73 58	15	1/2"	144	12	32	14	0.2-50 bar	0.6
59	20	3/4"	177	15	41	20		1.3
60	25	1"	177	15	41	24		1.3
61	32	1-1/4"	215	22.5	55	31		2.6
62	40	1-1/2"	215	22.5	55	31		2.6
75 73 63	50	2"	282	26	80	48	0.2-30 bar	5.4

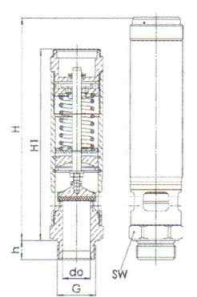
Goetze KG: 812 sGK

**Please specify the seal from "NBR", "FKM" or "PTFE" when ordering.

Series 412 (Stainless Steel)

Component	Material	DIN EN	ASME
Body	Stainless steel	1.4404	316 L
Internal Parts	Stainless steel	1.4404	316 L
Spring	Stainless steel	1.4310/1.4568	302/631
Sealing Cap	Stainless steel	1.4310	304





Model 412 sGK

Unit Per Pc.

CODE	DN	Connection	Size mm H	h	SW	d0	Range of Adjustment	Weight Kg
75 73 64	15	1/2"	144	12	32	14	0.2-50 bar	0.6
65	20	3/4"	177	15	41	20		1.3
66	25	1"	177	15	41	24		1.3
67	32	1-1/4"	215	22.5	55	31		2.6
68	40	1-1/2"	215	22.5	55	31		2.6
75 73 69	50	2"	282	26	80	48	0.2-30 bar	5.4

Goetze KG: 412 sGK

**Please specify the seal from "NBR", "FKM" or "PTFE" when ordering.

Safety Valves

Gunmetal & Stainless Steel with Stainless Steel Spring

Válvulas de seguridad, Bronce de cañón y acero inoxidable con muelle de acero inoxidable

砲金・ステンレス製安全弁

安全阀　炮铜和不锈钢材质，带不锈钢弹簧

Marine Type Approvals held for these valves:

- DNV
- Lloyd's Register EMEA
- American Bureau of Shipping
- Bureau Veritas
- Russian Maritime Register of Shipping
- Resistro Italiano Navale

Angular shaped spring loaded safety valves made of gunmetal with stainless steel spring and inlet body. Sealing cap prevents unauthorized changing of set pressure. Suitable for the protection of pressure tanks and systems for neutral /non-neutral vapours, gases and liquids, steam boilers and steam plants.

Available models:

- 861sGK non-gastight version with twist-type lifting mechanism
- 861sGL non-gastight version with lifting lever
- 861tGO gastight for gases without lifting device
- 861tFO gastight for liquids without lifting device
- 861tGFO gastight for gases and liquids without lifting device

Available seals:

- PTFE up to 25 bar
- PTFE + carbon from 25.1 bar up to 50 bar

All models are also available in **Stainless Steel:** series **461**.

Series 861 (Gunmetal)

Component	Material	DIN EN	ASME
Inlet Body	Stainless Steel	1.4404	316L
Outlet Body	Gunmetal	CC499K	CC499K
Internal Parts	Brass	CW617N	CW617N
Spring	Stainless Steel	1.4310	302



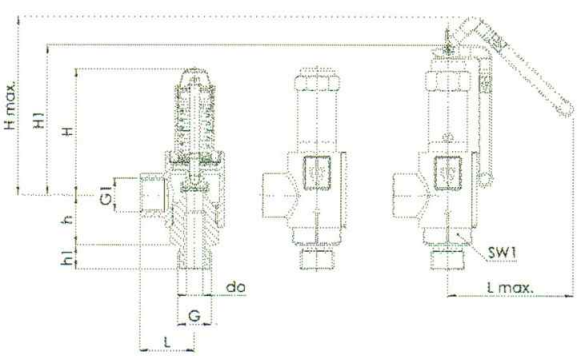
861sGK"



851tGO, 861tFO, 861tFGO



861sGL



861sGK non-gastight version with twist-type lifting mechanism

Unit Per Pc.

CODE		75 73 71	75 73 72	75 73 73	75 73 70
Connection		DN8 / G 1/4"	DN10 / G 3/8"	DN15 / G 1/2"	DN15 / G 1/2"
Range of Adjustment		0.5-50 bar		0.5-30 bar	30.1-50 bar
Size mm	G1	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"
	L	34	34	34	34
	Lmax	78	78	78	78
	H	79	79	79	133
	H1	93	93	93	150
	Hmax	111	111	111	168
	h	31	31	31	31
	h1	12	12	15	15
	SW	30	30	30	30
	d0	6	8	10	10
Weight Kg		0.5	0.5	0.6	1.0

Goetze KG : Model 861 sGK

861sGL non-gastight version with lifting lever

Unit Per Pc.

CODE		75 73 74	75 73 75	75 73 76	75 77 01
Connection		DN8 / G 1/4"	DN10 / G 3/8"	DN15 / G 1/2"	DN15 / G 1/2"
Range of Adjustment		0.5-50 bar		0.5-30 bar	30.1-50 bar
Size mm	G1	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"
	L	34	34	34	34
	Lmax	78	78	78	78
	H	79	79	79	133
	H1	93	93	93	150
	Hmax	111	111	111	168
	h	31	31	31	31
	h1	12	12	15	15
	SW	30	30	30	30
	d0	6	8	10	10
Weight Kg		0.5	0.5	0.6	1.0

Goetze KG: Model 861sGL

861tGO gastight for gases without lifting device

Unit Per Pc.

CODE		75 73 77	75 73 78	75 73 79	75 77 02
Connection		DN8 / G 1/4"	DN10 / G 3/8"	DN15 / G 1/2"	DN15 / G 1/2"
Range of Adjustment		0.5-50 bar		0.5-30 bar	30.1-50 bar
Size mm	G1	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"
	L	34	34	34	34
	Lmax	78	78	78	78
	H	79	79	79	133
	H1	93	93	93	150
	Hmax	111	111	111	168
	h	31	31	31	31
	h1	12	12	15	15
	SW	30	30	30	30
	d0	6	8	10	10
Weight Kg		0.5	0.5	0.6	1.0

Goetze KG: Model 861tGO

861tFO gastight for liquids without lifting device

Unit Per Pc.

CODE		75 73 80	75 73 81	75 73 82	75 77 03
Connection		DN8 / G 1/4"	DN10 / G 3/8"	DN15 / G 1/2"	DN15 / G 1/2"
Range of Adjustment		0.5-50 bar		0.5-30 bar	30.1-50 bar
Size mm	G1	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"
	L	34	34	34	34
	Lmax	78	78	78	78
	H	79	79	79	133
	H1	93	93	93	150
	Hmax	111	111	111	168
	h	31	31	31	31
	h1	12	12	15	15
	SW	30	30	30	30
	d0	6	8	10	10
Weight Kg		0.5	0.5	0.6	1.0

Goetze KG: Model 861tFO

861tGFO gastight for gases and liquids without lifting device

Unit Per Pc.

CODE		75 73 83	75 73 84	75 73 85	75 77 04
Connection		DN8 / G 1/4"	DN10 / G 3/8"	DN15 / G 1/2"	DN15 / G 1/2"
Range of Adjustment		0.5-50 bar		0.5-30 bar	30.1-50 bar
Size mm	G1	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"
	L	34	34	34	34
	Lmax	78	78	78	78
	H	79	79	79	133
	H1	93	93	93	150
	Hmax	111	111	111	168
	h	31	31	31	31
	h1	12	12	15	15
	SW	30	30	30	30
	d0	6	8	10	10
Weight Kg		0.5	0.5	0.6	1.0

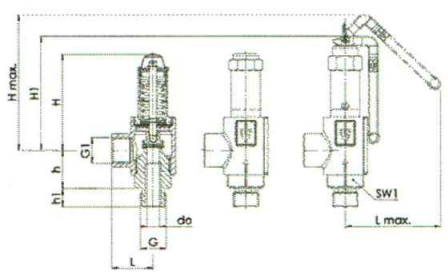
Goetze KG: Model 861tGFO

Series 461 (Stainless Steel)

Component	Material	DIN EN	ASME
Inlet Body	Stainless steel	1.4404	316 L
Outlet Body	Stainless steel	1.4408	CF8 M
Internal Parts	Stainless steel	1.4404	316L
Spring	Stainless steel	1.4310	302



461sGK	461tGO 461tFO 461tGFO	461sGL



461sGK non-gastight version with twist-type lifting mechanism

Unit Per Pc.

CODE		75 73 86	75 73 87	75 73 88	75 77 05
Connection		DN8 / G 1/4"	DN10 / G 3/8"	DN15 / G 1/2"	DN15 / G 1/2"
Range of Adjustment		0.5-70 bar		0.5-30 bar	30.1-70 bar
Size mm	G1	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"
	L	34	34	34	34
	Lmax	78	78	78	78
	H	79	79	79	133
	H1	93	93	93	150
	Hmax	111	111	111	168
	h	31	31	31	31
	h1	12	12	15	15
	SW	30	30	30	30
	d0	6	8	10	10
Weight Kg		0.5	0.5	0.6	1.0

Goetze KG: Model 461sGK

461sGL non-gastight version with lifting lever

Unit Per Pc.

CODE		75 73 89	75 73 90	75 73 91	75 77 06
Connection		DN8 / G 1/4"	DN10 / G 3/8"	DN15 / G 1/2"	DN15 / G 1/2"
Range of Adjustment		0.5-70 bar		0.5-30 bar	30.1-70 bar
Size mm	G1	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"
	L	34	34	34	34
	Lmax	78	78	78	78
	H	79	79	79	133
	H1	93	93	93	150
	Hmax	111	111	111	168
	h	31	31	31	31
	h1	12	12	15	15
	SW	30	30	30	30
	d0	6	8	10	10
Weight Kg		0.5	0.5	0.6	1.0

Goetze KG: Model 461sGL

461tGO gastight for gases without lifting device

Unit Per Pc.

CODE		75 73 92	75 73 93	75 73 94	75 77 07
Connection		DN8 / G 1/4"	DN10 / G 3/8"	DN15 / G 1/2"	DN15 / G 1/2"
Range of Adjustment		0.5-70 bar		0.5-30 bar	30.1-70 bar
Size mm	G1	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"
	L	34	34	34	34
	Lmax	78	78	78	78
	H	79	79	79	133
	H1	93	93	93	150
	Hmax	111	111	111	168
	h	31	31	31	31
	h1	12	12	15	15
	SW	30	30	30	30
	d0	6	8	10	10
Weight Kg		0.5	0.5	0.6	1.0

Goetze KG: Model 461tGO

461tFO gastight for liquid without lifting device

Unit Per Pc.

CODE		75 73 95	75 73 96	75 73 97	75 77 08
Connection		DN8 / G 1/4"	DN10 / G 3/8"	DN15 / G 1/2"	DN15 / G 1/2"
Range of Adjustment		0.5-70 bar		0.5-30 bar	30.1-70 bar
Size mm	G1	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"
	L	34	34	34	34
	Lmax	78	78	78	78
	H	79	79	79	133
	H1	93	93	93	150
	Hmax	111	111	111	168
	h	31	31	31	31
	h1	12	12	15	15
	SW	30	30	30	30
	d0	6	8	10	10
Weight Kg		0.5	0.5	0.6	1.0

Goetze KG: Model 461tFO

461tGFO gastight for gases and liquids without device

Unit Per Pc.

CODE		75 73 98	75 73 99	75 74 00	75 77 09
Connection		DN8 / G 1/4"	DN10 / G 3/8"	DN15 / G 1/2"	DN15 / G 1/2"
Range of Adjustment		0.5-70 bar		0.5-30 bar	30.1-70 bar
Size mm	G1	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"	DN15 / G 1/2"
	L	34	34	34	34
	Lmax	78	78	78	78
	H	79	79	79	133
	H1	93	93	93	150
	Hmax	111	111	111	168
	h	31	31	31	31
	h1	12	12	15	15
	SW	30	30	30	30
	d0	6	8	10	10
Weight Kg		0.5	0.5	0.6	1.0

Goetze KG: Model 461GFO

Safety Valves

Spheroidal Graphite Cast Iron
Angle type with flange connections



Válvulas de seguridad, Fundición de grafito esferoidal
Tipo de ángulo con conexiones de brida
ダクタイル鋳鉄フランジ式安全弁
安全阀、球墨铸铁、带法兰连接的角型

Marine Type Approvals held for these valves:

- DNV
- Lloyd's Register EMEA
- American Bureau of Shipping
- Bureau Veritas
- Russian Maritime Register of Shipping

Full-lift safety valve for the protection of pressure tanks and systems for neutral / non-neutral vapours and gases, steam plants and silo containers for liquid, granular and dusty materials[1].

Maintenance-friendly construction, single trim for gases, vapours and liquids, replaceable seat, easily detachable cone-stroke ring connection, freely rotatable spindle-taper connection, extensive range of spare parts, and vertical and horizontal installation position possible. Flanges according to DIN EN 1092-2 standard.

[1]Only for version with bellows and gas-tight spring housing

Available models:

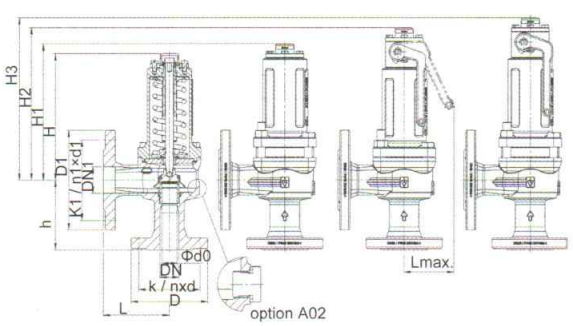
- 355 sGL with lifting lever
- 355 sGO without lifting lever
- 355 bGFL with bellows and lifting lever
- 355 bGFO with bellows, without lifting lever
- 355 tGFL gastight with lifting lever
- 355 tGFO gastight without lifting lever
- 355 tbGFL gastight with bellows and lifting lever
- 355 tbGFO gastight with bellows, without lifting lever

Available seals:

- MD (Metal-to-metal sealing)
- EPDM
- FKM
- FFKM
- PTFE
- PTFE + carbon

Series 355 (Spheroidal Graphite Cast Iron)

Component	Material	DIN EN	ASME
Body and spring housing	Spheroidal graphite cast iron	5.3103	Gr.60-40-18
Valve seat	Stainless steel	1.4404	316 L
Internal parts	Steel	1.4021/1.4104/1.4122	420/30F/1.4122
Spring	Steel	1.8159 / FDSiCr	
Bellows (optional)	Stainless steel	1.4571	316 Ti



355sGL with lifting lever

Unit Per Pc.

CODE		75 77 15	75 77 16	75 77 17	75 77 18	75 62 57
Connection Nom. DN/PN		15 / 40	20 / 40	25 / 40	32 / 40	40 / 40
Ranges of Adjustment		0.2 – 40 bar				
Size mm	Outlet DN1/PN	25 / 16	32 / 16	40 / 16	50 / 16	65 / 16
	L	80	95	100	110	115
	Lmax	75	85	95	120	130
	H2	206	204	229	321	363
	h	90	85	105	115	140
	D	95	105	115	140	150
	d0	15.0	18.0	22.5	29.3	36
Weight Kg		6.0	7.0	9.5	19.0	22.0

Unit Per Pc.

CODE		75 62 58	75 77 19	75 77 20	75 77 21
Connection Nom. DN/PN		50 / 40	65 / 40	80 / 40	100 / 40
Ranges of Adjustment		0.2-40 bar	0.2-24 bar	0.2-25.5 bar	0.2-20 bar
Size mm	Outlet DN1/PN	80 / 16	100 / 16	125 / 16	150 / 16
	L	120	140	160	180
	Lmax	160	205	215	255
	H2	413	497	556	647
	h	150	170	195	220
	D	165	185	200	235
	d0	45.0	59.0	72.0	90.0
Weight Kg		28.5	47.5	60.5	93.5

Goetze KG : Model 355sGL

355sGO without lifting lever

Unit Per Pc.

CODE		75 77 22	75 77 23	75 77 24	75 77 25	75 62 55
Connection Nom. DN/PN		15 / 40	20 / 40	25 / 40	32 / 40	40 / 40
Ranges of Adjustment		0.2 – 40 bar				
Size mm	Outlet DN1/PN	25 / 16	32 / 16	40 / 16	50 / 16	65 / 16
	L	80	95	100	110	115
	Lmax	75	85	95	120	130
	H	167	165	190	260	302
	h	90	85	105	115	140
	D	95	105	115	140	150
	d0	15.0	18.0	22.5	29.3	36
Weight Kg		5.5	6.5	9.0	16.5	19.5

Unit Per Pc.

CODE		75 62 56	75 77 26	75 77 27	75 77 28
Connection Nom. DN/PN		50 / 40	65 / 40	80 / 40	100 / 40
Ranges of Adjustment		0.2-40 bar	0.2-24 bar	0.2-25.5 bar	0.2-20 bar
Size mm	Outlet DN1/PN	80 / 16	100 / 16	125 / 16	150 / 16
	L	120	140	160	180
	Lmax	160	205	215	255
	H	352	427	486	577
	h	150	170	195	220
	D	165	185	200	235
	d0	45.0	59.0	72.0	90.0
Weight Kg		26.0	44.0	57.0	90.0

Goetze KG : Model 355sGO

355bGFL with bellows and lifting lever

Unit Per Pc.

CODE		75 77 29	75 77 30	75 77 31	75 77 32	75 62 77
Connection Nom. DN/PN		15 / 40	20 / 40	25 / 40	32 / 40	40 / 40
Ranges of Adjustment		1.2 - 40 bar	0.8 – 40 bar	0.5 – 40 bar	1.0 – 40 bar	0.9 – 40 bar
Size mm	Outlet DN1/PN	25 / 16	32 / 16	40 / 16	50 / 16	65 / 16
	L	80	95	100	110	115
	Lmax	75	85	95	120	130
	H3	246	244	269	361	391
	h	90	85	105	115	140
	D	95	105	115	140	150
	d0	15.0	18.0	22.5	29.3	36
Weight Kg		6.5	7.5	10.0	21.0	24.0

Unit Per Pc.

CODE		75 62 78	75 77 33	75 77 34	75 77 35
Connection Nom. DN/PN		50 / 40	65 / 40	80 / 40	100 / 40
Ranges of Adjustment		0.5-40 bar	0.3-40 bar	0.2-40 bar	0.2-40 bar
Size mm	Outlet DN1/PN	80 / 16	100 / 16	125 / 16	150 / 16
	L	120	140	160	180
	Lmax	160	205	215	255
	H3	453	532	600	694
	h	150	170	195	220
	D	165	185	200	235
	d0	45.0	59.0	72.0	90.0
Weight Kg		31.0	51.0	66.5	102.5

Goetze KG : Model 355bGFL

355bGFO with bellows, without lifting lever

Unit Per Pc.

CODE		75 77 36	75 77 37	75 77 38	75 77 39	75 62 75
Connection Nom. DN/PN		15 / 40	20 / 40	25 / 40	32 / 40	40 / 40
Ranges of Adjustment		1.2 – 40 bar	0.8 – 40 bar	0.5 – 40 bar	1.0 – 40 bar	0.9 – 40 bar
Size mm	Outlet DN1/PN	25 / 16	32 / 16	40 / 16	50 / 16	65 / 16
	L	80	95	100	110	115
	Lmax	75	85	95	120	130
	H1	207	205	230	300	330
	h	90	85	105	115	140
	D	95	105	115	140	150
	d0	15.0	18.0	22.5	29.3	36
Weight Kg		6.0	7.0	9.5	19.0	21.5

Unit Per Pc.

CODE		75 62 76	75 77 40	75 77 41	75 77 42
Connection Nom. DN/PN		50 / 40	65 / 40	80 / 40	100 / 40
Ranges of Adjustment		0.5-40 bar	0.3-40 bar	0.2-40 bar	0.2-40 bar
Size mm	Outlet DN1/PN	80 / 16	100 / 16	125 / 16	150 / 16
	L	120	140	160	180
	Lmax	160	205	215	255
	H1	392	462	530	624
	h	150	170	195	220
	D	165	185	200	235
	d0	45.0	59.0	72.0	90.0
Weight Kg		28.5	48.0	63.0	99.0

Goetze KG : Model 355bGFO

355tGFL gastight with lifting lever

Unit Per Pc.

CODE		75 77 43	75 77 44	75 77 45	75 77 46	75 62 73
Connection Nom. DN/PN		15 / 40	20 / 40	25 / 40	32 / 40	40 / 40
Ranges of Adjustment		0.2 – 40 bar				
Size mm	Outlet DN1/PN	25 / 16	32 / 16	40 / 16	50 / 16	65 / 16
	L	80	95	100	110	115
	Lmax	75	85	95	120	130
	H2	206	204	229	321	363
	h	90	85	105	115	140
	D	95	105	115	140	150
	d0	15.0	18.0	22.5	29.3	36
Weight Kg		6.0	7.0	9.5	19.0	22.0

Unit Per Pc.

CODE		75 62 74	75 77 47	75 77 48	75 77 49
Connection Nom. DN/PN		50 / 40	65 / 40	80 / 40	100 / 40
Ranges of Adjustment		0.2-40 bar	0.2-24 bar	0.2-25.5 bar	0.2-20 bar
Size mm	Outlet DN1/PN	80 / 16	100 / 16	125 / 16	150 / 16
	L	120	140	160	180
	Lmax	160	205	215	255
	H2	413	497	556	647
	h	150	170	195	220
	D	165	185	200	235
	d0	45.0	59.0	72.0	90.0
Weight Kg		28.5	47.5	60.5	93.5

Goetze KG : Model 355tGFL

355tGFO gastight without lifting lever

Unit Per Pc.

CODE		75 77 50	75 77 51	75 77 52	75 77 53	75 62 71
Connection Nom. DN/PN		15 / 40	20 / 40	25 / 40	32 / 40	40 / 40
Ranges of Adjustment		0.2 – 40 bar				
Size mm	Outlet DN1/PN	25 / 16	32 / 16	40 / 16	50 / 16	65 / 16
	L	80	95	100	110	115
	Lmax	75	85	95	120	130
	H	167	165	190	260	302
	h	90	85	105	115	140
	D	95	105	115	140	150
	d0	15.0	18.0	22.5	29.3	36
Weight Kg		5.5	6.5	9.0	16.5	19.5

Unit Per Pc.

CODE		75 62 72	75 77 54	75 77 55	75 77 56
Connection Nom. DN/PN		50 / 40	65 / 40	80 / 40	100 / 40
Ranges of Adjustment		0.2-40 bar	0.2-24 bar	0.2-25.5 bar	0.2-20 bar
Size mm	Outlet DN1/PN	80 / 16	100 / 16	125 / 16	150 / 16
	L	120	140	160	180
	Lmax	160	205	215	255
	H	352	427	486	577
	h	150	170	195	220
	D	165	185	200	235
	d0	45.0	59.0	72.0	90.0
Weight Kg		26.0	44.0	57.0	90.0

Goetze KG : Model 355tGFO

355tbGFL gastight with bellows and lifting leverr

Unit Per Pc.

CODE		75 77 57	75 77 58	75 77 59	75 77 60	75 77 61
Connection Nom. DN/PN		15 / 40	20 / 40	25 / 40	32 / 40	40 / 40
Ranges of Adjustment		1.2 - 40 bar	0.8 – 40 bar	0.5 – 40 bar	1.0 – 40 bar	0.9 – 40 bar
Size mm	Outlet DN1/PN	25 / 16	32 / 16	40 / 16	50 / 16	65 / 16
	L	80	95	100	110	115
	Lmax	75	85	95	120	130
	H3	246	244	269	361	391
	h	90	85	105	115	140
	D	95	105	115	140	150
	d0	15.0	18.0	22.5	29.3	36
Weight Kg		6.5	7.5	10.0	21.0	24.0

Unit Per Pc.

CODE		75 77 62	75 77 63	75 77 64	75 77 65
Connection Nom. DN/PN		50 / 40	65 / 40	80 / 40	100 / 40
Ranges of Adjustment		0.5-40 bar	0.3-40 bar	0.2-40 bar	0.2-40 bar
Size mm	Outlet DN1/PN	80 / 16	100 / 16	125 / 16	150 / 16
	L	120	140	160	180
	Lmax	160	205	215	255
	H3	453	532	600	694
	h	150	170	195	220
	D	165	185	200	235
	d0	45.0	59.0	72.0	90.0
Weight Kg		31.0	51.0	66.5	102.5

Goetze KG : Model 355tbGFL

355tbGFO gastight with bellows, without lifting lever

Unit Per Pc.

CODE		75 77 66	75 77 67	75 77 68	75 77 69	75 77 70
Connection Nom. DN/PN		15 / 40	20 / 40	25 / 40	32 / 40	40 / 40
Ranges of Adjustment		1.2 – 40 bar	0.8 – 40 bar	0.5 – 40 bar	1.0 – 40 bar	0.9 – 40 bar
Size mm	Outlet DN1/PN	25 / 16	32 / 16	40 / 16	50 / 16	65 / 16
	L	80	95	100	110	115
	Lmax	75	85	95	120	130
	H1	207	205	230	300	330
	h	90	85	105	115	140
	D	95	105	115	140	150
	d0	15.0	18.0	22.5	29.3	36
Weight Kg		6.0	7.0	9.5	19.0	21.5

Unit Per Pc.

CODE		75 77 71	75 77 72	75 77 73	75 77 74
Connection Nom. DN/PN		50 / 40	65 / 40	80 / 40	100 / 40
Ranges of Adjustment		0.5-40 bar	0.3-40 bar	0.2-40 bar	0.2-40 bar
Size mm	Outlet DN1/PN	80 / 16	100 / 16	125 / 16	150 / 16
	L	120	140	160	180
	Lmax	160	205	215	255
	H1	392	462	530	624
	h	150	170	195	220
	D	165	185	200	235
	d0	45.0	59.0	72.0	90.0
Weight Kg		28.5	48.0	63.0	99.0

Goetze KG : Model 355tbGFO

American National Standard Institute (ANSI) for Marine Services

The following tables are a cross comparison from JIS (Japan Industrial Standard) to ANSI (American National Standard Institute), and from ANSI to JIS for your reference purpose. The tables are classified according to similar material, working pressure and general design. However, as you understand, the basic specification of material, dimensions and flanges are essentially different between JIS standard and ANSI standard.
We are not held responsible for any possible accident or damage caused by using these tables.

Comparison List - JIS to equivalent design ANSI Valves

Globe Valves

Material & W.P.	Type	JIS No.	Size	CODE	ANSI Model	CODE	Class	Size
Cast Steel 10 kgf/cm^2 Flanged	Straight	F-7319	50-300mm	75 04 11 - 19	-	75 71 41 - 47	150	2" - 12"
Cast Steel 120 kgf/cm^2 Flanged	Straight	F-7313	32-250mm	75 04 31 - 40	-	75 71 51 - 57	300	2" - 12"

Gate Valves

Material & W.P.	Type	JIS No.	Size	CODE	ANSI Model	CODE	Class	Size
Cast Iron 10 kgf/cm^2	Flanged	F-7364	50-600mm	75 08 21 - 35	-	75 72 41 - 48	125	2" - 12"
Cast Iron 16 kgf/cm^2	Flanged	F-7369	300-400mm	75 08 41 - 43	-	75 72 41 - 48	125	2" - 12"
Cast steel 10 kgf/cm^2	Flanged	F-7366	50-400mm	75 09 01 - 11	-	75 72 61 - 67	150	2" - 12"

Swing Check Valves

Material & W.P.	Type	JIS No.	Size	CODE	ANSI Model	CODE	Class	Size
Cast Iron 10 kgf/cm^2 Flanged	Straight	F-7373	50-200mm	75 14 31 - 37	- 311.3.4.4.2	75 73 21 - 28 75 73 31 - 37/98	125 150	2" - 12" 2" - 12"

Remark : ANSI model is referred to MENSON products.

Comparison List - ANSI to equivalent design JIS Valves

Globe Valves

Material & W.P.	Type	ANSI Model	Size	CODE	JIS No.	CODE	Max. W/P	Size
Carbon Steel Class 150 Flanged	Straight	-	2" - 12"	75 71 41 - 47	F-7319	75 04 11 - 19	10 kgf/cm^2	50-300mm
Carbon Steel Class 300 Flanged	Straight	-	2" - 12"	75 71 51 - 57	F-7313	75 04 31 - 40	20 kgf/cm^2	32-250mm

Gate Valves

Material & W.P.	Type	ANSI Model	Size	CODE	JIS No.	CODE	Max. W/P	Size
Cast Iron Class 125	Flanged	-	2" - 12"	75 72 41 - 48	F-7364 F-7369	75 08 21 - 35 75 08 41 - 43	10 kgf/cm^2 16 kgf/cm^2	50-600mm 300-400mm
Carbon Steel Class 150	Flanged	-	2" - 12"	75 72 61 - 67	F-7366	75 09 01 - 11	10 kgf/cm^2	50-400mm

Swing Check Valves

Material & W.P.	Type	ANSI Model	Size	CODE	JIS No.	CODE	Max. W/P	Size
Cast Iron Class 125 Flanged	Straight	-	2" - 12"	75 73 21 - 27	F-7373	75 14 31 - 37	10 kgf/cm^2	50-200mm
Cast Steel Class 150 Flanged	Straight	311.3.4.4.2	2" - 12"	75 73 31 - 37/98	F-7373	75 14 31 - 37	10 kgf/cm^2	50-200mm

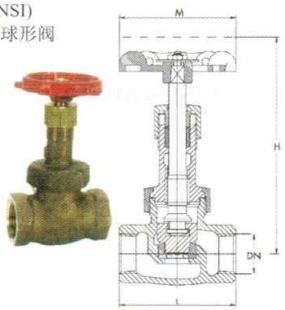
Remark : ANSI model is referred to MENSON products.

ANSI Globe Valves

Globe Valves (ANSI)

Bronze, NPT Female Threaded, Union Bonnet Metal Seated

Válvula de Globo de Bronce (según ANSI)
ANSI型青銅玉形弁　ANSI 型青铜球形阀



Globe valves with union bonnet, SS disc and hardened seat, renewable disc and seat, straight pattern, NPT female threaded connection according to ANSI B1.20.1, inside screwed stem and rising handwheel.
Application: Water, oil, air, gas, saturated steam etc.

Pressure and Temperature Range

	0/65°C	287°C
1/2" - 2"	27.5 bar	13.7 bar
	200 lbs SWP at 550° F and 400 lbs WOG at 150° F (non-shock)	

Material Specification

Component	Material	US
Body	Bronze	ASTM B61
Bonnet	Bronze	ASTM B61
Bonnet Nut	Bronze	ASTM B61
Disc	Stainless steel	AISI 420
Stem	Bronze	ASTM B61
Seat (Hardened)	Stainless steel	AISI 420
Gland Packing	Graphite	
Handwheel	Cast iron	

How to order: CODE

Globe valve (ANSI), bronze, NPT female threaded, union bonnet metal seated, SIZE DN

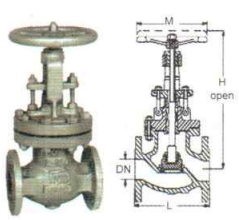
Unit Per Pc.

CODE	DN	Size mm			Weight
		L	H	M	Kg
75 71 01	1/4"	56	106	57	0.4
02	3/8"	60	108	57	0.5
03	1/2"	64	114	76	0.7
04	3/4"	75	130	83	1.0
05	1"	86	133	102	1.6
75 71 06	1-1/4"	98	157	120	2.6
07	1-1/2"	114	184	140	3.5
08	2"	124	208	152	6.2

Globe Valves (ANSI)

Cast Steel, ASME Flanges, 150 lbs and 300 lbs

Válvula de Globo de Acero a Carbono (según ANSI)
ANSI型鑄鋼玉形弁　ANSI型碳钢球形阀



Cast steel globe valves with stainless steel trim, pressure rating 150 lbs and 300 lbs, straight pattern, flanged end acc. to ASME B16.5 ("raised face – smooth finish"), outside screw & yoke, rising handwheel. On request, supplied including EN 10204 3.1.B material and test certificate.

Application: Steam, water, oil, vapours and gases.

Pressure and Temperature Range

	ASTM A216 WCB						
	-29/38°C	93°C	149°C	204°C	260°C	316°C	343°C
150 lbs	19.7 bar	17.9	15.9	13.8	11.7	9.7	8.6
300 lbs	51 bar	46.5	45.2	43.8	41.4	37.9	36.9
	371°C	399°C	427°C	454°C	482°C	510°C	538°C
150 lbs	7.6 bar	6.6	5.5	4.5	3.4	2.4	1.4
300 lbs	36.9 bar	34.8	28.3	18.6	11.7	7.2	3.4
	ASTM A216 WCB is not recommended for long-term duty above 426°C.						

Material Specification

Component	Material	US
Body	Cast steel	ASTM A216-WCB
Bonnet	Cast steel	ASTM A216-WCB
Disc	Stainless steel	AISI 410
Seat (Body)	Stainless steel	AISI 410 stellited
Stem	Stainless steel	AISI 410
Gland	Forged steel	ASTM A105(N)
Gland Packing	Graphite	Grafiet
Bonnet gasket 1) (SS insert)	Graphite	Grafiet
Handwheel	Malleable cast iron	Malleable cast iron

1) Spiral wound gasket

Pressure Rating 150 lbs

How to order: CODE

Globe valve (ANSI), cast steel, ASME flanges, pressure rating 150 lbs, SIZE DN

Unit Per Pc.

CODE	DN	Size mm			Weight
		L	H	M	Kg
75 71 41	2"	203	338	200	21
42	3"	241	396	250	35
43	4"	292	476	300	58
44	6"	406	524	350	100
45	8"	495	588	400	160
75 71 46	10"	622	738	500	253
47	12"	699	862	500	398

Pressure Rating 300 lbs

How to order: CODE

Globe valve (ANSI), cast steel, ASME flanges, pressure rating 300 lbs, SIZE DN

Unit Per Pc.

CODE	DN	Size mm			Weight
		L	H	M	Kg
75 71 51	2"	267	354	200	25
52	3"	318	421	250	49
53	4"	356	496	350	76
54	6"	445	675	500	168
55	8"	559	912	560	282
75 71 56	10"	622	949	600	385
57	12"	711	1,032	650	724

ANSI Gate Valves

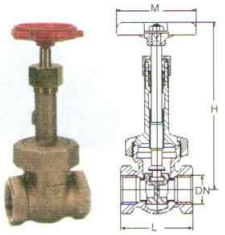
Gate Valves (ANSI)

Bronze, NPT Female Threaded Ends, Union Bonnet Pressure Rating 200 lbs

Válvulas de compuerta (ANSI), Bronce, Extremos roscados hembra NPT, Bonete de unión
ANSI 型青銅仕切弁
闸阀（ANSI）、青铜、NPT 内螺纹端、联合阀帽

Bronze gate valves with union bonnet, solid bronze wedge, stainless steel seat, NPT female threaded ends acc. to ANSI B1.20.1, inside screwed stem and rising stem and rising handwheel, complies with requirements of MSS SP-80 type 2.

Application: water, oil, air, gas, saturated steam etc.



Pressure and Temperature Range

	0/20°C	197°C
1/4" - 3"	27.5 bar	13.7 bar
	200 lbs SWP and 400 lbs WOG (non-shock)	

Material Specification

Component	Material	US
Body	Bronze	ASTM B61
Bonnet Nut	Bronze	ASTM B61
Stem	Bronze	ASTM B61
Wedge	Bronze	ASTM B61
Seats (Body)	Stainless steel	AISI 410
Gland Packing	Graphite	
Handwheel	Cast iron	

How to order: CODE

Gate valve (ANSI), bronze, NPT female threaded ends, union bonnet, pressure rating 200 lbs, SIZE DN

Unit Per Pc.

CODE	D	Size mm			Weight Kg
		L	H open	M	
75 72 01	1/4"	46	5.125	130	0.5
02	3/8"	48	5.125	130	0.6
03	1/2"	57	5.5	140	0.8
04	3/4"	64	6.25	159	1.0
05	1"	73	7.1875	183	1.4
75 72 06	1-1/4"	83	8.5625	218	2.0
07	1-1/2"	99	9.5625	243	2.9
08	2"	95	11.75	299	4.5

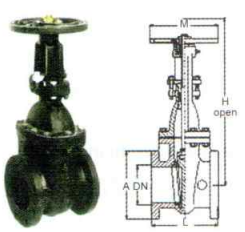
Gate Valves (ANSI)

Cast Iron, ASME Flanges
Pressure Rating 125 lbs

Válvula de Compuerta de Hierro Fundido (según ANSI)

ANSI 型鑄鉄仕切弁 ANSI型铸铁闸阀

Cast iron gate valves with solid wedge, bronze seats, pressure rating 125 lbs, full bore, rising stem, non-rising handwheel, bolted bonnet with yoke, flat flanges acc. to ASME B16.1 (125#), face to face acc. to ASME B16. 10, complies with requirements of MSS SP-70.



Pressure and Temperature Range

	0/20°C	178°C
2" - 12"	13.8 bar	8.6 bar
	125 lbs SWP and 200 lbs WOG (non-shock)	

Material Specification

Component	Material	US
Body	Cast iron	ASTM A126 Gr.B
Bonnet	Cast iron	ASTM A126 Gr.B
Wedge (2" – 3")	Bronze	ASTM B62
Wedge (4" – 12")	Cast iron	ASTM A126 Gr.B
Seats (Body)	Bronze	ASTM B62
Seats (Wedge)	Bronze	ASTM B62
Stem	Brass	
Gland	Cast iron	ASTM A126 gr.B
Gland Packing	Graphite	Graphite
Bonnet Gasket	Graphite	Graphite
Handwheel	Cast iron	

How to order: CODE

Gate valve (ANSI), cast iron, ASME flanges, pressure rating 125 lbs, SIZE DN

Unit Per Pc.

CODE	DN	Size mm			Weight Kg
		L	H open	M	
75 72 41	2"	178	381	178	19
42	2-1/2"	191	429	203	25
43	3"	203	476	203	34
44	4"	229	578	254	51
45	6"	267	765	305	77
75 72 46	8"	292	1,019	356	124
47	10"	330	1,226	406	218
48	12"	356	1,445	457	299

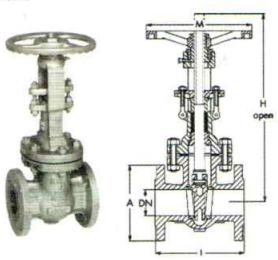
Gate Valves (ANSI)

Cast Steel, ASME Flanges
Pressure Rating 150 lbs and 300 lbs

Válvula de Compuerta de Acero a Carbono (según ANSI)

ANSI型鋳鋼仕切弁 ANSI型碳钢闸阀

Cast steel gate valves with flexible wedge, stainless steel seats, pressure rating 150 lbs and 300 lbs, full bore, rising stem, non-rising handwheel, bolted bonnet with yoke, flanged connection acc. to ASME B16.5 ("raised face – smooth finish"), face to face acc. to ASME B16.10. On request, supplied including EN 10204 3.1.B material and test certificate.



Application: steam, water, oil, vapours and gases.

Pressures and Temperature Range

ASTM A216 WCB

	-29/38°C	93°C	149°C	204°C	260°C	316°C	343°C
150 lbs	19.7 bar	17.9	15.9	13.8	11.7	9.7	8.6
300 lbs	51 bar	46.5	45.2	43.8	41.4	37.9	36.9
	371°C	399°C	427°C	454°C	482°C	510°C	538°C
150 lbs	7.6 bar	6.6	5.5	4.5	3.4	2.4	1.4
300 lbs	36.9 bar	34.8	28.3	18.6	11.7	7.2	3.4
	ASTM A216 WCB is not recommended for long-term duty above 426°C						

Material Specification

Component	Material	US
Pressure Rating 150 lbs		
Body and Bonnet	Cast steel	ASTM A216-WCB
Wedge (2" – 10")	Alloyed steel	ASTM A217-CA15
Wedge (12")	Steel, armoured	ASTM A216 WCB/13Cr armoured
Seats (Body)	Steel, stellited	ASTM A105 stellited
Stem	Stainless steel	ASTM A182-F6a
Gland Packing	Graphite	Graphite
Bonnet Gasket (SS insert)	Graphite	Graphite
Handwheel	Malleable cast iron	Malleable cast iron
Pressure Rating 300 lbs		
Body and Bonnet	Cast steel	ASTM A216-WCB
Wedge (2" – 8")	Alloyed steel	ASTM A217-CA15
Wedge (10 - 12")	Steel, armoured	ASTM A216 WCB/13Cr armoured
Seats (Body)	Steel, stellited	ASTM A105 stellited
Stem	Stainless steel	ASTM A182-F6a
Gland Packing	Graphite	Graphite
Bonnet Gasket 1) (SS insert)	Graphite	Graphite
Handwheel	Malleable cast iron	Malleable cast iron

1) Spiral wound gasket

Pressure Rating 150 lbs

How to order: CODE

Gate valve (ANSI), cast steel, ASME flanges, Pressure rating 150 lbs, SIZE DN

Unit Per Pc.

CODE	DN	Size mm			Weight Kg
		L	H open	M	
75 72 61	2"	178	387	200	18
62	3"	203	481	250	32
63	4"	229	585	300	50
64	6"	267	765	300	77
65	8"	292	956	350	121
75 72 66	10"	330	1,149	400	178
67	12"	356	1,351	450	265

Pressure Rating 300 lbs

How to order: CODE

Gate valve (ANSI), cast steel, ASME flanges, Pressure ratig 300 lbs, SIZE DN

Unit Per Pc.

CODE	DN	Size mm			Weight Kg
		L	H open	M	
75 72 71	2"	216	410	200	23
72	3"	283	509	250	50
73	4"	305	612	250	71
74	6"	403	805	350	144
75	8"	419	1,000	400	209
75 72 76	10"	457	1,209	450	322
77	12"	502	1,416	500	482

ANSI Check Valves

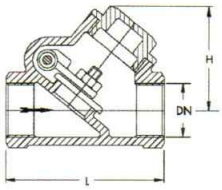
Check Valves (ANSI)

Bronze. NPT Female Threaded Ends, Swing Type

Válvulas de retención (ANSI), Bronce. Extremos roscados hembra NPT, tipo pivotante.
逆止弁（ANSI）、青銅 NPT 雌ネジ端、スイングタイプ
止回阀（ANSI）、青铜、NPT 内螺纹端，摆动式

Bronze swing type check valves, bronze seat NPT female threaded ends acc. to ANSI B1.20.1, reduced bore and threaded bonnet. Suitable for horizontal installation.
Application: Steam, water, oil, vapours and gases.





Pressure and Temperature Range

	0/65°C	218°C
1/2" - 2"	27.5 bar	13.7 bar
	200 lbs SWP and 425° F and 400 lbs WOG at 150° F (non-shock)	

Material Specification

Component	Material	US
Body	Bronze	ASTM B61
Bonnet	Bronze	ASTM B61
Seats (Body and Disc)	Bronze	ASTM B61
Disc	Bronze	ASTM B61
Bonnet Gasket	Asbestos-free	

How to order: CODE

Check valve (ANSI), bronze, NPT female threaded ends, swing type, SIZE DN

Unit Per Pc.

CODE	DN	Size mm		Weight Kg	CODE	DN	Size mm		Weight Kg
		L	H				L	H	
75 73 11	1/2"	41.3	44.5	0.22	**75 73 14**	1-1/4"	111.1	76.2	0.67
12	3/4"	76.2	49.2	0.33	**15**	1-1/2"	117.5	84.1	0.85
13	1"	93.7	63.5	0.48	**16**	2"	149.2	101.6	1.20

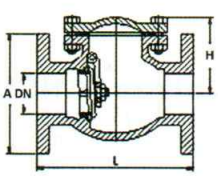
Check Valves (ANSI)

Cast Iron, ASME Flanges, Swing Type
Pressure Rating 125 lbs

Válvulas de retención (ANSI), Hierro fundido, Bridas ASME, Tipo Swing
逆止弁（ANSI）、鋳鉄、ASME フランジ、スイングタイプ
止回阀（ANSI）、铸铁，ASME 法兰，摆动式

Cast iron swing type check valves, bronze seat, pressure rating 125 lbs, straight pattern, full bore, bolted bonnet, flat faced flanges as per ASME B16.1 (125#), face to face as per ASME B16.10, complies with requirements of MSS SP-71 type 1.





Pressure and Temperature Range

	0/65°C	176°C
2" - 12"	13.8 bar	8.6 bar
	125 lbs SWP and 350° F and 200 lbs WOG at 150° F (non-shock)	

Material Specification

Component	Material	US
Body	Cast iron	ASTM A126 Gr.B
Bonnet	Cast iron	ASTM A126 Gr.B
Seat	Bronze	ASTM B62
Hinge Pin	Brass	
Hinge Arm	Cast iron	ASTM A126 Gr.B
Bonnet Gasket	Graphite	

Remark: 5" though 12" are manufactured with a cast iron disc with bronze sealing ring.

How to order: CODE

Check valve (ANSI), cast iron, ASME flanges, swing type, pressure rating 125 lbs, SIZE DN

Unit Per Pc.

CODE	DN	Size mm			Weight Kg
		L	A	H	
75 73 21	2"	203	152	100	19
28	2-1/2"	216	178	114	25
22	3"	241	191	130	34
23	4"	292	229	156	51
24	6"	356	279	203	77
75 73 25	8"	495	343	240	124
26	10"	622	406	306	218
27	12"	699	483	410	299

Check and Storm Valves (ANSI)

Cast Steel, ANSI Flanges, Swing Type
Pressure Rating 150 lbs

Válvulas antirretorno y antitormenta (ANSI), Acero fundido, bridas ANSI, tipo pivotante

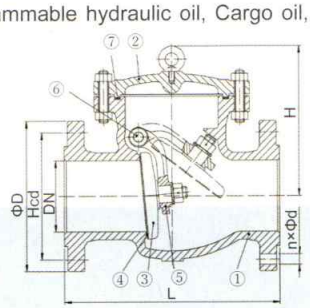
逆止弁及び波止弁（ANSI）、鋳鋼、ANSI フランジ、スイングタイプ

止回阀和风暴阀（ANSI）、铸钢，ANSI 法兰，摆动式

Cast steel swing type check valves, stainless steel seat, pressure rating 150 lbs, straight pattern, full bore, bolted bonnet, flange sizes acc. to ASME B 16.5 ("raised face – smooth finish") and face to face acc. to ASME B16.10.

Applications:
Fuel oil, Lubricating oil, Flammable hydraulic oil, Cargo oil, No-flammable hydraulic fluid, Boiler feedwater, Condensate, Sea water, Water.





Pressure and Temperature Range

	ANSI A216 WCB				
	-29/38°C	93°C	149°C	204°C	260°C
150 lbs	19.7 bar	17.9	15.9	13.8	11.7
	316°C	343°C	371°C	399°C	427°C
150 lbs	9.7	8.6	7.6	6.6	5.5

ANSI A216 WCB is not recommended for long-term duty above 426°C

Material Specification

Component	Material	US
Body	Cast steel	A216-WCB
Bonnet	Cast steel	A216-WCB
Disc	Cast steel	A216-WCB
Seat	Stainless steel	

Pressure Rating 150 lbs

How to order: CODE

Check and Storm valve (ANSI), cast steel, ANSI flanges, swing type, pressure rating 150 lbs, SIZE DN

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		Hcd	D	L	H	
75 73 31	50	120.7	150	203	161	17
75 74 98	65	139.7	180	216	180	23
75 73 32	80	152.4	190	241	190	33
33	100	190.5	230	292	220	44
34	150	241.3	280	356	257	78
75 73 35	200	298.5	345	495	292	137
36	250	362	405	622	350	207
37	300	431.8	485	699	398	279

MESON Model No. : 311.3.4.4.2

ANSI Strainers

Strainers (ANSI)

Cast Steel, Y-Type, ASME Flanges
Pressure Rating 150 lbs and 300 lbs

Filtros (ANSI), Bridas de acero fundido, tipo Y, ASME

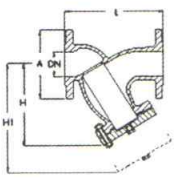
ストレーナ（ANSI）、鋳鋼、Y タイプ、ASME フランジ

过滤器（ANSI）、铸钢，Y 型，ASME 法兰

Application : steam, water, oil and other process liquids. Fitted with drain plug. On request, supplied including EN 10204 3.1B certificate.







Pressure and Temperature Range

	ASTM A216 WCB						
	-29/38°C	93°C	149°C	204°C	260°C	316°C	343°C
150 lbs	19.7 bar	17.9	15.9	13.8	11.7	9.7	8.6
300 lbs	51 bar	46.5	45.2	43.8	41.4	37.9	36.9
	371°C	399°C	427°C	454°C	482°C	510°C	538°C
150 lbs	7.6 bar	6.6	5.5	4.5	3.4	2.4	1.4
300 lbs	36.9 bar	34.8	28.3	18.6	11.7	7.2	3.4
	ASTM A216 WCB is not recommended for long-term duty above 426°C						

Material Specification

Component	Material	US
Body	Cast steel	ASTM A 216-WCB
Bolter Cover	Forged steel	ASTM A 105(N)
Drain Plug	Stainless steel	AISI 304
Strainer Screen	Stainless steel	AISI 304
Perforation Size 0.6 mm		

Pressure Rating 150 lbs

How to order: CODE

Strainer (ANSI), cast steel, Y-type, ASME flanges, pressure rating 150 lbs, SIZE DN

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		A	L	H	H1	
75 76 01	2"	152	203	205	340	12
02	3"	191	241	255	420	24
03	4"	229	292	300	500	40
04	6"	280	406	390	630	71
05	8"	343	495	490	780	120
75 76 06	10"	406	622	550	850	175
07	12"	483	699	640	1,000	260

Pressure Rating 300 lbs

Unit Per Pc.

CODE	DN	Size mm				Weight Kg
		A	L	H	H1	
75 76 11	2"	165	267	235	370	22
12	3"	210	318	285	460	37
13	4"	254	356	320	555	56
14	6"	318	445	420	745	116
15	8"	381	559	480	750	180
75 76 16	10"	445	622	600	1,000	271
17	12"	521	711	690	1,100	400

Capacity for Water in kg/hour at 20°C

P [bar]	DN [mm]									
	15	20	25	32	40	50	65	80	100	125
0.5	341	607	948	1,553	2,427	3,792	6,408	9,706	15,166	23,697
1	483	858	1,341	2,196	3,432	5,362	9,062	13,727	21,448	33,513
1.5	591	1051	1,642	2,690	4,203	6,567	11,098	16,812	26,268	41,044
2	682	1,213	1,896	3,106	4,853	7,583	12,815	19,412	30,332	47,394
3	836	1,486	2,322	3,804	5,944	9,287	15,695	23,775	37,148	58,044
4	965	1,716	2,681	4,393	6,863	10,724	18,124	27,453	42,896	67,025
5	1,079	1,918	2,997	4,911	7,673	11,990	20,262	30,693	47,958	
6	1,182	2,101	3,284	5,380	8,406	13,134	22,196	33,623	52,536	
7	1,277	2,270	3,547	5,811	9,079	14,187	23,975	36,317		
8	1,365	2,427	3,792	6,212	9,706	15,166	25,631	38,825		
9	1,448	2,574	4,021	6,589	10,295	16,086	27,184			
10	1,526	2,713	4,239	6,945	10,852	16,956	28,656			
11	1,601	2,845	4,446	7,284	11,381	17,784				
12	1,672	2,972	4,644	7,608	11,887	18,574				
13	1,740	3,093	4,833	7,919	12,373	19,333				
14	1,806	3,210	5,016	8,218	12,840	20,063				
15	1,869	3,323	5,192	8,506	13,291	20,767				
16	1,930	3,432	5,362							

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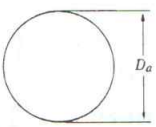
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77
Beaings

Bearings  P. 77-1 ~ 2	Single Row Deep Groove Radial Ball Bearings  P. 77-2 ~ 6
Single Row Angular Contact Ball Bearings  P. 77-6	Double Row Self-Aligning Ball Bearings  P. 77-6 ~ 8
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Bearings

Rodamientos　ベアリング　軸承

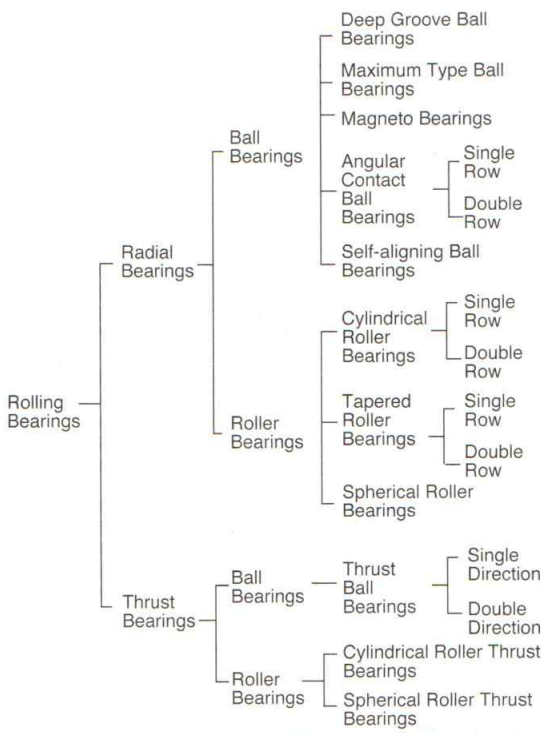
The necessary information for ordering a certain bearing type is almost always located on the bearing itself in the form of a bearing number. The bearings themselves may only have a basic number on the inner or outer ring but the outer cover or shield of the bearing will usually show the complete bearing number.

If there are several numbers marked on the bearing or the numbers have been worn out and are hard to read, the following numbers and sizes will help you in ordering the proper bearing. The bearing numbers can also be insightful as to what bearings can be used in the place of others in a situation where there are no spares. For example, double shield bearings can be used instead of single shield, or single shield bearings can be used instead of no shield, and snap ring bearings can be substituted for non snap ring bearings.

By showing the bearing numbers as well as prefixes and suffixes, the correct bearing size and construction may be obtained without sending the bearing ashore for identification or waiting until a vendor can board the ship.

Bearings should be kept in their original packing for easy identification and stored in a clean, dry place. If dirt gets mixed in with the workings of the bearings, the life of the bearings will be shortened. Therefore, only clean lubricants should be used with the bearings.

Tables for the Classification of All Bearings



Main Manufacturer's Suffix Table

Manufacturers	Manufacturers Abbreviation	One-side Metal Shielded	Two-side Metal Shielded	With Snap Ring Groove	With Groove & Snap Ring	One-side Rubber Sealed	Two-side Rubber Sealed
SKF Multitech AB, Sweden	SKF	Z	2Z	N	NR	RS	2RS
RHP Bearing Ltd. U.K.	RHP	Z	ZZ	N	NR	RS	2RS
FAG Kugelfischer Georg Schafer KGaA, Germany	FAG	Z	2Z	N	NR	RS	2RS
The Timken Corporation U.S.A.	Timken	D	DD	-	G	P	PP
Koyo Seiko Co., Ltd. Japan	KOYO	Z	ZZ	N	NR	RS	2RS
The Toyo Bearing MFG Co., Ltd. Japan	NTN	Z	ZZ	N	NR	LU	LLU
Nippon Seiko KK Japan	NSK	Z	ZZ	N	NR	DU	DDU

(to be continued)

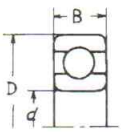
Summary of Ball & Roller Bearing

Type	Name	Light Duty	Medium Duty
Radial Bearing			
	Single Row Deep Groove Ball Bearing	6000 6200 6400 6800 6900 16000	6300
	Single Row Angular Contact Ball Bearing	7200	7300
	Double Row Self Aligning Ball Bearing	1200 1200K 2200 2200K	1300 1300K 2300 2300K
Radial Bearing			
	Cylindrical Roller Bearing	N200 NU200 NJ200 NF200	N300 NU300 NJ300 NF300 NH300
Ball & Roller Bearing			
	Tapered Roller Bearing	30200 32200	30300 32300
	Spherical Roller Bearing	22200 22200K	22300 22300K
	Needle Roller Bearing	NA4900	
Thrust Ball Bearing			
	Single Direction Trust Ball Bearing	51100 51200 53200 53200U	51300 53300 53300U
	Double Direction Trust Ball Bearing	52200 54200 54200U	52300 54300 54300U

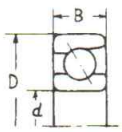
Ball & Roller Bearing (Light Duty)

Type & Main Size Table

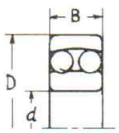
Rodamientos Rígidos de Bolas 深みぞ玉軸受 开式单列深槽滚珠轴承



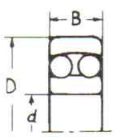
6200 Type



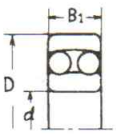
7200 Type



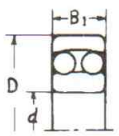
1200 Type



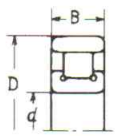
1200K Type



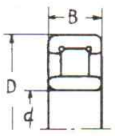
2200 Type



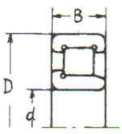
2200K Type



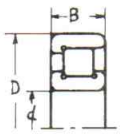
N200 Type



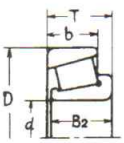
NU200 Type



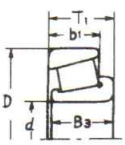
NJ200 Type



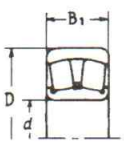
NF200 Type



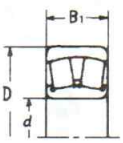
30200 Type



32200 Type



22200 Type

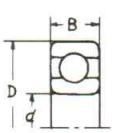


22200K Type

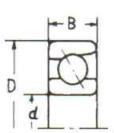
Unit: mm

No.	d	D	B	B_1	B_2	B_3	T	T_1
00	10	30	9	14				
01	12	32	10	14				
02	15	35	11	14				
03	17	40	12	16	12		13.25	
04	20	47	14	18	14		15.25	
05	25	52	15	18	15		16.25	
06	30	62	16	20	16	20	17.25	21.25
07	35	72	17	23	17	23	18.25	24.25
08	40	80	18	23	18	23	19.75	24.75
09	45	85	19	23	19	23	20.75	24.75
10	50	90	20	23	20	23	21.75	24.75
11	55	100	21	25	21	25	22.75	26.75
12	60	110	22	28	22	28	23.75	29.75
13	65	120	23	31	23	31	24.75	32.75
14	70	125	24	31	24	31	26.75	33.25
15	75	130	25	31	25	31	27.25	33.25
16	80	145	26	33	26	33	28.25	33.25
17	85	150	28	36	28	36	30.5	38.5
18	90	160	30	40	30	40	32.5	42.5
19	95	170	32	43	32	43	34.5	45.5
20	100	180	34	46	34	46	37	49

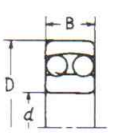
Ball & Roller Bearing (Medium Duty)
Type & Main Size Table



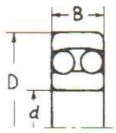
6300 Type



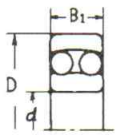
7300 Type



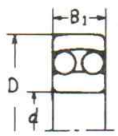
1300 Type



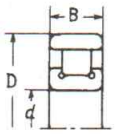
1300K Type



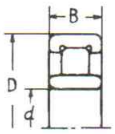
2300 Type



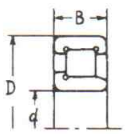
2300K Type



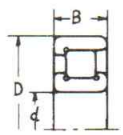
N300 Type



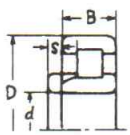
NU300 Type



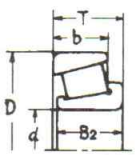
NJ300 Type



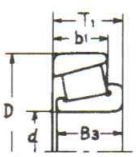
NF300 Type



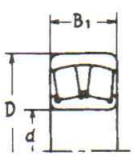
NH300 Type



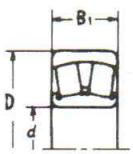
30300 Type



32300 Type



22300 Type



22300K Type

Unit: mm

No.	d	D	B	B_1	B_2	B_3	T	T_1
00	10	35	11	17				
01	12	37	12	17				
02	15	42	13	17	13		14.25	
03	17	47	14	19	14		15.25	
04	20	52	15	21	15		16.25	
05	25	62	17	24	17	24	18.25	25.25
06	30	72	19	27	19	27	20.75	28.75
07	35	80	21	31	21	31	22.75	32.75
08	40	90	23	33	23	33	25.25	35.25
09	45	100	25	36	25	36	27.25	38.25
10	50	110	27	40	27	40	29.25	42.25
11	55	120	29	43	29	43	31.5	45.5
12	60	130	31	46	31	46	33.5	48.5
13	65	140	33	48	33	48	36	51
14	75	150	35	51	35	51	38	54
15	75	160	37	55	37	55	40	58
16	80	170	39	58	39	58	42.5	61.5
17	85	180	41	60	41	60	44.5	63.5
18	90	190	43	64	43	64	46.5	67.5
19	95	200	45	67	45	67	49.5	71.5
20	100	215	47	73	47	73	51.5	77.5

Single Row Deep Groove Radial Ball Bearings

Rodamientos Rígidos de Bolas

深みぞ玉軸受　开式单列深槽滚珠轴承

These are the most widely used ball bearing types which incorporate deep, uninterrupted raceways making the bearing suitable for radial loads or a combination of radial and thrust loads in either direction. The simple symmetrical design of these bearings makes them easy to refine to super-precision tolerance for operations at high speed.

Suffixes for Bearings

NO SUFFIX	Open type
Z	One-side metal shielded
ZZ	Two-side metal shielded
N	With snap ring groove
NR	With groove & snap ring
ZNR	One-side metal shielded with snap ring
LU or RS	One-side rubber sealed
LLU or 2RS.....	Two-side rubber sealed
C3	Radial clearance larger than normal
M	Machined brass cage, ball riding
N	Circular groove for snap ring
RSR.....	One seal
T	Moulded snap type cage of glass-fibre reinforced polyamide
ZR.....	One shield
ZRN	One shield•circular groove for snap ring
2RSR.....	Two seals
2ZR.....	Two shields
2ZRN	Two shields•circular groove for snap ring

Series 6000 Open Type



Unit Per Pc.

Series 6000 Open Type

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 01 01	6000	10	26	8	**77 01 17**	6016	80	125	22
02	01	12	28	8	**18**	17	85	130	22
03	02	15	32	9	**19**	18	90	140	24
04	03	17	35	10	**20**	19	95	145	24
05	04	20	42	12	**21**	20	100	150	24
77 01 06	6005	25	47	12	**77 01 22**	6021	105	160	26
07	06	30	55	13	**23**	22	110	170	28
08	07	35	62	14	**24**	24	120	180	28
09	08	40	68	15	**25**	26	130	200	33
10	09	45	75	16	**26**	28	140	210	33
77 01 11	6010	50	80	16	**77 01 27**	6030	150	225	35
12	11	55	90	18	**28**	32	160	240	38
13	12	60	95	18	**29**	34	170	260	42
14	13	65	100	18	**30**	36	180	280	46
15	14	70	110	20	**31**	38	190	290	46
77 01 16	6015	75	115	20	**77 01 32**	6040	200	310	51

Series 6000Z One Side Shielded



Unit Per Pc.

Series 6000Z One-Side Metal Shielded

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 01 41	6000Z	10	26	8	**77 01 49**	6008Z	40	68	15
42	01Z	12	28	8	**50**	09Z	45	75	16
43	02Z	15	32	9	**51**	10Z	50	80	16
44	03Z	17	35	10	**52**	11Z	55	90	18
45	04Z	20	42	12	**53**	12Z	60	95	18
77 01 46	6005Z	25	47	12	**77 01 54**	6013Z	65	100	18
47	06Z	30	55	13	**55**	14Z	70	110	20
48	07Z	35	62	14	**56**	15Z	75	115	20

Series 6000ZZ Two-Side Shielded



Unit Per Pc.

Series 6000ZZ Two-Side Metal Shielded

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 01 61	6000ZZ	10	26	8	**77 01 69**	6008ZZ	40	68	15
62	01ZZ	12	28	8	**70**	09ZZ	45	75	16
63	02ZZ	15	32	9	**71**	10ZZ	50	80	16
64	03ZZ	17	35	10	**72**	11ZZ	55	90	18
65	04ZZ	20	42	12	**73**	12ZZ	60	95	18
77 01 66	6005ZZ	25	47	12	**77 01 74**	6013ZZ	65	100	18
67	06ZZ	30	55	13	**75**	14ZZ	70	110	20
68	07ZZ	35	62	14	**76**	15ZZ	75	115	20

Series 6200 Open Type



Unit Per Pc.

Series 6200 Open Type

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 02 01	6200	10	30	9	**77 02 16**	6215	75	130	25
02	01	12	32	10	**17**	16	80	140	26
03	02	15	35	11	**18**	17	85	150	28
04	03	17	40	12	**19**	18	90	160	30
05	04	20	47	14	**20**	19	95	170	32
77 02 06	6205	25	52	15	**77 02 21**	6220	100	180	34
07	06	30	62	16	**22**	21	105	190	36
08	07	35	72	17	**23**	22	110	200	38
09	08	40	80	18	**24**	24	120	215	40
10	09	45	85	19	**25**	26	130	230	40
77 02 11	6210	50	90	20	**77 02 26**	6228	140	250	42
12	11	55	100	21	**27**	30	150	270	45
13	12	60	110	22					
14	13	65	120	23					
15	14	70	125	24					

Series 6200Z One-Side Shielded



Unit Per Pc.

Series 6200Z One-Side Metal Shielded

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 02 31	6200Z	10	30	9	**77 02 39**	6208Z	40	80	18
32	01Z	12	32	10	**40**	09Z	45	85	19
33	02Z	15	35	11	**41**	10Z	50	90	20
34	03Z	17	40	12	**42**	11Z	55	100	21
35	04Z	20	47	14	**43**	12Z	60	110	22
77 02 36	6205Z	25	52	15	**77 02 44**	6213Z	65	120	23
37	06Z	30	62	16	**45**	14Z	70	125	24
38	07Z	35	72	17	**46**	15Z	75	130	25

Series 6200ZZ Two-Side Shielded



Unit Per Pc.

Series 6200ZZ Two-Side Metal Shielded

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 02 51	6200ZZ	10	30	9	**77 02 59**	6208ZZ	40	80	18
52	01ZZ	12	32	10	**60**	09ZZ	45	85	19
53	02ZZ	15	35	11	**61**	10ZZ	50	90	20
54	03ZZ	17	40	12	**62**	11ZZ	55	100	21
55	04ZZ	20	47	14	**63**	12ZZ	60	110	22
77 02 56	6205ZZ	25	52	15	**77 02 64**	6213ZZ	65	120	23
57	06ZZ	30	62	16	**65**	14ZZ	70	125	24
58	07ZZ	35	72	17	**66**	15ZZ	75	130	25

Series 6200RS One-side Sealed



Unit Per Pc.

Series 6200RS One-Side Rubber Sealed

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 02 71	6200RS	10	30	9	**77 02 79**	6208RS	40	80	18
72	01RS	12	32	10	**80**	09RS	45	85	19
73	02RS	15	35	11	**81**	10RS	50	90	20
74	03RS	17	40	12	**82**	11RS	55	100	21
75	04RS	20	47	14	**83**	12RS	60	110	22
77 02 76	6205RS	25	52	15	**77 02 84**	6213RS	65	120	23
77	06RS	30	62	16	**85**	14RS	70	125	24
78	07RS	35	72	17	**86**	15RS	75	130	25

Series 6200-2RS Two-Side Sealed



Unit Per Pc.

Series 6200-2RS Two-Side Rubber Sealed

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 03 01	6200-2RS	10	30	9	**77 03 09**	6208-2RS	40	80	18
02	01-2RS	12	32	10	**10**	09-2RS	45	85	19
03	02-2RS	15	35	11	**11**	10-2RS	50	90	20
04	03-2RS	17	40	12	**12**	11-2RS	55	100	21
05	04-2RS	20	47	14	**13**	12-2RS	60	110	22
77 03 06	6205-2RS	25	52	15	**77 03 14**	6213-2RS	65	120	23
07	06-2RS	30	62	16	**15**	14-2RS	70	125	24
08	07-2RS	35	72	17	**16**	15-2RS	75	130	25

Series 6300 Open Type

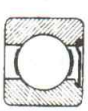


Unit Per Pc.

Series 6300 Open Type

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 03 21	6300	10	35	11	**77 03 35**	6314	70	150	35
22	01	12	37	12	**36**	15	75	160	37
23	02	15	42	13	**37**	16	80	170	39
24	03	17	47	14	**38**	17	85	180	41
25	04	20	52	15	**39**	18	90	190	43
77 03 26	6305	25	62	17	**77 03 40**	6019	95	200	45
27	06	30	72	19	**41**	20	100	215	47
28	07	35	80	21	**42**	21	105	225	49
29	08	40	90	23	**43**	22	110	240	50
30	09	45	100	25	**44**	24	120	260	55
77 03 31	6310	50	110	27	**77 03 45**	6326	130	280	58
32	11	55	120	29	**46**	28	140	300	62
33	12	60	130	31	**47**	30	150	320	65
34	13	65	140	33					

Series 6300Z One-Side Shielded



Unit Per Pc.

Series 6300Z One-Side Metal Shielded

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 03 51	6300Z	10	35	11	**77 03 59**	6308Z	40	90	23
52	01Z	12	37	12	**60**	09Z	45	100	25
53	02Z	15	42	13	**61**	10Z	50	110	27
54	03Z	17	47	14	**62**	11Z	55	120	29
55	04Z	20	52	15	**63**	12Z	60	130	31
77 03 56	6305Z	25	62	17	**77 03 64**	6313Z	65	140	33
57	06Z	30	72	19	**65**	14Z	70	150	35
58	07Z	35	80	21	**66**	15Z	75	160	37

Series 6300ZZ Two-Side Shielded



Unit Per Pc.

Series 6300ZZ Two-Side Metal Shielded

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 03 71	6300ZZ	10	35	11	**77 03 79**	6308ZZ	40	90	23
72	01ZZ	12	37	12	**80**	09ZZ	45	100	25
73	02ZZ	15	42	13	**81**	10ZZ	50	110	27
74	03ZZ	17	47	14	**82**	11ZZ	55	120	29
75	04ZZ	20	52	15	**83**	12ZZ	60	130	31
77 03 76	6305ZZ	25	62	17	**77 03 84**	6313ZZ	65	140	33
77	06ZZ	30	72	19	**85**	14ZZ	70	150	35
78	07ZZ	35	80	21	**86**	15ZZ	75	160	37

Series 6300RS One-Side Sealed



Unit Per Pc.

Series 6300RS One-Side Sealed

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 04 01	6300RS	10	35	11	**77 04 09**	6308RS	40	90	23
02	01RS	12	37	12	**10**	09RS	45	100	25
03	02RS	15	42	13	**11**	10RS	50	110	27
04	03RS	17	47	14	**12**	11RS	55	120	29
05	04RS	20	52	15	**13**	12RS	60	130	31
77 04 06	6305RS	25	62	17	**77 04 14**	6213RS	65	140	33
07	06RS	30	72	19	**15**	14RS	70	150	35
08	07RS	35	80	21	**16**	15RS	75	160	37

Series 6300-2RS Two-Side Sealed



Unit Per Pc.

Series 6300-2RS Two-Side Sealed

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 04 21	6300-2RS	10	35	11	**77 04 29**	6308-2RS	40	90	23
22	01-2RS	12	37	12	**30**	09-2RS	45	100	25
23	02-2RS	15	42	13	**31**	10-2RS	50	110	27
24	03-2RS	17	47	14	**32**	11-2RS	55	120	29
25	04-2RS	20	52	15	**33**	12-2RS	60	130	31
77 04 26	6305-2RS	25	62	17	**77 04 34**	6313-2RS	65	140	33
27	06-2RS	30	72	19	**35**	14-2RS	70	150	35
28	07-2RS	35	80	21	**36**	15-2RS	75	160	37

Series 6400 Open Type



Unit Per Pc.

Series 6400 Open Type

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 04 41	6403	17	62	17	**77 04 49**	6411	55	140	33
42	04	20	72	19	**50**	12	60	150	35
43	05	25	80	21	**51**	13	65	160	37
44	06	30	90	23	**52**	14	70	180	42
45	07	35	100	25	**53**	15	75	190	45
77 04 46	6208	40	110	27	**77 04 54**	6416	80	200	48
47	09	45	120	29	**55**	17	85	210	52
48	10	50	130	31	**56**	18	90	225	54

Series 600-620-630 Open Type



Unit Per Pc.

Series 600-620-630 Open Type

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 04 61	634	4	16	5	**77 04 64**	627	7	22	7
62	635	5	19	6	**65**	608	8	22	7
63	626	6	19	6	**66**	629	9	26	8

Bearings
Single Row Deep Groove

Rodamientos, Ranura Profunda de una Hilera
単列深溝ベアリング　単列深沟球轴承

Series 6000 C3

Open Type and radial clearance is larger than normal series 6000.

Unit Per Pc.

Series 6000 C3 Open Type

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 05 01	6000 C3	10	26	8	**77 05 17**	6016 C3	80	125	22
02	6001 C3	12	28	8	**18**	6017 C3	85	130	22
03	6002 C3	15	32	9	**19**	6018 C3	90	140	24
04	6003 C3	17	35	10	**20**	6019 C3	90	145	24
05	6004 C3	20	42	12	**21**	6020 C3	100	150	24
77 05 06	6005 C3	25	47	12	**77 05 22**	6021 C3	105	160	26
07	6006 C3	30	55	13	**23**	6022 C3	110	170	28
08	6007 C3	35	62	14	**24**	6024 C3	120	180	28
09	6008 C3	40	68	15	**25**	6026 C3	130	200	33
10	6009 C3	45	75	16	**26**	6028 C3	140	210	33
77 05 11	6010 C3	50	80	16	**77 05 27**	6030 C3	150	225	35
12	6011 C3	55	90	18	**28**	6032 C3	160	240	38
13	6012 C3	60	95	18	**29**	6034 C3	170	260	42
14	6013 C3	65	100	18	**30**	6036 C3	180	280	46
15	6014 C3	70	110	20	**31**	6038 C3	190	290	46
77 05 16	6015 C3	75	115	20	**77 05 32**	6040 C3	200	310	51

Series 6000Z C3

One-Side Shielded and radial clearance is larger than normal series 6000Z.

Unit Per Pc.

Series 6000Z C3 One-Side Metal Shielded

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 05 41	6000Z C3	10	26	8	**77 05 49**	6008Z C3	40	68	15
42	6001Z C3	12	28	8	**50**	6009Z C3	45	75	16
43	6002Z C3	15	32	9	**51**	6010Z C3	50	80	16
44	6003Z C3	17	35	10	**52**	6011Z C3	55	90	18
45	6004Z C3	20	42	12	**53**	6012Z C3	60	95	18
77 05 46	6005Z C3	25	47	12	**77 05 54**	6013Z C3	65	100	18
47	6006Z C3	30	55	13	**55**	6014Z C3	70	110	20
48	6007Z C3	35	62	14	**56**	6015Z C3	75	115	20

Series 6000ZZ C3

Two-Side Shielded and radial clearance is larger than normal series 6000ZZ.

Unit Per Pc.

Series 6000ZZ C3 Two-Side Metal Shielded

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 05 61	6000ZZ C3	10	26	8	**77 05 69**	6008ZZ C3	40	68	15
62	6001ZZ C3	12	28	8	**70**	6009ZZ C3	45	75	16
63	6002ZZ C3	15	32	9	**71**	6010ZZ C3	50	80	16
64	6003ZZ C3	17	35	10	**72**	6011ZZ C3	55	90	18
65	6004ZZ C3	20	42	12	**73**	6012ZZ C3	60	95	18
77 05 66	6005ZZ C3	25	47	12	**77 05 74**	6013ZZ C3	65	100	18
67	6006ZZ C3	30	55	13	**75**	6014ZZ C3	70	110	20
68	6007ZZ C3	35	62	14	**76**	6015ZZ C3	75	115	20

Series 6200 C3

Open Type and radial clearance is larger than normal series 6200.

Unit Per Pc.

Series 6200 C3 Open Type

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 06 01	6200 C3	10	30	9	**77 06 16**	6215 C3	75	130	25
02	6201 C3	12	32	10	**17**	6216 C3	80	140	26
03	6202 C3	15	35	11	**18**	6217 C3	85	150	28
04	6203 C3	17	40	12	**19**	6218 C3	90	160	30
05	6204 C3	20	47	14	**20**	6219 C3	95	170	32
77 06 06	6205 C3	25	52	15	**77 06 21**	6220 C3	100	180	34
07	6206 C3	30	62	16	**22**	6221 C3	105	190	36
08	6207 C3	35	72	17	**23**	6222 C3	110	200	38
09	6208 C3	40	80	18	**24**	6224 C3	120	215	40
10	6209 C3	45	85	19	**25**	6226 C3	130	230	40
77 06 11	6210 C3	50	90	20	**77 06 26**	6228 C3	140	250	42
12	6211 C3	55	100	21	**27**	6230 C3	150	270	45
13	6212 C3	60	110	22					
14	6213 C3	65	120	23					
15	6214 C3	70	125	24					

Series 6200Z C3

One-Side Shielded and radial clearance is larger than normal series 6200Z.

Unit Per Pc.

Series 6200Z C3 One-Side Metal Shielded

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 06 31	6200Z C3	10	30	9	**77 06 39**	6208Z C3	40	80	18
32	6201Z C3	12	32	10	**40**	6209Z C3	45	85	19
33	6202Z C3	15	35	11	**41**	6210Z C3	50	90	20
34	6203Z C3	17	40	12	**42**	6211Z C3	55	100	21
35	6204Z C3	20	47	14	**43**	6212Z C3	60	110	22
77 06 36	6205Z C3	25	52	15	**77 06 44**	6213Z C3	65	120	23
37	6206Z C3	30	62	16	**45**	6214Z C3	70	125	24
38	6207Z C3	35	72	17	**46**	6215Z C3	75	130	25

Series 6200ZZ C3

Two-Side Shielded and radial clearance is larger than normal series 6200ZZ.

Unit Per Pc.

Series 6200ZZ C3 Two-Side Metal Shielded

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 06 51	6200ZZ C3	10	30	9	**77 06 59**	6208ZZ C3	40	80	18
52	6201ZZ C3	12	32	10	**60**	6209ZZ C3	45	85	19
53	6202ZZ C3	15	35	11	**61**	6210ZZ C3	50	90	20
54	6203ZZ C3	17	40	12	**62**	6211ZZ C3	55	100	21
55	6204ZZ C3	20	47	14	**63**	6212ZZ C3	60	110	22
77 06 56	6205ZZ C3	25	52	15	**77 06 64**	6213ZZ C3	65	120	23
57	6206ZZ C3	30	62	16	**65**	6214ZZ C3	70	125	24
58	6207ZZ C3	35	72	17	**66**	6215ZZ C3	75	130	25

Series 6300 C3

Open Type and radial clearance is larger than normal series 6300.

Unit Per Pc.

Series 6300 C3 Open Type

CODE	Bearing No.	Dimensions mm			CODE	Bearing No.	Dimensions mm		
		I.D.	O.D.	Thick			I.D.	O.D.	Thick
77 07 01	6300 C3	10	35	11	**77 07 16**	6315 C3	75	160	37
02	6301 C3	12	37	12	**17**	6316 C3	80	170	39
03	6302 C3	15	42	13	**18**	6317 C3	85	180	41
04	6303 C3	17	47	14	**19**	6318 C3	90	190	43
05	6304 C3	20	52	15	**20**	6319 C3	95	200	45

(to be continued)

Unit Per Pc.

Series 6300 C3 Open Type

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 07 06	6305 C3	25	62	17	**77 07 21**	6320 C3	100	215	47
07	6306 C3	30	72	19	**22**	6321 C3	105	225	49
08	6307 C3	35	80	21	**23**	6322 C3	110	240	50
09	6308 C3	40	90	23	**24**	6324 C3	120	260	55
10	6309 C3	45	100	25	**25**	6326 C3	130	280	58
77 07 11	6310 C3	50	110	27	**77 07 26**	6328 C3	140	300	62
12	6311 C3	55	120	29	**27**	6330 C3	150	320	65
13	6312 C3	60	130	31					
14	6313 C3	65	140	33					
15	6314 C3	70	150	35					

Series 6300Z C3

One-Side Shielded and radial clearance is larger than normal series 6300Z.

Unit Per Pc.

Series 6300Z C3 One-Side Metal Shielded

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 07 31	6300Z C3	10	35	11	**77 07 39**	6308Z C3	40	90	23
32	6301Z C3	12	37	12	**40**	6309Z C3	45	100	25
33	6302Z C3	15	42	13	**41**	6310Z C3	50	110	27
34	6303Z C3	17	47	14	**42**	6311Z C3	55	120	29
35	6304Z C3	20	52	15	**43**	6312Z C3	60	130	31
77 07 36	6305Z C3	25	62	17	**77 07 44**	6313Z C3	65	140	33
37	6306Z C3	30	72	19	**45**	6314Z C3	70	150	35
38	6307Z C3	35	80	21	**46**	6315Z C3	75	160	37

Series 6300ZZ C3

Two-Side Shielded and radial clearance is larger than normal series 6300ZZ.

Unit Per Pc.

Series 6300ZZ C3 Two-Side Metal Shielded

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 07 51	6300ZZ C3	10	35	11	**77 07 59**	6308ZZ C3	40	90	23
52	6301ZZ C3	12	37	12	**60**	6309ZZ C3	45	100	25
53	6302ZZ C3	15	42	13	**61**	6310ZZ C3	50	110	27
54	6303ZZ C3	17	47	14	**62**	6311ZZ C3	55	120	29
55	6304ZZ C3	20	52	15	**63**	6312ZZ C3	60	130	31
77 07 56	6305ZZ C3	25	62	17	**77 07 64**	6313ZZ C3	65	140	33
57	6306ZZ C3	30	72	19	**65**	6314ZZ C3	70	150	35
58	6307ZZ C3	35	80	21	**66**	6315ZZ C3	75	160	37

Series 6400 C3

Open Type and radial clearance is larger than normal series 6400.

Unit Per Pc.

Series 6400 C3 Open Type

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 07 71	6403 C3	17	62	17	**77 07 79**	6411 C3	55	140	33
72	6404 C3	20	72	19	**80**	6412 C3	60	150	35
73	6405 C3	25	80	21	**81**	6413 C3	65	160	37
74	6406 C3	30	90	23	**82**	6414 C3	70	180	42
75	6407 C3	35	100	25	**83**	6415 C3	75	190	45
77 07 76	6408 C3	40	110	27	**77 07 84**	6416 C3	80	200	48
77	6409 C3	45	120	29	**85**	6417 C3	85	210	52
78	6410 C3	50	130	31	**86**	6418 C3	90	225	54

Single Row Angular Contact Ball Bearings

Rodamientos de Bolas con Contacto Angular

単列アンギュラ型玉軸受　単列向心推力滚珠轴承

The raceways of these bearings have a high shoulder on one side and a very low shoulder on the other side and the inner and outer raceways are assembled opposite to each other so that the bearings are primarily designated to carry thrust load in one direction. This construction permits use of the optimum number and size of balls for maximum load capacity. Since these bearings will carry thrust load in one direction only, they are usually mounted in a pair opposed to each other and the axial clearance is adjusted by shims, threaded members, or preloading springs. The standard contact angle is 30° and bearings made to 40° contact angle have the suffix "B".

Series 7200

30° Angular Contact



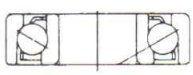
Unit Per Pc.

Series 7200-30° Angular Contact

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 08 01	7200	10	30	9	**77 08 12**	7211	55	100	21
02	7201	12	32	10	**13**	7212	60	110	22
03	7202	15	35	11	**14**	7213	65	120	23
04	7203	17	40	12	**15**	7214	70	125	24
05	7204	20	47	14	**16**	7215	75	130	25
77 08 06	7205	25	52	15	**77 08 17**	7216	80	140	26
07	7206	30	62	16	**18**	7217	85	150	28
08	7207	35	72	17	**19**	7218	90	160	30
09	7208	40	80	18	**20**	7219	95	170	32
10	7209	45	85	19	**21**	7220	100	180	34
77 08 11	7210	50	90	20	**77 08 22**	7221	105	190	36

Series 7300

30° Angular Contact



Unit Per Pc.

Series 7300-30° Angular Contact

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 08 31	7300	10	35	11	**77 08 42**	7311	55	120	29
32	01	12	37	12	**43**	7312	60	130	31
33	02	15	42	13	**44**	7313	65	140	33
34	03	17	47	14	**45**	7314	70	150	35
35	04	20	52	15	**46**	7315	75	160	37
77 08 36	7305	25	62	17	**77 08 47**	7316	80	170	39
37	06	30	72	19	**48**	7317	85	180	41
38	07	35	80	21	**49**	7318	90	190	43
39	08	40	90	23	**50**	7319	95	200	45
40	09	45	100	25	**51**	7320	100	215	47
77 08 41	7310	50	110	27	**77 08 52**	7321	105	225	49

Double Row Self-Aligning Ball Bearings

Auto-Alineamiento, Doble Fila/Rodamientos de bolas a Rótula

複列自動調心型玉軸受　双排自动定心滚珠轴承

This design of bearing utilizes two rows of balls with the inner ring having two deep groove raceways while the outer ring has a single continuous spherical raceway. This permits the inner and outer rings to be misaligned relative to each other through a comparatively large angle without imposing moment loads upon the balls. This bearing is frequently used when the inner ring is to be mounted upon an adapter sleeve or when conditions in the machine make it difficult to assure accurate alignment of the inner and outer rings. The boundary dimensions of 1200 and 1300 series are identical with those of 6200 and 6300 single row deep groove bearings. Due to the small contact angle, the thrust capacity of these bearings is limited.

Series 1200-Cylindrical Bore

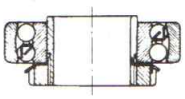


Unit Per Pc.

Series 1200-Cylindrical Bore

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 10 01	1200	10	30	9	**77 10 13**	1212	60	110	22
02	1201	12	32	10	**14**	1213	65	120	23
03	1202	15	35	11	**15**	1214	70	125	24
04	1203	17	40	12	**16**	1215	75	130	25
05	1204	20	47	14	**17**	1216	80	140	26
77 10 06	1205	25	52	15	**77 10 18**	1217	85	150	28
07	1206	30	62	16	**19**	1218	90	160	30
08	1207	35	72	17	**20**	1219	95	170	32
09	1208	40	80	18	**21**	1220	100	180	34
10	1209	45	85	19	**22**	1221	105	190	36
77 10 11	1210	50	90	20	**77 10 23**	1222	110	200	38
12	1211	55	100	21					

Series 1200K-1/12 Tapered Bore



These types of bearings have to be used with adapter sleeves.

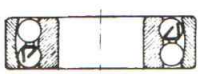
Unit Per Pc.

Series 1200K–1/12 Tapered Bore

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 10 31	1204K	20	47	14	**77 10 40**	1213K	65	120	23
32	1205K	25	52	15	**41**	1215K	75	130	25
33	1206K	30	62	16	**42**	1216K	80	140	26
34	1207K	35	72	17	**43**	1217K	85	150	28
35	1208K	40	80	18	**44**	1218K	90	160	30
77 10 36	1209K	45	85	19	**77 10 45**	1219K	95	170	32
37	1210K	50	90	20	**46**	1220K	100	180	34
38	1211K	55	100	21	**47**	1222K	110	200	38
39	1212K	60	110	22					

* K means 1/12 tapered bore bearing.

Series 1300-Cylindrical Bore

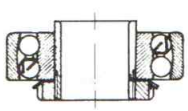


Unit Per Pc.

Series 1300-Cylindrical Bore

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 10 51	1300	10	35	11	**77 10 63**	1312	60	130	31
52	1301	12	37	12	**64**	1313	65	140	33
53	1302	15	42	13	**65**	1314	70	150	35
54	1303	17	47	14	**66**	1315	75	160	37
55	1304	20	52	15	**67**	1316	80	170	39
77 10 56	1305	25	62	17	**77 10 68**	1317	85	180	41
57	1306	30	72	19	**69**	1318	90	190	43
58	1307	35	80	21	**70**	1319	95	200	45
59	1308	40	90	23	**71**	1320	100	215	47
60	1309	45	100	25	**72**	1321	105	225	49
77 10 61	1310	50	110	27	**77 10 73**	1322	110	240	50
62	1311	55	120	29					

Series 1300K–1/12 Tapered Bore



These types of bearings have to be used with adapter sleeves.

Unit Per Pc.

Series 1300K–1/12 Tapered Bore

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 10 81	1304K	20	52	15	**77 10 90**	1313K	65	140	33
82	1305K	25	62	17	**91**	1315K	75	160	37
83	1306K	30	72	19	**92**	1316K	80	170	39
84	1307K	35	80	21	**93**	1317K	85	180	41
85	1308K	40	90	23	**94**	1318K	90	190	43

(to be continued)

77 10 86	1309K	45	100	25	**77 10 95**	1319K	95	200	45
87	1310K	50	110	27	**96**	1320K	100	215	47
88	1311K	55	120	29	**97**	1322K	110	240	50
89	1312K	60	130	31					

Series 2200-Cylindrical Bore

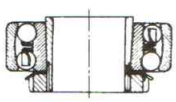


Unit Per Pc.

Series 2200–Cylindrical Bore

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 11 01	2200	10	30	14	**77 11 13**	2212	60	100	28
02	2201	12	32	14	**14**	2213	65	120	31
03	2202	15	35	14	**15**	2214	70	125	31
04	2203	17	40	16	**16**	2215	75	130	31
05	2204	20	47	18	**17**	2216	80	140	33
77 11 06	2205	25	52	18	**77 11 18**	2217	85	150	36
07	2206	30	62	20	**19**	2218	90	160	40
08	2207	35	72	23	**20**	2219	95	170	43
09	2208	40	80	23	**21**	2220	100	180	46
10	2209	45	85	23	**22**	2221	105	190	50
77 11 11	2210	50	90	23	**77 11 23**	2222	110	200	53
12	2211	55	100	25					

Series 2200K-1/12 Tapered Bore



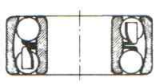
This type bearing must have an adapter sleeve when in use.

Unit Per Pc.

Series 2200K–1/12 Tapered Bore

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 11 31	2204K	20	47	18	**77 11 40**	2213K	65	120	31
32	2205K	25	52	18	**41**	2215K	75	130	31
33	2206K	30	62	20	**42**	2216K	80	140	33
34	2207K	35	72	23	**43**	2217K	85	150	36
35	2208K	40	80	23	**44**	2218K	90	160	40
77 11 36	2209K	45	85	23	**77 11 45**	2219K	95	170	43
37	2210K	50	90	23	**46**	2220K	100	180	46
38	2211K	55	100	25	**47**	2222K	110	200	53
39	2212K	60	110	28					

Series 2300-Cylindrical Bore

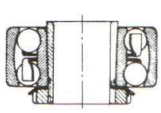


Unit Per Pc.

Series 2300-Cylindrical Bore

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 11 51	2300	10	35	17	**77 11 63**	2312	60	130	46
52	2301	12	37	17	**64**	2313	65	140	48
53	2302	15	42	17	**65**	2314	70	150	51
54	2303	17	47	19	**66**	2315	75	160	55
55	2304	20	52	21	**67**	2316	80	170	58
77 11 56	2305	25	62	24	**77 11 68**	2317	85	180	60
57	2306	30	72	27	**69**	2318	90	190	64
58	2307	35	80	31	**70**	2319	95	200	67
59	2308	40	90	33	**71**	2320	100	215	73
60	2309	45	100	36	**72**	2321	105	225	77
77 11 61	2310	50	110	40	**77 11 73**	2322	110	240	80
62	2311	55	120	43					

Series 2300K-1/12 Tapered Bore



This type bearing must have adapter sleeves when in use.

Unit Per Pc.

Series 2300K–1/12 Tapered Bore

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 11 81	2304K	20	52	21	**77 11 90**	2313K	65	140	48
82	2305K	25	62	24	**91**	2315K	75	160	55
83	2306K	30	72	27	**92**	2316K	80	170	58
84	2307K	35	80	31	**93**	2317K	85	180	60
85	2308K	40	90	33	**94**	2318K	90	190	64
77 11 86	2309K	45	100	36	**77 11 95**	2319K	95	200	67
87	2310K	50	110	40	**96**	2320K	100	215	73
88	2311K	55	120	43	**97**	2322K	110	240	80
89	2312K	60	130	46					

Cylindrical Roller Bearings

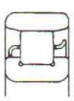


Rodamientos de Rodillos Cilíndricos

円筒コロ軸受　圆柱滚珠轴承

The rollers of these bearings are essentially cylindrical in shape providing modified line contact with the cylindrical inner and outer rings raceways. The rollers are accurately guided by ground ribs on either the inner ring or the outer ring, thus making these bearings suitable for heavy radial loads and high speed operation. For best results, these bearings should be accurately aligned. The cylindrical shape of the rollers allows the inner ring to have considerable axial movement relative to the outer ring except for the bearings with the prefix "NH". This feature is valuable in accommodating thermal expansion in applications where both the inner and outer ring must be press-fitted. Since the inner and outer rings can be separated from each other, the assembly of equipment is frequently facilitated.

Series N-200

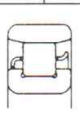


Unit Per Pc.

Series N-200-Roller Bearing

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 15 01	N-203	17	40	12	**77 15 13**	N-215	75	130	25
02	N-204	20	47	14	**14**	N-216	80	140	26
03	N-205	25	52	15	**15**	N-217	85	150	28
04	N-206	30	62	16	**16**	N-218	90	160	30
05	N-207	35	72	17	**17**	N-219	95	170	32
77 15 06	N-208	40	80	18	**77 15 18**	N-220	100	180	34
07	N-209	45	85	19	**19**	N-221	105	190	36
08	N-210	50	90	20	**20**	N-222	110	200	38
09	N-211	55	100	21	**21**	N-224	120	215	40
10	N-212	60	110	22	**22**	N-226	130	230	40
77 15 11	N-213	65	120	23	**77 15 23**	N-228	140	250	42
12	N-214	70	125	24	**24**	N-230	150	270	45

Series N-300



Unit Per Pc.

Series N-300-Roller Bearing

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 15 31	N-304	20	52	15	**77 15 41**	N-314	70	150	35
32	N-305	25	62	17	**42**	N-315	75	160	37
33	N-306	30	72	19	**43**	N-316	80	170	39
34	N-307	35	80	21	**44**	N-317	85	180	41
35	N-308	40	90	23	**45**	N-318	90	190	43
77 15 36	N-309	45	100	25	**77 15 46**	N-319	95	200	45
37	N-310	50	110	27	**47**	N-320	100	215	47
38	N-311	55	120	29	**48**	N-321	105	225	49
39	N-312	60	130	31	**49**	N-322	110	240	50
40	N-313	65	140	33	**50**	N-324	120	260	55

Series NU-200



Unit Per Pc.

Series NU-200-Roller Bearing

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 15 61	NU-203	17	40	12	**77 15 73**	NU-215	75	130	25
62	NU-204	20	47	14	**74**	NU-216	80	140	26
63	NU-205	25	52	15	**75**	NU-217	85	150	28
64	NU-206	30	62	16	**76**	NU-218	90	160	30
65	NU-207	35	72	17	**77**	NU-219	95	170	32
77 15 66	NU-208	40	80	18	**77 15 78**	NU-220	100	180	34
67	NU-209	45	85	19	**79**	NU-221	105	190	36
68	NU-210	50	90	20	**80**	NU-222	110	200	38
69	NU-211	55	100	21	**81**	NU-224	120	215	40
70	NU-212	60	110	22	**82**	NU-226	130	230	40
77 15 71	NU-213	65	120	23	**77 15 83**	NU-228	140	250	42
72	NU-214	70	125	24	**84**	NU-230	150	270	45

Series NU-300

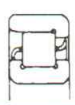


Unit Per Pc.

Series NU-300-Roller Bearing

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 16 01	NU-304	20	52	15	**77 16 13**	NU-316	80	170	39
02	NU-305	25	62	17	**14**	NU-317	85	180	41
03	NU-306	30	72	19	**15**	NU-318	90	190	43
04	NU-307	35	80	21	**16**	NU-319	95	200	45
05	NU-308	40	90	23	**17**	NU-320	100	215	47
77 16 06	NU-309	45	100	25	**77 16 18**	NU-321	105	225	49
07	NU-310	50	110	27	**19**	NU-322	110	240	50
08	NU-311	55	120	29	**20**	NU-324	120	260	55
09	NU-312	60	130	31	**21**	NU-326	130	280	58
10	NU-313	65	140	33	**22**	NU-328	140	300	62
77 16 11	NU-314	70	150	35	**77 16 23**	NU-330	150	320	65
12	NU-315	75	160	37					

Series NF-200



Unit Per Pc.

Series NF-200-Roller Bearing

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 16 31	NF-203	17	40	12	**77 16 43**	NF-215	75	130	25
32	NF-204	20	47	14	**44**	NF-216	80	140	26
33	NF-205	25	52	15	**45**	NF-217	85	150	28
34	NF-206	30	62	16	**46**	NF-218	90	160	30
35	NF-207	35	72	17	**47**	NF-219	95	170	32
77 16 36	NF-208	40	80	18	**77 16 48**	NF-220	100	180	34
37	NF-209	45	85	19	**49**	NF-221	105	190	36
38	NF-210	50	90	20	**50**	NF-222	110	200	38
39	NF-211	55	100	21	**51**	NF-224	120	215	40
40	NF-212	60	110	22	**52**	NF-226	130	230	40
77 16 41	NF-213	65	120	23	**77 16 53**	NF-228	140	250	42
42	NF-214	70	125	24	**54**	NF-230	150	270	45

Series NF-300



Unit Per Pc.

Series NF-300-Roller Bearing

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 16 61	NF-304	20	52	15	**77 16 71**	NF-314	70	150	35
62	NF-305	25	62	17	**72**	NF-315	75	160	37
63	NF-306	30	72	19	**73**	NF-316	80	170	39
64	NF-307	35	80	21	**74**	NF-317	85	180	41
65	NF-308	40	90	23	**75**	NF-318	90	190	43

(to be continued)

Unit Per Pc.

Series NF-300-Roller Bearing

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 16 66	NF-309	45	100	25	77 16 76	NF-319	95	200	45
67	NF-310	50	110	27	77	NF-320	100	215	47
68	NF-311	55	120	29	78	NF-321	105	225	49
69	NF-312	60	130	31	79	NF-322	110	240	50
70	NF-313	65	140	33	80	NF-324	120	260	55

Series NH-300



Unit Per Pc.

Series NH-300-Roller Bearing

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 17 01	NH-306	30	72	19	77 17 12	NH-317	85	180	41
02	NH-307	35	80	21	13	NH-318	90	190	43
03	NH-308	40	90	23	14	NH-319	95	200	45
04	NH-309	45	100	25	15	NH-320	100	215	47
05	NH-310	50	110	27	16	NH-321	105	225	49
77 17 06	NH-311	55	120	29	77 17 17	NH-322	110	240	50
07	NH-312	60	130	31	18	NH-324	120	260	55
08	NH-313	65	140	33	19	NH-326	130	280	58
09	NH-314	70	150	35	20	NH-328	140	300	62
10	NH-315	75	160	37	21	NH-330	150	320	65
77 17 11	NH-316	80	170	39					

Tapered Roller Bearings

Rodaentos de Ridukkis Cónicos

円スイコロ軸受　锥体滚柱轴承



This design utilizes conical rollers and raceways arranged so that all elements of the roller & raceway cones meet at a common apex on the axis of rotation. The roller is guided by contact between the large end of the roller and a rib on the inner rings. This construction provides high capacity for radial loads & single direction thrust loads. The bearings are usually mounted in pairs with axial adjustment to provide proper running clearance within the bearings. Being separable, the inner and outer rings may be mounted individually. For heavy thrust loads the type 30300D with large contact angle is preferable.

Series 30200



Unit Per Pc.

Series 30200 Tapered Roller

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 20 01	30202	15	35	11	77 20 12	30213	65	120	23
02	203	17	40	12	13	214	70	125	24
03	204	20	47	14	14	215	75	130	25
04	205	25	52	15	15	216	80	140	26
05	206	30	62	16	16	217	85	150	28
77 20 06	30207	35	72	17	77 20 17	30218	90	160	30
07	208	40	80	18	18	219	95	170	32
08	209	45	85	19	19	220	100	180	34
09	210	50	90	20	20	221	105	190	36
10	211	55	100	21	21	222	110	200	38
77 20 11	30212	60	110	22	77 20 22	30224	120	215	40

Series 30300



Unit Per Pc.

Series 30300 Tapered Roller

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 20 31	30302	15	42	13	77 20 42	30313	65	140	33
32	303	17	47	14	43	314	70	150	35
33	304	20	52	15	44	315	75	160	37
34	305	25	62	17	45	316	80	170	39
35	306	30	72	19	46	317	85	180	41
77 20 36	30307	35	80	21	77 20 47	30318	90	190	43
37	308	40	90	23	48	319	95	200	45
38	309	45	100	25	49	320	100	215	47
39	310	50	110	27	50	321	105	225	49
40	311	55	120	29	51	322	110	240	50
77 20 41	30312	60	130	31	77 20 52	30324	120	260	55

Series 32200



Unit Per Pc.

Series 32200 Tapered Roller

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 20 61	32206	30	62	20	77 20 70	32215	75	130	31
62	207	35	72	23	71	216	80	140	33
63	208	40	80	23	72	217	85	150	36
64	209	45	85	23	73	218	90	160	40
65	210	50	90	23	74	219	95	170	43
77 20 66	32211	55	100	25	77 20 75	32220	100	180	46
67	212	60	110	28	76	221	105	190	50
68	213	65	120	31	77	222	110	200	53
69	214	70	125	31	78	224	120	215	58

Series 32300



Unit Per Pc.

Series 32300 Tapered Roller

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 20 81	32305	25	62	24	77 20 91	32315	75	160	55
82	306	30	72	27	92	316	80	170	58
83	307	35	80	31	93	317	85	180	60
84	308	40	90	33	94	318	90	190	64
85	309	45	100	36	95	319	95	200	67
77 20 86	32310	50	110	40	77 20 96	32320	100	215	73
87	311	55	120	43	97	321	105	225	77
88	312	60	130	46	98	322	110	240	80
89	313	65	140	48	99	324	120	260	86
90	314	70	150	51					

Spherical Roller Bearings

Rodamientos de Rodillos a Rótula

球面コロ軸受　鼓形滚柱轴承



In this design, two rows of rollers operate in separate raceways ground into the inner ring with a guide rib to guide the rollers. The outer ring has a single spherical raceway, thus allowing the inner ring and rollers to freely compensate for angular errors due to inaccurate machine components or due to elastic deflection of the shaft or housing under loads. As a result of the line contact, a large number of rollers, and the substantial contact angle, these bearings have large radial and thrust load capacity. They are suitable for heavy shock and impact loads.

Series 22200-Cylindrical Bore



Unit Per Pc.

Series 22200-Cylindrical Bore

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 25 01	22208	40	80	23	77 25 16	22226	130	230	64
02	209	45	85	23	17	228	140	250	68
03	210	50	90	23	18	230	150	270	73
04	211	55	100	25	19	232	160	290	80
05	212	60	110	28	20	234	170	310	86
77 25 06	22213	65	120	31	77 25 21	22236	180	320	86
07	214	70	125	31	22	238	190	340	92
08	215	75	130	31	23	240	200	360	98
09	216	80	140	33	24	244	220	400	108
10	217	85	150	36	25	248	240	440	120
77 25 11	22218	90	160	40	77 25 26	22252	260	480	130
12	219	95	170	43	27	256	280	500	130
13	220	100	180	46	28	260	300	540	140
14	222	110	200	53	29	264	320	580	150
15	224	120	215	58					

Series 22200K-1/12 Tapered Bore

This type of bearing must have an adapter sleeve when in use.

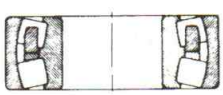


Unit Per Pc.

Series 22200K 1/12 Tapered Bore

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 25 41	22208K	40	80	23	77 25 56	22226K	130	230	64
42	209K	45	85	23	57	228K	140	250	68
43	210K	50	90	23	58	230K	150	270	73
44	211K	55	100	25	59	232K	160	290	80
45	212K	60	110	28	60	234K	170	310	86
77 25 46	22213K	65	120	31	77 25 61	22236K	180	320	86
47	214K	70	125	31	62	238K	190	340	92
48	215K	75	130	31	63	240K	200	360	98
49	216K	80	140	33	64	244K	220	400	108
50	217K	85	150	36	65	248K	240	440	120
77 25 51	22218K	90	160	40	77 25 66	22252K	260	480	130
52	219K	95	170	43	67	256K	280	500	130
53	220K	100	180	46	68	260K	300	540	140
54	222K	110	200	53	69	264K	320	580	150
55	224K	120	215	58					

Series 22300-Cylindrical Bore

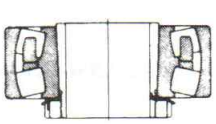


Unit Per Pc.

Series 22300 Cylindrical Bore Bearing

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 26 01	22308	40	90	23	77 26 15	22324	120	220	86
02	309	45	100	26	16	326	130	280	93
03	310	50	110	40	17	328	140	300	102
04	311	55	120	43	18	330	150	320	108
05	312	60	130	46	19	332	160	340	114
77 26 06	22313	65	140	48	77 26 20	22334	170	360	120
07	314	70	150	51	21	336	180	380	126
08	315	75	160	55	22	338	190	400	132
09	316	80	170	58	23	340	200	420	138
10	317	85	180	60	24	344	220	460	145
77 26 11	22318	90	190	64	77 26 25	22348	240	500	155
12	319	95	200	67	26	352	260	540	165
13	320	100	215	73	27	356	280	580	175
14	322	110	240	80					

Series 22300K-Tapered Bore



Unit Per Pc.

Series 22300K-1/12 Tapered Bore Bearing

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick
77 26 41	22308K	40	90	23	77 26 55	22324K	120	260	86
42	309K	45	100	26	56	326K	130	280	93
43	310K	50	110	40	57	328K	140	300	102
44	311K	55	120	43	58	330K	150	320	108
45	312K	60	130	46	59	332K	160	340	114
77 26 46	22313K	65	140	48	77 26 60	22334K	170	360	120
47	314K	70	150	51	61	336K	180	380	126
48	315K	75	160	55	62	338K	190	400	132
49	316K	80	170	58	63	340K	200	420	138
50	317K	85	180	60	64	344K	220	460	145
77 26 51	22318K	90	190	64	77 26 65	22348K	240	500	155
52	319K	95	200	67	66	352K	260	540	165
53	320K	100	215	73	67	356K	280	580	175
54	322K	110	240	80					

Needle Roller Bearings

Rodamientos de Agujas

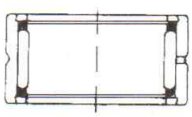
ニードルベアリング　无内圈滚针轴承



The needle like small diameter rollers of these bearings are cylindrical in shape and can be fitted to spindles where you do not want a large outside mount as in roller bearings. When ordering, specify the INSIDE and OUTSIDE DIAMETER, the THICKNESS and whether the bearing should be WITH or WITHOUT inner rings.

Series NTN-RNA 4900

Without Inner Ring



Unit Per Pc.

Series RNA-4900 Without Inner Ring

CODE	Bearing No.	Dimensions mm I.D.	O.D.	Thick	Maximum R.P.M.
77 30 01	RNA - 4900	10	22	13	28,000
02	- 4901	12	24	13	25,000
03	- 4902	15	28	13	20,000
04	- 4903	17	30	13	18,000
05	- 4904	20	37	17	16,000
77 30 06	RNA - 49/22	22	39	17	14,000
07	- 4905	25	42	17	13,000
08	- 49/28	28	45	17	12,000
09	- 4906	30	47	17	11,000
10	- 49/32	32	52	20	10,000
77 30 11	RNA - 4907	35	55	20	9,000
12	- 4908	40	62	22	8,000
13	- 4909	45	68	22	8,000
14	- 4910	50	72	22	7,000
15	- 4911	55	80	25	6,000
77 30 16	RNA - 4912	60	85	25	6,000
17	- 4913	65	90	26	5,000
18	- 4914	70	100	30	5,000
19	- 4915	75	105	30	5,000
20	- 4916	80	110	30	4,000
77 30 21	RNA - 4917	85	120	35	4,000
22	- 4918	90	125	35	4,000
23	- 4919	95	130	35	3,000
24	- 4920	100	140	40	3,000

Thrust Ball Bearings

Rodamientos Aiales de Bolas

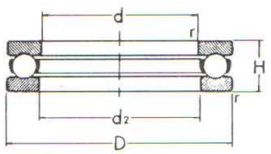
スラスト玉軸受　平座単向止推滚珠軸承



Thrust ball bearings are composed of washer-like bearing rings with raceway grooves for the balls. The ring attached to the shaft is called the inner ring or shaft washer while that attached to the housing is called the outer ring or housing washer. In double direction thrust ball bearings, there are three rings with the central one being fixed to the shaft. Single direction and double direction thrust ball bearings can support thrust loads in one or both directions respectively. There are also thrust ball bearings with an aligning seat washer beneath the outer ring in order to compensate for shaft misalignment or mounting errors. Pressed-steel cages are usually used in the smaller bearings and machined cages are generally used in the larger ones.

Series 51100

With Flat Seat



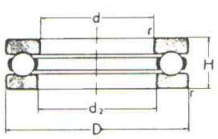
Unit Per Pc.

Series 51100 Single Thrust Ball with Flat Seat

CODE	Bearing No.	Dimensions mm			
		I.D.(d)	I.D.(d2)	O.D.(D)	Thick
77 35 01	51100	10	11	24	9
02	101	12	13	26	9
03	102	15	16	28	9
04	103	17	18	30	9
05	104	20	21	35	10
77 35 06	51105	25	26	42	11
07	106	30	32	47	11
08	107	35	37	52	12
09	108	40	42	60	13
10	109	45	47	65	14
77 35 11	51110	50	52	70	14
12	111	55	57	78	16
13	112	60	62	85	17
14	113	65	67	90	18
15	114	70	72	95	18
77 35 16	51115	75	77	100	19
17	116	80	82	105	19
18	117	85	87	110	19
19	118	90	92	120	20
20	120	100	102	135	25

Series 51200

With Flat Seat



Unit Per Pc.

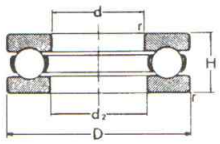
Series 51200 Single Thrust Ball with Flat Seat

CODE	Bearing No.	Dimensions mm			
		I.D.(d)	I.D.(d2)	O.D.(D)	Thick
77 35 31	51200	10	12	26	11
32	201	12	14	28	11
33	202	15	17	30	12
34	203	17	19	35	12
35	204	20	22	40	14
77 35 36	51205	25	27	47	15
37	206	30	32	52	16
38	207	35	37	62	18
39	208	40	42	68	19
40	209	45	47	73	20
77 35 41	51210	50	52	78	22
42	211	55	57	90	25
43	212	60	62	95	26
44	213	65	67	100	27
45	214	70	72	105	27
77 35 46	51215	75	72	110	27
47	216	80	82	115	28
48	217	85	88	125	31
49	218	90	93	135	35
50	220	100	103	150	38

(to be continued)

Series 51300

With Flat Seat



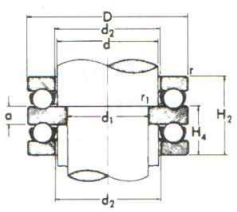
Unit Per Pc.

Series 51300 Single Thrust Ball with Flat Seat

CODE	Bearing No.	Dimensions mm			
		I.D.(d)	I.D.(d2)	O.D.(D)	Thick
77 35 61	51305	25	27	52	18
62	306	30	32	60	21
63	307	35	37	68	24
64	308	40	42	78	26
65	309	45	47	85	28
77 35 66	51310	50	52	95	31
67	311	55	57	105	35
68	312	60	62	110	35
69	313	65	67	115	36
70	314	70	72	125	40
77 35 71	51315	75	77	135	44
72	316	80	82	140	44
73	317	85	88	150	49
74	318	90	93	155	50
75	320	100	103	170	55
77 35 76	51322	110	113	190	63
77	324	120	123	210	70

Series 52200

With Flat Seat



Unit Per Pc.

Series 52200 Double Thrust Ball with Flat Seat

CODE	Bearing No.	Dimensions mm			
		I.D.(d)	I.D.(d2)	O.D.(D)	Thick (H_2)
77 37 31	52202	15	17	32	22
32	04	20	22	40	26
33	05	25	27	47	28
34	06	30	32	52	29
35	07	35	37	62	34
77 37 36	52208	40	42	68	36
37	09	45	47	73	37
38	10	50	52	78	39
39	11	55	57	90	45
40	12	60	62	95	46

(to be continued)

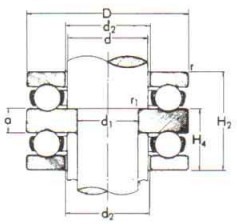
Unit Per Pc.

Series 52200 Double Thrust Ball with Flat Seat

CODE	Bearing No.	Dimensions mm			
		I.D.(d)	I.D.(d2)	O.D.(D)	Thick (H_2)
77 37 41	52213	65	67	100	47
42	14	70	72	105	47
43	15	75	77	110	47
44	16	80	82	115	48
45	17	85	88	125	55
77 37 46	52218	90	93	135	62
47	20	100	103	150	67
48	22	110	113	160	67

Series 52300

With Flat Seat



Unit Per Pc.

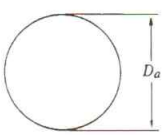
Series 52300 Double Thrust Ball with Flat Seat

CODE	Bearing No.	Dimensions mm			
		I.D.(d)	I.D.(d2)	O.D.(D)	Thick (H_2)
77 37 61	52305	25	27	52	34
62	06	30	32	60	38
63	07	35	37	68	44
64	08	40	42	78	49
65	09	45	47	85	52
77 37 66	52310	50	52	95	58
67	11	55	57	105	64
68	12	60	62	110	64
69	13	65	67	115	65
70	14	70	72	125	72
77 37 71	52315	75	77	135	79
72	16	80	82	140	79
73	17	85	88	150	87
74	18	90	93	155	88
75	20	100	103	170	97
77 37 76	52322	110	113	190	110
77	24	120	123	210	123

Steel Balls for Ball Bearing

Bolas de Acero para Rodamientos de Bolas

鋼球　滚珠轴承的钢珠



Made of high carbon chromium bearing steel.

Unit Per Pc.

CODE	Nominal Size Inch	Basic Diam. mm Da	CODE	Nominal Size Inch	Basic Diam. mm Da
77 40 01	0.5 mm	0.5000	**77 40 27**	5/8	15.8750
02	0.6 "	0.6000	**28**	21/32	16.0688
03	0.8 "	0.8000	**29**	11/16	17.4625
04	1.0 "	1.0000	**30**	23/32	18.2562
05	1.2 "	1.2000	**31**	3/4	19.0500
77 40 06	1.5 mm	1.5000	**77 40 32**	25/32	19.8438
07	1/16	1.5875	**33**	13/16	20.6375
08	2.0 mm	2.0000	**34**	27/32	21.4312
09	3/32	2.3812	**35**	7/8	22.2250
10	3.0 mm	3.0000	**36**	29/32	23.0188
77 40 11	1/8	3.1750	**77 40 37**	15/16	23.8125
12	5/32	3.9688	**38**	31/32	24.6062
13	3/16	4.7625	**39**	1	25.400
14	7/32	5.5562	**40**	1-1/16	26.9875
15	1/4	6.3500	**41**	1-1/8	28.5750
77 40 16	9/32	7.1438	**77 40 42**	1-3/16	30.1625
17	5/16	7.9375	**43**	1-1/4	31.7500
18	11/32	8.7312	**44**	1-5/16	33.3375
19	3/8	9.5250	**45**	1-3/8	34.9250
20	13/32	10.3188	**46**	1-7/16	36.5125
77 40 21	7/16	11.1125	**77 40 47**	1-1/2	38.1000
22	15/32	11.9062	**48**	1-5/8	41.2750
23	1/2	12.7000	**49**	1-3/4	44.4500
24	17/32	13.4938	**50**	1-7/8	47.6250
25	9/16	14.2875	**51**	2	50.8000
77 40 26	19/32	15.0812			

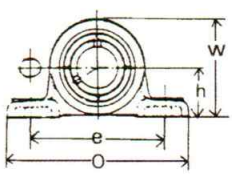
(to be continued)

Bearing Units

Unidades de Rodamientos　ベアリングユニット　轴承组

These are a combination of a block and a self aligning ball bearings used generally where normal loads are required. When ordering, specify the shaft diameter, distance between bolt holes, and the base-to-center height in order to attain a correct fit.





Series UCP-200

Unit Per Pc.

Series UCP-200 For Metric Shaft

CODE	Bearing Unit No.	Shaft Diam. mm	Dimensions mm			
			O	W	e	h
77 41 01	UCP-201	12	127	62	95	30.2
02	-202	15	127	62	95	30.2
03	-203	17	127	62	95	30.2
04	-204	20	127	65	95	33.3
05	-205	25	140	70	105	36.5
77 41 06	UCP-206	30	165	83	121	42.9
07	-207	35	167	94	127	47.6
08	-208	40	184	100	137	49.2
09	-209	45	190	108	146	54.0
10	-210	50	206	114	159	57.2
77 41 11	UCP-211	55	219	126	171	63.5
12	-212	60	241	138	184	69.8
13	-213	65	265	150	203	76.2
14	-214	70	266	156	210	79.4
15	-215	75	275	163	217	82.6
77 41 16	UCP-216	80	292	175	232	88.9
17	-217	85	310	187	247	95.2
18	-218	90	327	200	262	101.6

79
Electrical Equipment

Lamps  P. 79-1 ~ 4	Pilot Lamps  P. 79-4 ~ 8	Reflector Lamps  P. 79-8 ~ 9	Sodium Lamps/Halogen Lamps  P. 79-9 ~ 10
Fluorescent Lamps  P. 79-10 ~ 14	Lighting Fixtures  P. 79-15 ~ 31	Hand Lamps  P. 79-31 ~ 32	Warning Lights  P. 79-32
Flashlights  P. 79-33 ~ 38	Batteries  P. 79-38 ~ 40	Plug & Receptacles  P. 79-41~ 47	Switches  P. 79-48 ~ 51
Circuit Breakers / Transformers  P. 79-51 ~ 53	Buzzers/Bells  P. 79-53 ~ 55	Lamp Holders  P. 79-55 ~ 56	Fuses & Carbon Brushes  P. 79-56 ~ 61
Cables  P. 79-61 ~ 67	Cable Accessories  P. 79-67 ~ 72	Solders  P. 79-73 ~ 74	Electrical Insulation Materials  P. 79-74 ~ 77
Megaphones/Loud Speakers  P. 79-77	Test Instruments  P. 79-77 ~ 81	Ultrasonic Parts Cleaners  P. 79-81	

1. Lamps

Introduction for Ordering Lamps

Due to the wide variety of lamps available and in order to assist the purchase of lamps required for each individual purpose, below listed are standard illustrations of designations for bulbs, filaments and bases. Each lamp/bulb can be either specified under its full name or abbreviation.

A. Bulb Designations

Bulbs are available in the shapes shown below and each shape is designed for a particular purpose. Soft glass is normally used but hard glass is used for high wattages and outdoor applications. In order to increase the effective illumination the insides of the bulbs receive various coatings, including reflecting aluminium mirrors. Coloured bulbs are also available for special applications.

Type	Name	Abbreviation	Application
	Ordinary Shape	A	General household factory or ships illumination.
	Ball Tubular Shape	BT	Used for mercury or high sodium lamp.
	Flame Shape	C	Ornamental, Decrative Lighting
	Globe (ball) Shape	G	Ornamental, Decrative Lighting
	Pear Shaped Straight Neck	PS	Used for illuminations requiring 80 Watt and more.
	Parabolic Shape	PAR	Outdoor Spot or Flood Lighting
	Reflextion Shape	R	Deck Flood Light etc.
	Straight Shape	S	Low Watt Illumination
	Tubular Shape	T	General Household Factory or Ships Low Watt Illumination
	Tubular (Fluorescent) Shape	T	Fluorescent Lighting

B. Lamp Base Designations

A wide range of bases are provided for above lamps. In addition to the screw bases used for most incandescent lamps, there are also bayonet, pin, lug and other bases. Fluorescent lamps use single-pin, bipin and double-contact recessed bases.



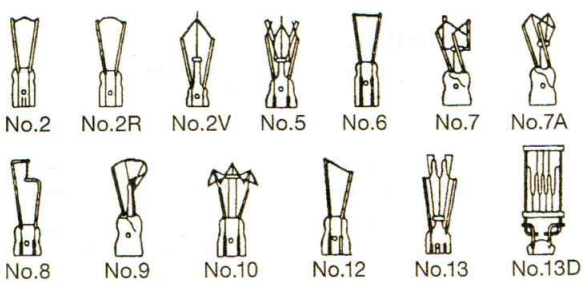
Edison Screw Size Table

Size	Base				Socket			
	O.D.d		Valley d_1		Valley D		I.D. D_1	
	Mini	Maxi	Mini	Maxi	Mini	Maxi	Mini	Maxi
E10	9.31	9.53	8.29	8.51	9.59	9.74	8.57	8.72
E12	11.60	11.81	10.33	10.54	11.94	12.09	10.67	10.82
E14	13.61	13.89	12.01	12.29	13.97	14.16	12.37	12.56
E17	16.28	16.53	14.91	15.16	16.68	16.83	15.31	15.46
E26	26.04	26.34	24.36	24.66	26.45	26.75	24.77	25.07
E27	26.15	26.45	23.96	24.26	26.55	26.85	24.36	24.66
E39	39.05	39.50	36.55	37.00	39.61	40.06	37.07	37.52
E40	39.05	39.50	35.45	35.90	39.60	40.05	36.00	36.45

Caution !

1. E-39 based lamp can not screw into an E-40 socket while an E-40 based lamp can screw into an E-39 socket. Please see the table above and compare figures of E-39 and E-40. (d1 of E-39 is larger than that of E-40.)
2. E-26, E-27 based lamp can screw into an E-26, E-27 socket alternatively. Can be presumed to be the same size.

C. Filament Designations



Frosted Lamps

Vibration Service Medium Screw Base

Lámparas Mate, Base de Bayoneta de Doble Contacto Servicio de Vibración

艷消耐振電球（ねじ込み式） 亚光防震灯泡（螺口式）



Inside frosted, medium screw base, "Vibration service" lamps for ships use. When ordering, specify the voltage and the number of watts required from the lamps listed below.

How to order: CODE

Lamp, frosted, vibration service, E-26, VOLTAGE, WATTAGE

Unit Per Pc.

Frosted Medium Screw Base (E-26)					
110-120 Volts			220-240 Volts		
CODE	Watts	Pieces Per Package	CODE	Watts	Pieces per Package
79 01 01	15	25	**79 01 21**	15	25
02	20	25	**22**	20	25
03	25	25	**23**	25	25
04	30	25	**24**	30	25
05	40	25	**25**	40	25

(to be continued)

Unit Per Pc.

Frosted Medium Screw Base (E-26)					
110-120 Volts			220-240 Volts		
CODE	Watts	Pieces Per Package	CODE	Watts	Pieces per Package
79 01 06	60	25	**79 01 26**	60	25
07	75	25	**27**	75	25
08	100	25	**28**	100	25
09	150	25	**29**	150	25
10	200	25	**30**	200	25

Frosted Lamps

Vibration Service Double Contact Bayonet Base

Lámparas Mate, Base de Bayoneta de Doble Contacto Servicio de Vibración
艶消耐振電球（差し込み式）　亚光防震灯泡（插入式）



Inside frosted, double contact, bayonet base B-22 "Vibration service" lamps for ships use.

How to order: CODE

Lamp, frosted, vibration service, B-22, VOLTAGE, WATTAGE

Unit Per Pc.

Frosted Bayonet Base (B-22)					
110-120 Volts			220-240 Volts		
CODE	Watts	Pieces Per Package	CODE	Watts	Pieces per Package
79 01 41	15	25	**79 01 61**	15	25
42	20	25	**62**	20	25
43	25	25	**63**	25	25
44	30	25	**64**	30	25
45	40	25	**65**	40	25
79 01 46	60	25	**79 01 66**	60	25
47	75	25	**67**	75	25
48	100	25	**68**	100	25
49	150	25	**69**	150	25
50	200	25	**70**	200	25

Clear Lamps

Vibration Service Medium Screw Base

Lámparas Clara, Base Roscada, Servicio de Vibración
透明耐振電球（ねじ込み式）　透明灯泡



Clear, medium screw base, "Vibration service" lamps for ships use.

How to order: CODE

Lamp, clear, vibration service, E-26, VOLTAGE, WATTAGE

Unit Per Pc.

Clear Medium Screw Base (E-26)					
110-120 Volts			220-240 Volts		
CODE	Watts	Pieces Per Package	CODE	Watts	Pieces per Package
79 01 81	20	25	**79 01 91**	20	25
82	25	25	**92**	25	25
83	30	25	**93**	30	25
84	40	25	**94**	40	25
85	60	25	**95**	60	25
79 01 86	75	25	**79 01 96**	75	25
87	100	25	**97**	100	25
88	150	25	**98**	150	25
89	200	25	**99**	200	25

Clear Lamps

Vibration Service Double Contact Bayonet Base

Lámparas Claras, Base Bayoneta de Doble Contacto Servicio de Vibración
透明耐振電球（差し込み式）　透明灯泡



Clear, double contact, bayonet base, B-22 "Vibration service" lamps for ships use.

How to order: CODE

Lamp, clear, vibration service, B-22, VOLTAGE, WATTAGE

Unit Per Pc.

Clear Bayonet Base (B-22)					
110-120 Volts			220-240 Volts		
CODE	Watts	Pieces Per Package	CODE	Watts	Pieces per Package
79 02 01	20	25	**79 02 16**	20	25
02	25	25	**17**	25	25
03	30	25	**18**	30	25
04	40	25	**19**	40	25
05	60	25	**20**	60	25
79 02 06	75	25	**79 02 21**	75	25
07	100	25	**22**	100	25
08	150	25	**23**	150	25
09	200	25	**24**	200	25

Clear Mogul Screw (GES) Lamps

Standard Type (E-39)

Lámparas Claras, Base Roscada Goliat (GES) Tipo Estándar
モーガル標準透明電球　標准透明螺丝灯泡



Pear shaped lamp with a standard mogul base (E-39). A clear lamp for high watt illumination. GES denotes Goliath Edison Screw.

How to order: CODE

Lamp, clear, E-39, VOLTAGE, WATTAGE

Unit Per Pc.

Standard Clear Mogul Screw Base (E-39)					
110-120 Volts			220-240 Volts		
CODE	Watts	Pieces Per Package	CODE	Watts	Pieces per Package
79 02 31	300	10	**79 02 36**	300	10
32	500	10	**37**	500	10
33	1,000	10	**38**	1,000	10

Clear Mogul Screw (GES) Lamps

(E-40)

Focos Claros Base Roscada de Mogul (GES)
モーガル透明電球　标准透明螺丝灯泡



Pear shaped with mogul base (E-40). Clear lamp bulb for high watt illumination.

How to order: CODE

Lamp, clear, E-40, VOLTAGE, WATTAGE

Unit Per Pc.

Clear Mogul Screw Base (E-40)					
110-120 Volts			220-240 Volts		
CODE	Watts	Pieces Per Package	CODE	Watts	Pieces per Package
79 02 41	300	10	**79 02 46**	300	10
42	500	10	**47**	500	10
43	1,000	10	**48**	1,000	10

LED Lamps

Lámparas LED　L E D電球　LED 灯泡



More cost effective innovative lamp compared to conventional incandescent lamps or fluorescent lamps. LED (Light-Emitting Diodes) lamps keep lighting lifespan for several times longer and significantly more efficient than conventional incandescent lamps. Also, it consumes less energy about 90% than conventional incandescent lamps and effects to reduce of carbon dioxide.

Unit Per Pc.

CODE	Equivalent Watt	Actual Watt	Lighting Colour	Volt	Base Size
79 02 51	40	4.1	Day Light	100V	E-26
52			Incandescent		
55			Cool White		
79 02 53	60	7.5	Day Light		
54			Incandescent		
56			Cool White		
79 02 57	100	10	Day Light		
58			Incandescent		
59			Cool White		
79 02 60	40	4	Day Light	220V	E-27
61			Incandescent		
62			Cool White		
79 02 63	60	8	Day Light		
64			Incandescent		
65			Cool White		
79 02 66	100	12	Day Light		
67			Incandescent		
68			Cool White		

LED Globe Lamps

Lámparas LED Globo　LED ボール電球　LED 球形灯

A spherical shape LED lamp commonly used for decorative lighting. Energy-efficient, long-lasting, and available in various sizes.



E-14　Ba-15d　B-22　E-27

How to order: CODE

LED globe lamp, BASE SIZE, BODY DIAM x LENGTH mm, VOLTAGE, WATTAGE

Unit Per Pc.

CODE	Equivalent Watt	Actual Watt	Voltage	Size D × L
Base E-14, Lighting Colour 3000K				
79 02 10	25	3	12-60V DC	45 × 75 mm
11	25	3	85-265V AC	45 × 75 mm
12	40	5	85-265V AC	45 × 75 mm
Base Ba-15d, Lighting Colour 3000K				
79 02 13	25	3	12-60V DC	45 × 75 mm
Base B-22, Lighting Colour 3000K				
79 02 14	25	3	12-60V DC	45 × 75 mm
Base E-27, Lighting Colour 3000K				
79 02 25	25	3	12-60V DC	45 × 75 mm
26	25	3	85-265V AC	45 × 75 mm
27	40	5	85-265V AC	45 × 75 mm
28	60	7	85-265V AC	45 × 75 mm

Coloured Lamps

Lámpara Coloreadas　色電球　螺丝口彩色灯泡

Available in red, green and yellow colours. Other colours must be made to order.



How to order: CODE

Coloured lamp, VOLTAGE, BASE SIZE, WATTAGE, KIND of COLOUR

Unit Per Pc.

E-26 Screw Base				B-22 Bayonet Base			
110-120V		220-240V		110-120V		220-240V	
CODE	Watts	CODE	Watts	CODE	Watts	CODE	Watts
Red							
79 03 01	20	**79 03 16**	20	**79 03 31**	20	**79 03 46**	20
02	40	**17**	40	**32**	40	**47**	40
03	60	**18**	60	**33**	60	**48**	60
Green							
79 03 06	20	**79 03 21**	20	**79 03 36**	20	**79 03 51**	20
07	40	**22**	40	**37**	40	**52**	40
08	60	**23**	60	**38**	60	**53**	60
Yellow							
79 03 11	20	**79 03 26**	20	**79 03 41**	20	**79 03 56**	20
12	40	**27**	40	**42**	40	**57**	40
13	60	**28**	60	**43**	60	**58**	60

Navigation Lamps

Lámparas de Navegación　ナビゲーションランプ　螺丝口航行灯泡

Specially designed for use with navigation lights. Made of electrolysis glass with specially constructed filament to withstand varying voltage. Can also be used with direct current. Low voltage bulbs can be used with battery (emergency) supplied power.



How to order: CODE

Lamp, navigation, BASE SIZE, VOLTAGE, WATTAGE

Unit Per Pc.

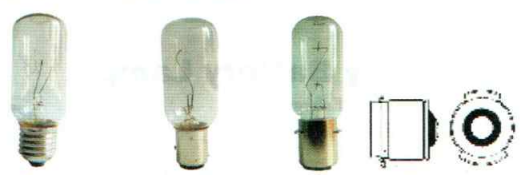
24V		110-115V		220V	
CODE	Watts	CODE	Watts	CODE	Watts
E-26 Screw Base					
79 04 01	40	**79 04 03**	40	**79 04 05**	40
02	60	**04**	60	**06**	60
B-22 Bayonet Base					
79 04 11	40	**79 04 13**	40	**79 04 15**	40
12	60	**14**	60	**16**	60

Tubular Navigation Lamps

Lámparas Tubulares de Navegación

チューブラナビゲーションランプ　管状航行灯

Tubular glass bulbs with a specially constructed filament designed for navigational use.



E-26 Screw Base　BAY 15d/B-22d Bayonet Base　P-28S Prefocus Base

How to order: CODE

Lamp, navigation, tubular, BASE SIZE, VOLTAGE, WATTAGE

Unit Per Pc.

CODE	Volt	Watts (or cd)	Diam mm	Length mm
E-27				
79 04 07	24 V	26 cd	38	100
79 04 08	110 V	26 cd		
21		40 W		
22		60 W		
09		65 cd		
79 04 10	220 V	26 cd		
23		40 W		
24		60 W		
17		65 cd		

(to be continued)

Unit Per Pc.

CODE	Volt	Watts (or cd)	Diam mm	Length mm
BAY15d (B.C. Indexing Candeiabra Base)				
79 04 18	12 V	10 W (12cd)	25	70
19		18 cd		
20		25 W (30cd)		
79 04 25	24 V	10 W (12cd)		
30		18 cd		
35		25 W		
79 04 36	110 V	40 cd	40	60
79 04 37	220 V	40 cd		
B-22d (D.C. Medium Bayonet Base)				
79 04 38	24 V	13 cd	38	100
39		26 cd		
40		35 cd		
41		65 cd		
79 04 42	110 V	13 cd		
43		26 cd		
26		40 W		
27		60 W		
44		65 cd		
79 04 45	220 V	13 cd		
46		26 cd		
47		35 cd		
28		40 W		
29		60 W		
48		65 cd		
P-28s (Medium Prefocus Base)				
79 04 49	24 V	40 W (60 cd)	38	108
79 04 50	48 V	65 W (60 cd)		
79 04 31	110 V	40 W		
32		60 W (60 cd)		
79 04 33	220 V	40 W		
34		65 W (60 cd)		

LED Tubular Navigation Lamps

Luces de navegación tubulares LED
管形 LED ナビゲーション電球　LED 管状导航灯



Tubular shape LED lamps, energy-efficient, long-lasting, designed for navigational use.

79 04 87	LED Tubular Navigation Lamp, 5W, Base P28s, 85-265V, size 32 × 110mm, Equivalent 60-65W	Pc.

Emergency Battery Lamps

Lámparas para Bateria de Emergencia
非常灯用電球　螺丝口应急电池灯泡



Low voltage emergency lamps powered by batteries. To be used as a lighting source in case of an emergency or "black out".

How to order: CODE

Lamp, emergency, battery, BASE SIZE, VOLTAGE, WATTAGE

E-26 Screw Base

Unit Per Pc.

12 Volt				24 Volt			
CODE	Watts	Size mm A	Size mm B	CODE	Watts	Size mm A	Size mm B
79 04 51	10	55	98	**79 04 61**	10	55	98
52	20	55	98	**62**	20	55	98
53	30	55	105	**63**	30	55	105
54	40	55	105	**64**	40	55	105
55	60	60	110	**65**	60	60	110
79 04 56	100	70	136	**79 04 66**	100	70	136

(to be continued)

E-22 Bayonet Base

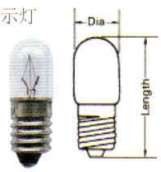
Unit Per Pc.

12 Volt				24 Volt			
CODE	Watts	Size mm A	Size mm B	CODE	Watts	Size mm A	Size mm B
79 04 71	10	55	98	**79 04 81**	10	55	98
72	20	55	98	**82**	20	55	98
73	30	55	105	**83**	30	55	105
74	40	55	105	**84**	40	55	105
75	60	60	110	**85**	60	60	110
79 04 76	100	70	136	**79 04 86**	100	70	136

2. Pilot Lamps

Pilot Lamps

Lámpara Piloto o Lámpara Tubular　パイロット球　指示灯



As we carry quite a large assortment of pilot lamps, specify type of glass, base, length and other details such as voltage, wattage, ampere, etc.

A. Tubular Pilot Lamps

1. Screw Base

How to order: CODE

Pilot lamp, tubular, BASE SIZE, BODY DIAM x LENGTH mm, VOLTAGE, WATTAGE

Unit Per Pc.

CODE	Voltage	Watt or Ampere	CODE	Voltage	Watt or Ampere
Base E-10, Clear, Dia. 10 x Length 28 mm (Part 1)					
79 05 01	6.3 V	0.15 A	**79 05 07**	30 V	0.11 A
02	8 V	0.15 A	**12**	48 V	2 W
03	12 V	0.11 A	**08**	48 V	3 W
04	18 V	0.11 A	**09**	60 V	3 W
05	24 V	0.11 A	**10**	110 V	5 W
79 05 06	28 V	0.11 A	**79 05 11**	220 V	5 W
Base E-10, Clear, Dia. 10 x Length 28 mm (Part 2)					
79 05 13	4 V	0.15 A	**79 05 58**	28 V	0.04 A
14	6.3 V	0.25 A	**59**	28 V	1 W
15	8 V	0.25 A	**60**	28 V	3 W
28	12 V	0.15 A	**65**	30 V	2 W
29	12 V	2 W	**66**	48 V	5 W
79 05 30	18 V	2 W	**79 05 67**	60 V	2 W
39	24 V	1 W	**72**	110 V	3 W
40	24 V	2 W	**73**	220 V	3 W
57	24 V	3 W			
Base E-12, Clear, Dia. 13 x Length 33 mm (Part 1)					
79 05 16	6.3 V	0.15 A	**79 05 22**	30 V	0.11 A
17	8 V	0.15 A	**27**	48 V	2 W
18	12 V	0.11 A	**23**	48 V	3 W
19	18 V	0.11 A	**24**	60 V	5 W
20	24 V	0.11 A	**25**	110 V	5 W
79 05 21	28 V	0.11A	**79 05 26**	220 V	5 W
Base E-12, Clear, Dia. 13 x Length 33 mm (Part 2)					
79 05 74	24 V	2 W	**79 05 83**	115 V	5 W
75	24 V	3 W	**89**	220 V	3 W
81	28 V	2 W	**90**	220 V	10 W
82	30 V	2 W			
Base E-12, Clear, Dia. 15 x Length 45 mm (Part 1)					
79 05 31	6.3 V	0.15 A	**79 05 35**	28 V	0.11 A
32	12 V	0.11 A	**36**	30 V	0.11 A
33	18 V	0.11 A	**37**	110 V	5 W
34	24 V	0.11 A	**38**	220 V	5 W
Base E-12, Clear, Dia. 15 x Length 45 mm (Part 2)					
79 05 91	24 V	3 W	**79 05 95**	48 V	5 W
92	24 V	5 W	**96**	110 V	10 W
93	28 V	5 W	**97**	220 V	10 W
94	30 V	5 W			

(to be continued)

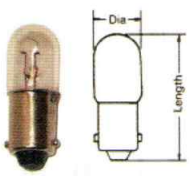
Unit Per Pc.

CODE	Voltage	Watt or Ampere	CODE	Voltage	Watt or Ampere
Base E-12, Clear, Dia. 20 x Length 48 mm (Part 1)					
79 05 41	12 V	5 W	**79 05 49**	48 V	5 W
42	18 V	0.11 A	**50**	60 V	5 W
43	18 V	5 W	**51**	110 V	5 W
44	24 V	0.11 A	**52**	110 V	10 W
45	24 V	3 W	**53**	110 V	20 W
79 05 46	24 V	5 W	**79 05 54**	220 V	5 W
47	28 V	5 W	**55**	220 V	10 W
48	30 V	5 W	**56**	220 V	20 W
Base E-12, Clear, Dia. 20 x Length 48 mm (Part 2)					
79 06 13	6 V	5 W	**79 06 30**	24 V	10 W
14	8 V	5 W	**35**	24 V	20 W
15	12 V	3 W	**36**	50 V	5 W
27	12 V	10 W	**37**	115 V	10 W
28	12 V	20 W	**38**	115 V	20 W
79 06 29	18 V	3 W			
Base E-12, Clear, Dia. 20 x Length 70 mm					
79 05 61	110 V	10 W	**79 05 63**	220 V	10 W
62	110 V	15 W	**64**	220 V	15 W
Base E-14, Clear, Dia. 15 x Length 48 mm					
79 05 68	24 V	5 W	**79 05 70**	220 V	10 W
69	110 V	10 W	**71**	220 V	15 W
Base E-26, Clear, Dia. 26 x Length 60 mm					
79 05 76	24 V	5 W	**79 05 79**	220 V	10 W
77	110 V	10 W	**80**	220 V	15 W
78	110 V	15 W			
Base E-26, Clear, Dia. 26 x Length 70 mm					
79 05 84	24 V	5 W	**79 05 87**	220 V	10 W
85	110 V	10 W	**88**	220 V	15 W
86	110 V	15 W			

2. Bayonet Base

How to order: CODE

Pilot lamp, tubular, BASE SIZE, BODY DIAM × LENGTH mm, VOLTAGE, WATTAGE



Unit Per Pc.

CODE	Voltage	Watt or Ampere	CODE	Voltage	Watt or Ampere
Base BA-9s, Clear, Dia. 9 x Length 23 mm					
79 06 39	12 V	3 W	**79 06 48**	30 V	2 W
40	24 V	50 mA	**49**	30 V	100 mA
46	24 V	80 mA	**50**	36 V	2 W
47	24 V	3 W	**59**	60 V	20 mA
Base BA-9s, Clear, Dia. 10 x Length 28 mm (Part 1)					
79 06 01	6.3 V	0.15 A	**79 06 07**	30 V	0.11 A
02	8 V	0.15 A	**12**	48 V	2 W
03	12 V	0.11 A	**08**	48 V	3 W
04	18 V	0.11 A	**09**	60 V	3 W
05	24 V	0.11 A	**10**	110 V	5 W
79 06 06	28 V	0.11 A	**79 06 11**	220 V	5 W
Base BA-9s, Clear, Dia. 10 x Length 28 mm (Part 2)					
79 06 60	6.3 V	0.25 A	**79 06 92**	28 V	0.04 A
70	8 V	0.25 A	**93**	28 V	1 W
77	12 V	0.15 A	**94**	30 V	1 W
78	12 V	2 W	**95**	30 V	2 W
79	18 V	1 W	**96**	48 V	5 W
79 06 80	24 V	1 W	**79 06 97**	60 V	2 W
90	24 V	2 W	**98**	110 V	3 W
91	24 V	3 W	**99**	220 V	3 W

(to be continued)

Unit Per Pc.

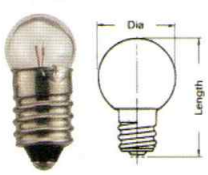
CODE	Voltage	Watt or Ampere	CODE	Voltage	Watt or Ampere
Base BA-15d, Clear, Dia. 20 x Length 48 mm (Part 1)					
79 06 16	18 V	0.11 A	**79 06 22**	110 V	10 W
17	18 V	5 W	**23**	110 V	20 W
18	24 V	0.11 A	**24**	220 V	5 W
19	24 V	3 W	**25**	220 V	10 W
20	24 V	5 W	**26**	220 V	20 W
79 06 21	110 V	5 W			
Base BA-15d, Clear, Dia. 20 x Length 48 mm (Part 2)					
79 07 36	6 V	10 W	**79 07 43**	24 V	15 W
37	12 V	5 W	**44**	24 V	20 W
38	12 V	10 W	**45**	110 V	15 W
39	12 V	20 W	**46**	115 V	5 W
40	18 V	2 W	**47**	115 V	10 W
79 07 41	18 V	3 W	**79 07 48**	115 V	20 W
42	24 V	10 W			
Base BA-15d, Clear, Dia. 20 x Length 70 mm					
79 06 31	110 V	10 W	**79 06 33**	220 V	10 W
32	110 V	15 W	**34**	220 V	15 W
Base BA-15d, Clear, Dia. 25 x Length 70 mm					
79 07 76	24 V	40 W	**79 07 78**	110 V	40 W
77	110 V	15 W	**79**	220 V	25 W
Base BA-22d, Clear, Dia. 20 x Length 70 mm					
79 06 41	24 V	5 W	**79 06 44**	220 V	10 W
42	110 V	10 W	**45**	220 V	15 W
43	110 V	15 W			

B. Globular Pilot Lamps

1. Screw Base

How to order: CODE

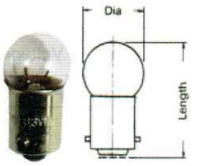
Pilot lamp, globular, BASE SIZE, BODY DIAM x LENGTH mm, VOLTAGE, WATTAGE



Unit Per Pc.

CODE	Voltage	Watt or Ampere	CODE	Voltage	Watt or Ampere
Base E-10, Clear, Dia. 11 x Length 23.5 mm (Part 1)					
79 06 51	6.3 V	1 W	**79 06 58**	18 V	0.11 A
52	12 V	2 W	**54**	24 V	0.11 A
57	12 V	0.11 A	**55**	24 V	1 W
53	18 V	2 W	**56**	30 V	1 W
BaseE-10, Clear, Dia. 11 x Length 23.5 mm (Part 2)					
79 07 80	12 V	3 W	**79 07 83**	24 V	5 W
81	12 V	5 W	**84**	30 V	2 W
82	24 V	2 W			
Base E-12, Clear, Dia. 19 x Length 35 mm					
79 06 61	24 V	3 W	**79 06 65**	110 V	5 W
62	24 V	5 W	**66**	115 V	5 W
63	24 V	10 W	**67**	220 V	5 W
64	100 V	5 W			
Base E-12, Clear, Dia. 25 x Length 40 mm					
79 07 85	6.3 V	3 W	**79 07 89**	115 V	5 W
86	28 V	6 W	**90**	115 V	10 W
87	110 V	5 W	**91**	220 V	5 W
88	110 V	10 W			
Base E-26, Frost, Dia. 35 x Length 72 mm					
79 06 68	220 V	30 W	**79 06 69**	220 V	40 W

2. Bayonet Base



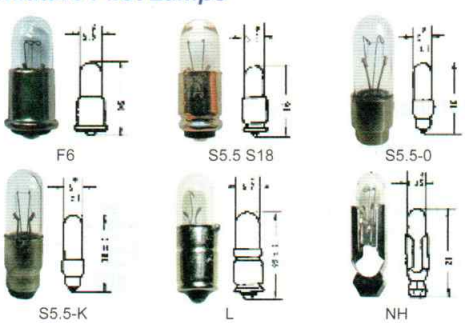
How to order: CODE

Pilot lamp, globular, BASE SIZE, BODY DIAM x LENGTH mm, VOLTAGE, WATTAGE

Unit Per Pc.

CODE	Voltage	Watt or Ampere	CODE	Voltage	Watt or Ampere
Base BA-9s, Clear, Dia. 11 x Length 23.5 mm (Part 1)					
79 06 71	6.3 V	1 W	**79 06 74**	24 V	0.11 A
72	12 V	2 W	**75**	24 V	1 W
73	18 V	5 W	**76**	30 V	1 W
Base BA-9s, Clear, Dia. 11 x Length 23.5 mm (Part 2)					
79 07 92	12 V	3 W	**79 07 95**	24 V	3 W
93	18 V	2 W	**96**	30 V	2 W
94	24 V	2 W			
Base BA-15d, Clear, Dia. 19 x Length 35 mm (Part 1)					
79 06 81	6 V	8 W	**79 06 86**	100 V	5 W
82	12 V	10 W	**87**	110 V	5 W
83	24 V	3 W	**88**	115 V	5 W
84	24 V	5 W	**89**	220 V	5 W
85	24 V	10 W			
Base BA-15d, Clear, Dia. 19 x Length 35 mm (Part 2)					
79 07 97	12 V	20 W	**79 07 99**	220 V	10 W
98	24 V	20 W			

C. Miniature Pilot Lamps



How to order: CODE

Pilot miniature lamp, TYPE, VOLTAGE, WATTAGE or AMPERE

Unit Per Pc.

CODE	Voltage	Watt or Ampere	Type	Size mm Diam. × Length
79 07 01	6	0.1 A	F6	
02	6	0.2 A	"	
03	14	0.05 A	"	
04	14	0.08 A	"	5.5 × 16
05	18	1 W	"	
06	28	0.025 A	"	
07	28	0.04 A	"	
79 07 11	6	0.2 A	S5.5 S18	
12	14	0.08 A	"	5.5 × 16
13	28	0.04 A	"	
79 07 16	14	0.05 A	S5.5-O	
17	18	0.05 A	"	5 × 16
18	28	0.04 A	"	
79 07 21	6	0.6 W	S5.5-K	
22	12	0.6 W	"	
23	18	0.6 W	"	5 × 18
24	24	0.6 W	"	
25	28	0.6 W	"	
79 07 30	15	15 mA	L	
31	15	20 mA	"	6.2 × 22
32	30	30 mA	"	
79 07 35	28	22 mA	NH	4.85 × 21

LED Pilot Lamps

Pilotos LED　LED パイロット球　LED 指示灯

A compact, energy-efficient light used as an indicator or signal, providing a bright and long-lasting illumination. Commonly employed in various applications such as control panels, machinery, automotive dashboards.



How to orde: CODE

Pilot lamp, LED, tubular, BASE SIZE, BODY DIAM x LENGTH mm, VOLTAGE, WATTAGE

Unit Per Pc.

CODE	Equivalent Watt	Actual Watt	Voltage	Size D × L
Base E-14, Clear, Tubular Type, Lighting Colour 3000K				
79 09 05	5	0.8	10-30V AC/DC	17 x 52 mm
10	15	2	10-30V AC/DC	28 x 60 mm
15	25	3	10-30V AC/DC	28 x 60 mm
79 09 27	7	1	85-265V AC	17 x 52 mm
28	15	2	85-265V AC	28 x 60 mm
29	25	3	85-265V AC	28 x 60 mm
30	40	5	85-265V AC	28 x 60 mm
Base Ba-15d, Clear, Tubular Type, Lighting Colour 3000K				
79 09 37	5	0.8	10-30V AC/DC	17 x 47 mm
38	15	2	10-30V AC/DC	28 x 58 mm
39	25	3	10-30V AC/DC	28 x 58 mm
79 09 40	7	1	85-265V AC	17 x 47 mm
47	15	2	85-265V AC	21 x 60 mm
48	25	3	85-265V AC	21 x 60 mm
Base E-27, Clear, Tubular Type, Lighting Colour 3000K				
79 09 49	15	2	85-265V AC	28 x 60 mm
50	25	3	85-265V AC	28 x 60 mm
63	40	5	85-265V AC	28 x 60 mm

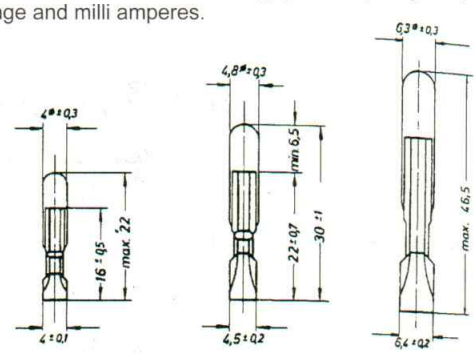
Telephone Switch Board Lamps

(Taunus Lamps)

Lámparas de Conmutación Telefónica

電話交換機用ランプ　电话配电盘灯

A wide range of models are available, the standard models are listed below. When ordering, please specify lamp type, voltage and milli amperes.



How to order: CODE

Taunus lamp, TYPE, VOLTAGE, mA

Unit Per Pc.

CODE	Type	Voltage	Current mA	Size mm Diam. x Length
79 08 21 22	T4.5	6	20 40	4.5 x 16
79 08 23 24		12	20 40	
79 08 25 26 27		24	20 40 50	
79 08 28		30	40	
79 08 29 30	T4.6 (20)	6	20 40	4.6 x 22
79 08 31 32		12	20 40	
79 07 50 51 79 08 33		24	20 40 50	
79 07 52 53		30	20 40	
79 08 34		36	20	
79 08 35		48	20	
79 08 36		60	20	
79 08 37	T5.5K	6	40	5.5 x 22
79 08 38		12	50	
79 08 39 40		24	20 50	
79 08 41		30	50	
79 08 42 43	T5.5K (30)	6	40 200	5.5 x 30
79 08 44 45 46		12	20 40 100	
79 07 56 79 08 47 79 07 57 79 08 48		24	20 40 50 80	
79 08 49 50		28	40 50	
79 07 58 59 60		30	20 40 50	5.5 x 30
79 08 51 52 53		36	20 40 50	
79 08 54 55 56 57		48	20 25 40 50	
79 08 58		60	20	
79 08 59 60	T6.8 (45)	6	20 40	6.8 x 44
79 08 61 62 63		12	20 50 100	
79 07 66 79 08 64 79 07 67 68 69 70		24	20 25 40 50 60 90	
79 08 65 66		28	25 45	
79 07 71 79 08 67 79 07 72 73	T6.8 (45)	30	40 50 90 120	6.8 x 44
79 08 68 69 70		36	20 40 50	
79 08 71 72		48	20 50	
79 08 73 74		60	20 40	

Single LED Indicator Lamps

Indicadores Luminosos LED Simples

LED インディケーターランプ　単 LED 指示灯



Midget Flanged T1 3/4 | Midget Grooved T1 3/4 | Bayonet Ba9s | Edison E10

T1 3/4, 6 x 16 mm, 24-28 volts

Unit Per Pc.

CODE	Colour	CODE	Colour
Midget Flanged		**Midget Grooved**	
79 05 98	Red	79 07 10	Red
99	Blue	14	Blue
79 06 00	Green	15	Green
79 07 08	Yellow	19	Yellow
09	White	20	White

Bayonet Ba9s, 10 x 24 mm

Unit Per Pc.

CODE	Colour	CODE	Colour	CODE	Colour
6 volts		**12 volts**		**24 – 28 volts**	
79 07 26	Red	79 07 34	Red	79 07 62	Red
27	Blue	49	Blue	63	Blue
28	Green	54	Green	64	Green
29	Yellow	55	Yellow	65	Yellow
33	White	61	White	74	White

Edison E10, 10 x 24 mm

Unit Per Pc.

CODE	Colour	CODE	Colour	CODE	Colour
6 volts		**12 volts**		**24 – 28 volts**	
79 07 75	Red	79 08 15	Red	79 08 87	Red
79 08 00	Blue	20	Blue	88	Blue
05	Green	75	Green	89	Green
10	Yellow	85	Yellow	90	Yellow
14	White	86	White	91	White

Indicator Lamps

BA7s Base

Lámpara Indicadora BA7s Base

インディケーターランプ　指示燈



Unit Per Pc.

CODE	Volts	mA	Watts	Size mm Diam. x Length
79 08 76	6	100	0.6	T6.8 x 20mm
79 08 77	12	170	2	
79 08 78	24	50	1.2	
79 08 79			3	
79 08 80	12	50		T6.8 x 23mm
79 08 81		100	1.2	
79 08 82	30		2	
79 08 83	36	50	1.8	
79 08 84	60	20		

LED Panel Indicating Lights

Luces indicadoras de panel LED

LED パネル表示ライト　LED 面板显示灯



Using a LED lighting structure increases the safety of operations, and the panel indicator lights are armed with valuable reflector optics to illuminate and intensify visibility. LED light will eliminate the downtime necessary for repairs or replacements

as it does not require as much maintenance as other lighting options. Simple push-in installation mounts in any thickness material. Available in five colors: white, red, green, yellow and blue.

Fitting φ22mm, 24V AC/DC

Unit Per Pc.

CODE	Colour	Current mA	Dia X Length mm
79 08 92	White	20	29 X 52
93	Red		
94	Green		
95	Yellow		
96	Blue		

Fitting φ22mm, 110V AC

Unit Per Pc.

CODE	Colour	Current mA	Dia X Length mm
79 08 97	White	20	29 X 52
98	Red		
99	Green		
79 09 00	Yellow		
57	Blue		

Fitting φ22mm, 230V AC

Unit Per Pc.

CODE	Colour	Current mA	Dia X Length mm
79 09 58	White	20	29 X 52
59	Red		
60	Green		
61	Yellow		
62	Blue		

Pygmy Lamps

Lámparas pigmeas　ピグミーランプ　侏儒灯



A compact size incandescent lamps, perfect for display cabinets, side lamps, fridges, sewing machines or any other appliance which requires small lamps.

CODE	Watts	Volts	Base
79 09 81	25W	24V	E-14
82	25W	24V	B-15D

3. Reflector Lamps

Reflector Lamps

Lámparas Reflectoras　リフレクターランプ　室内反光型反射灯

How to understand the Reflector Lamp Denotation

Reflector	Lighting Scope in Degree	Glass Material
R	F: Over 35° =Flat S: Under 35°=Spot	No Mark:Soft Glass (Indoor Use) H:Hard Glass (Outdoor Use)

Flat Reflector Lamps

for Indoor Use (RF)

Lámparas Reflectoras Planas para Uso Interior (RF)

"RF" 屋内散光形ランプ　螺口平面散光灯泡 -RF



To be used only for indoor lighting. Preferably to be used for wide area lighting. When ordering, specify the voltage, number of watts, and screw base.

How to order: CODE

Reflector lamp, RF, flat indoor use, VOLTAGE, WATTAGE

Type "RF"

Unit Per Pc.

100-110 Volts			220-230 Volts		
CODE	Watts	Screw Base	CODE	Watts	Screw Base
79 09 01	100	E-26	**79 09 06**	100	E-26
02	150	"	**07**	150	"
03	200	"	**08**	200	"
04	300	"	**09**	300	"

Spot Reflector Lamps

for Indoor Use (RS)



Lámparas Reflectoras para Uso Interior (RS)

RS 屋内集光型ランプ　螺口平面散光灯泡 -RS

To be used only for indoor lighting. Especially useful in dark spots. When ordering, specify the voltage, number of watts, and the base type and size.

How to order: CODE

Reflector lamp, RS, spot indoor use, VOLTAGE, WATTAGE

Type "RS"

Unit Per Pc.

100-110 Volts			220-230 Volts		
CODE	Watts	Screw Base	CODE	Watts	Screw Base
79 09 11	100	E-26	**79 09 16**	100	E-26
12	150	"	**17**	150	"
13	200	"	**18**	200	"
14	300	"	**19**	300	"

Flat Reflector Lamps

for Outdoor Use (RF-H)

Lámparas Reflectoras Planas para Uso Exterior (RF-H)

"RF-H" 屋外散光形ランプ　螺口室外反光灯泡 RF-H



Specially designed for outdoor use. Requires no shade or covering. Preferably used for wide area lighting on deck or in the engine room. Made of hardened heat resisting glass. When ordering, specify the voltage, number of watts, and screw base size.

How to order: CODE

Reflector lamp, RF-H, flat outdoor use, VOLTAGE, WATTAGE

Type "RF-H"

Unit Per Pc.

100-110 Volts			220-230 Volts		
CODE	Watts	Screw Base	CODE	Watts	Screw Base
79 09 21	100	E-26	**79 09 31**	100	E-26
22	150	"	**32**	150	"
23	200	"	**33**	200	"
79 09 24	300	E-39	**79 09 34**	300	E-39
25	500	"	**35**	500	"
26	1,000	"	**36**	1,000	"

Spot Reflector Lamps

for Outdoor Use (RS-H)



Lámparas Reflectoras para Uso Exterior (RS-H)

RS-H 屋外集光型ランプ　螺口室外聚光灯泡 (RS-H)

Specially designed for outdoor use. Requires no shade or covering. Spotlight type made of hardened heat-resisting glass.

How to order: CODE

Reflector lamp, RS-H, spot outdoor use, VOLTAGE, WATTAGE

Type "RS-H"

Unit Per Pc.

100-110 Volts			220-230 Volts		
CODE	Watts	Screw Base	CODE	Watts	Screw Base
79 09 41	100	E-26	**79 09 51**	100	E-26
42	150	"	**52**	150	"
43	200	"	**53**	200	"
79 09 44	300	E-39	**79 09 54**	300	E-39
45	500	"	**55**	500	"
46	1,000	"	**56**	1,000	"

Infrared Ray Lamps

Lámparas de Rayo Infrarrojo

赤外線乾燥用電球　红外线灯泡



This unit is designed for use where heat is required. For example, drying of electric motors, paints, etc. When ordering, specify the voltage, the number of watts, and the screw base required.

Denotes : IR – Infrared Ray
R – Reflector
H – Hard Glass

How to order: CODE

Infrared ray lamp, IR-RH, VOLTAGE, WATTAGE

Type "IR-RH"

Unit Per Pc.

100-110 Volts			220-230 Volts		
CODE	Watts	Screw Base	CODE	Watts	Screw Base
79 09 71	250	E-26	**79 09 76**	250	E-26
72	375	E-26	**77**	375	E-26
73	500	E-26	**78**	500	E-26
74	500	E-39	**79**	500	E-39

4. Sodium Lamps / Halogen Lamps

High Pressure Sodium Lamps

Lámparas de Sodio Alta Presión

高圧ナトリウムランプ　球管形高圧钠灯

A high pressure sodium lamp which gives superior colour rendition characteristics, has a rated life of 24,000 hours, a 2100°K colour temperature factor and a very high lumen output almost twice that of comparable mercury vapour lamps. For use with a high pressure sodium lamp ballast.

BT-Bulb	BT-F-Bulb	T-Bulb	R-Bulb
			
NH Type	NHF Type	NHT Type	NHR Type

Denotes : BT – Ball Tubular
T – Tubular
F – Diffusion
R – Reflector
N – No external ignitor is required
H – Hard Bulb

How to order: CODE

High pressure sodium lamp, TYPE of BULB, TYPE, WATTAGE

Unit Per Pc.

CODE	Type	Wattage	Screw Base	Glass Φmm	Overall Length mm
		BT-Bulb			
79 12 01	NH 700	700	E-39	150	375
02	NH 1000	1,000		180	395
		BT-F-Bulb			
79 12 06	NH 700 F	700	E-39	150	375
07	NH 1000 F	1,000		180	395
		T-Bulb			
79 12 11	NHT 150	150		48	212
12	NHT 250	250		48	257
13	NHT 400	400	E-39	48	285
14	NHT 700	700		55	330
15	NHT 1000	1,000		55	383
		R-Bulb			
79 12 18	NHR 150	150		165	310
19	NHR 250	250	E-39	165	310
20	NHR 400	400		180	320

High Pressure Sodium Lamp Ballasts

Reactancias para Lámparas de Sodio Alta Presión

高圧ナトリウム安定器　高压钠蒸汽灯镇流器



These ballasts incorporate a high-voltage pulse generator for starting the lamp. The pulse generation does not effect the lamp during arcing. An emergency thermostat is built in to cut off the power automatically in the event of any fault. As a wide range of products with respective specifications are available, when ordering, please specify the following details.

Guide of How to order

CODE	**79 12 21**
Name	Sodium lamp ballast
Lamp Type	BT
Input Voltage	100 V
Lamp Wattage	700 W
Lamp Ampere	7.9 amp.
Frequency	50/60 Hz
Lamp Dimension	150 mm diam x 375 mm L
Lamp Base	E-39
Etc	If any

Electronic Superimposed Ignitors

for HS Lamps 400 W

Arrancadores de superposición electrónicos

電子多層イグナイター　电子叠加点火器

A standard version compact shape for high pressure sodium lamps (HS).

Phasing of the ignition voltage: 60–90 °el and 240–270 °el.
Max. permitted casing temperature: 105 °C.
Fastening: male nipple with pre-assembled washer and nut.
For luminaires of protection class I and II.
For luminaires of protection class I (140594, 147707).



Aluminium Casing Z 400M



Plastic Casing Z 400MK

Z 400M: Aluminium casing with screw terminals 0.75-4 mm²
Z 400MK: Plastic casing with screw terminals 0.75-4 mm²

Unit Per Pc.

CODE	Type	Voltage	Max. Lamp Current	Ignition Voltage	Load Capacity	Weight
79 12 22	Z 400M	220-240V	5A	4-5 kV	20-50 pF	140 grm
79 12 23	Z 400MK					130 grm

Name of Mfr. : Vossloh-Schwabe Deutschland GmbH

Illumination Halogen Lamps

E-11 Screw Base

Lámparas Halógenas para Iluminación - Base Roscada
照明用ハロゲンランプ　螺口卤素灯泡

1/20 smaller than corresponding general lighting use incandescents and provides 2,000 hrs. of service without fading.



How to order: CODE

Illumination halogen lamp, E-11 screw base, VOLTAGE, WATTAGE

Unit Per Pc.

CODE	Watts	Volt	Glass Type	Overall Length mm	Screw Base
79 12 51	75	110	T11	65	E-11
52	100	110	T11	65	
53	150	110	T13	70	
54	250	110	T13	76	
55	500	110	T13	90	
79 12 56	500	220	T13	90	

Tungsten Halogen Lamps

R7S Cap Base

Lámparas Halógeno Tungsteno
タングステンハロゲンランプ　灯口钨卤素灯泡

Compact in size, 500W-1/10, 1,500W-1/20 of corresponding general lighting use incandescents. Used for floodlighting, spotlighting, lighting for factories, gymnasiums, photocopying, etc.



How to order: CODE

Tungusten halogen lamp, R7S cap base, VOLTAGE, WATTAGE

Unit Per Pc.

CODE	Watts	Volt	Size mm		Base Type
			Glass Diam.	Overall Length	
79 12 61	300	110	9	117	R7S
62	500	110	11	117	
66	1,000	110	11	189	
79 12 63	500	220	11	117	
67	1,000	220	11	189	
64	1,000	220	11	208	
65	1,000	220	11	248	

Tubular Shape Halogen Lamps

E-39 Screw Base

Lámparas Halógenas con figura Tubular - Base Roscada
外球付ハロゲンランプ　管状卤素灯泡

Designed for use with an E-39 screw base lamp holder.



How to order: CODE

Halogen lamp, tubular shape, E-39, VOLTAGE, WATTAGE

Unit Per Pc.

CODE	Watts	Volt	Size mm		Base Type
			Glass Dia.	Overall Length	
79 12 71	500	100-120V	38	205	E-39
79 12 72	500	200-240V	38	215	
73	1,000	"	38	255	

Sealed Beam Lamps

Lámparas Selladas Halógena　シールドビームランプ　密封光束灯泡

Designed for maximum safe vision under all weather conditions. Not only gives greater illumination distance but also prevents reflection from moisture particles in the air. "PAR" denotes parabolic shape.



Unit Per Pc.

CODE	Watts	Volt	Size mm		Base Type
			Glass Dia.	Overall Length	
79 12 91	50	24	145	103	3
92	75	24	178	138	3
93	80	24	145	103	2

5. Fluorescent Lamps

Fluorescent Lamps

Lámparas Fluorescentes - Tipo Estáadar　蛍光ランプ　荧光灯



How to understand Fluorescent Lamp Denotations:

Type	Watts	Glass Diam.
FL : Straight FCL: Circle FLR: Straight &Rapid Strart	4, 6, 8, 10, 15, 20, 30, 38, 40,	S :32.5 mm SS:25.5 mm or 28.0 mm

Length	Colour
No Mark:580 mm EL :588.7 mm	D : Day Light W : Cool White WW : Warm White

Note: S & SS marked FL lamps have the same luminosity as the conventional diameter of FL lamps.

Fluorescent Lamps

Lámparas Fluorescentes - Tipo Estáadar　蛍光ランプ　荧光灯

Fluorescent tube lamps requiring glow starters. Available in three colours of cool white, warm white and daylight. Specify which colour when ordering.



Cool White Colour

How to order: CODE

Fluorescent lamp, cool white, TYPE, WATTAGE

Unit Per Pc.

CODE	Type	Watts	Φ mm D	L mm A	Type of Starter
79 14 01	FL-4W	4	15.5	134.5	FG-7E or FG-7P
02	FL-6W	6		210.5	
03	FL-8W	8		287.0	
79 14 04	FL-10W	10	25.5	330.0	
05	FL-15W	15		436.0	FG-1E
79 14 06	FL-20	20	38.0	580.0	
79 14 07	FL-20SW	20	32.5		
08	FL-20S/18	18			
79 14 09	FL-20SS-W/18	18	28.0		
79 14 10	FL-20/EL	20	38.0	588.7	FG-1P or FG-1E
11	FL-20S/EL	20	32.5		
12	FL-20-SSCW/18-24	18	25.5		
79 14 14	FL-30SW	30	32.5	630.0	FG-1P
79 14 15	FL-40	40	38.0	1,198.0	FG-4P
79 14 16	FL-40SW	40	32.5		
17	FL-40S/38	38			
79 14 18	FL-40SS-W/37	37	28.0		

Daylight Colour

How to order: CODE

Fluorescent lamp, daylight colour, TYPE, WATTAGE

Unit Per Pc.

CODE	Type	Watts	Φ mm D	L mm A	Type of Starter
79 14 21	FL-4D	4	15.5	134.5	FG-7E or FG-7P
22	FL-6D	6		210.5	
23	FL-8D	8		287.0	
79 14 24	FL-10D	10	25.5	330.0	
25	FL-15D	15		436.0	
79 14 26	FL-20	20	38.0	580.0	FG-1E OR FG-1P
79 14 27	FL-20SD	20	32.5		
28	FL-20S/18	18			
79 14 29	FL-20SS-D/18	18	28.0		
79 14 30	FL-20/EL	20	38.0	588.7	FG-1P or FG-1E
31	FL-20S/EL	20	32.5		
32	FL-20-SSCW/18-24	18	27.0		
79 14 34	FL-30SD	30	32.5	630.0	FG-1P
79 14 35	FL-40	40	38.0	1,198.0	FG-4P
79 14 36	FL-40SD	40	32.5		
37	FL-40S/38	38			
79 14 38	FL-40SS-D/37	37	28.0		

Rapid Start Fluorescent Lamps

(Rapid Start FL Lamps)

Lámparas Fluorescentes Encendido Rápido

ラピッドスタート型蛍光ランプ　快亮型日光灯管

Rapid start lamps use a rapid start circuit ballast to start within one to two seconds. Does not require a glow starter.



Please specify which colour is required when ordering.

Cool White Colour

Unit Per Pc.

CODE	Type	Watts	Size mm		Packed in
			Diam.	Length	
79 14 41	FLR-20SW	20	32.5	580	25
42	FLR-20	20	38.0	580	25
79 14 43	FLR-40SW	40	32.5	1,198	25
44	FLR-40	40	38.0	1,198	25

Daylight Colour

Unit Per Pc.

CODE	Type	Watts	Size mm		Packed in
			Diam.	Length	
79 14 46	FLR-20SD	20	32.5	580	25
47	FLR-20	20	38.0	580	25
79 14 48	FLR-40SD	40	32.5	1,198	25
49	FLR-40	40	38.0	1,198	25

LED Fluorescent Lamps T8

Lámparas Fluorescentes LED　LED 蛍光ランプ　LED 荧光灯

Innovative LED fluorescent lamps, compatible with most of magnetic ballasts (CCGs) with grow start and rapid start type as direct replacement with traditional fluorescent lamps. Energy saving up to 61%, instant 100% light without flickering.



In case of Inverter Type such as FHF or electronic ballasts(ECGS), retrofit is required and wiring must be changed for direct connection.

Unit Per Pc.

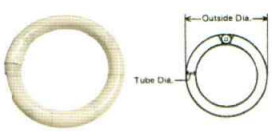
CODE	Voltage	Watt	Colour	φ mm D	L mm A
79 14 73	AC100-245V	10	Incandescent	26	580
74			Cool White		
75			Day Light		
79 14 76		20	Incandescent	26	1,198
77			Cool White		
78			Day Light		
79 14 81	AC200-240V	8	Incandescent	28	588.7
82			Cool White		
83			Day Light		
79 14 84		17	Incandescent	28	1,198
85			Cool White		
86			Day Light		
79 14 87	AC220-240V	5	Cool White	28	450

Circle Fluorescent Lamps

Lámparas Circulares Fluorescentes

サークライン蛍光ランプ　环状日光灯管

Circle fluorescent lamps can be used in regular lamp fixtures but require a glow starter lamp in the fixture.



Cool White Colour

How to order: CODE

Fluorescent lamp, circle, cool white, SIZE, WATTAGE

Unit Per Pc.

CODE	Size	Watts	Glass × Circle Diam. O.D.	Starter Type
79 14 65	FCL-20W/18	18	29 × 205	FG-1P or 1E
66	FCL-30W/28	28	29 × 225	FG-1P or 1E
67	FCL-32W/30	30	29 × 299	FG-5P
68	FCL-40W/38	38	29 × 373	FG-4P
79 14 69	European	40	29 × 400	FG-4P
70	U.S.A	40	1-1/8" × 16"	FG-4P

Daylight Colour

How to order: CODE

Fluorescent lamp, circle, day light, SIZE, WATTAGE

Unit Per Pc.

CODE	Size	Watts	Glass × Circle Diam. O.D.	Starter Type
79 14 51	FCL-20D/18	18	29 × 205	FG-1P or 1E
52	FCL-30D/28	28	29 × 225	FG-1P or 1E
53	FCL-32D/30	30	29 × 299	FG-5P
54	FCL-40D/38	38	29 × 373	FG-4P
79 14 55	European	40	29 × 400	FG-4P
56	U.S.A	40	1-1/8" × 16"	FG-4P

Circle Fluorescent Lamps

Rapid Start

Lámparas Circulares Fluorescentes - Encendido Rápido
ラピッドスタートサークライン蛍光灯　快亮环型日光灯管

Same as the lamps above but these require a rapid start fixture.



Unit Per Pc.

CODE	Size	Watts	Glass × Circle Diam. O.D. mm
79 14 61	FCR-20	18	29 × 205
62	FCR-30	28	29 × 225
60	FCR-32	30	29 × 299
63	FCR-40	38	29 × 373

Energy Saving Lamps

Lámparas de ahorro energético　省エネ型電球　节能灯

Suitable for when functionality precedes form and high number of lumen is required.



Compact Fluorescent Lamp, 2700°K Used without ballast

130V AC

Unit Per Pc.

CODE	Watts	Cap	Type	D × l mm
79 14 96	7	E14	T4-2U	40 × 120
97	9			40 × 135
98	11			40 × 140
79 14 99	5	E27	T4-2U	40 × 120
79 15 00	9			40 × 135
09	11			40 × 140
79 15 10	15	E27	T4-3U	48 × 133
11	20			48 × 155
12	23			48 × 160

240V AC

Unit Per Pc.

CODE	Watts	Cap	Type	D × l mm
79 15 13	9	B22	T4-2U	40 × 135
79 15 14	5	E14	T4-2U	40 × 120
15	7			40 × 125
16	9			40 × 135
17	11			40 × 140
79 15 18	5	E27	T4-2U	40 × 120
19	7			40 × 125
20	9			40 × 135
23	11			40 × 140
79 15 24	15	E27	T4-3U	48 × 133
30	20			48 × 155

6200°K Daylight Used without Ballast

130V AC

Unit Per Pc.

CODE	Watts	Cap	Type	D × l mm
79 15 31	7	E14	T4-2U	40 × 125
34	9			40 × 135
39	11			40 × 140
79 15 40	5	E27	T4-2U	40 × 120
41	7			40 × 125
42	9			40 × 135
43	11			40 × 140
79 15 44	15	E27	T4-3U	48 × 133
45	20			48 × 155
79 15 46	23	B27	T4-2U	48 × 160

230V AC

Unit Per Pc.

CODE	Watts	Cap	Type	D × l mm
79 15 47	9	E14	T4-2U	40 × 135
48	11			40 × 140
79 15 49	5	E27	T4-2U	40 × 120
50	7			40 × 125
59	9			40 × 135
60	11			40 × 140
79	15			40 × 133
79 15 80	20	E27	T4-3U	48 × 155
99	23			48 × 160

Compact Fluorescent Light Bulbs

Bombilla Fluorescente Compacta　電球形蛍光ランプ　小型螢光燈泡

A compact fluorescent lamp can be replaced an incandescent lamp using less power and having a longer rated life. All bulbs has E-26 screw base.



Pear Shape



Globeless

Unit Per Pc.

CODE 100V	CODE 220V	Equivalent Watt	Colour	Size mm Diam x L
Pear Shape - E-26 Screw Base				
79 15 61	79 15 64	40 watt	Incandescent Cool White Daylight	60 x 116
62	65			
63	66			
79 15 67	79 15 70	60 watt	Incandescent Cool White Daylight	60 x 109
68	71			
69	72			
79 15 73	79 15 76	100 watt	Incandescent Cool White Daylight	65 x 133
74	77			
75	78			
Globeless - E-26 Screw Base				
79 15 81	79 15 84	40 watt	Incandescent Cool White Daylight	40 x 89
82	85			
83	86			
79 15 87	79 15 90	60 watt	Incandescent Cool White Daylight	40 x 112
88	91			
89	92			
79 15 93	79 15 96	100 watt	Incandescent Cool White Daylight	48 x 130
94	97			
95	98			

Single Pin End Fluorescent Lamps

Lámparas Fluorescentes de Conector Simple
シングルピン蛍光ランプ　単栓端日光灯



Fluorescent lamps of 20W or 40W for starter less ignition, to be operated by means of special explosion-proof ballasts on A.C. mains; the lamps are designed specifically for application in areas where an explosion hazard exists. "TL"X instant-start lamps, stabilized by special ballasts, are provided with an internal ignition strip connected to one of the electrodes. Since the electrodes are not pre-heated, only one electrical contact is required at each lamp-end. To exclude all possible sparking effects during ignition, the caps and, in particular, the long, thick lamp-pins are constructed so as to ensure maximum contact with the appropriate lamp holders.

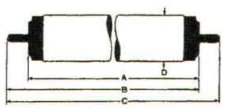
Application

In "flameproof" and "increased safety" luminaries designed in accordance with IEC 79/1, 79/7, EN 50018 and 50019, VDE 170/171 and similar specifications, both for indoor and outdoor applications :

Dimensions

mm

	20W	40W
A	574	1,184
B	593	1,202
C	611	1,221
D	41	41



Specifications

Type	Nominal		Colour	Luminous	Weight
	Length	Diam.		lm	grm
"TL" X 20W/33	574 mm	41 mm	Cool White	940	150
"TL" X 40W/33	1,184 mm	41 mm		2,300	292

79 14 79	Lamp Fluorescent, single pin end, type "TL" X20W/33, 38 x 574 mm	Pc.
79 14 80	Lamp Fluorescent, single pin end, type "TL" X40W/33, 41 x 1,184 mm	Pc.

Germicidal Lamps

Lámparas Germicidas　殺菌灯　杀菌灯



Specially designed low voltage mercury vapour lamps which radiate ultraviolet rays of 250 - 260 mm. This short wave ray is a very effective bactericide for medical and sanitary purposes, such as the germicide of food stuff in the refrigerator, table ware, cooking utensils in the galley, and barber tools, room air, etc.

This lamp comes in the same type and sizes as common fluorescent tube lamps and can be used within the same fixture.

5 sizes are available. Specify when ordering.

Uit Per Pc.

CODE	Model	Wattage	Size mm Φ	Size mm L	Cap	Glow Starter
79 14 91	GL- 4	4	15.5	134.5	G 5	FG7P (7E)
92	GL- 6	6	15.5	210.5	G 5	FG7P (7E)
93	GL- 8	8	15.5	287.0	G 5	FG7P (7E)
94	GL-10	10	25.5	330.0	G13	FG7P (7E)
95	GL-15	15	25.5	436.0	G13	FG1P (7E)
79 14 90	GL-30	30	25.5	893.0	G13	FG-4P

Caution!

Do not stare directly at the lamp when it is on as GERMICIDAL rays are injurious to the eyes. Wear ordinary safety goggles.

Starters for Fluorescent Lamps

Cebadores para Lámparas Fluorescentes　蛍光ランプスターター　启辉器

Each fluorescent lamp requires a starter for the purpose of preheating before lighting. When ordering, specify type "E" or "P" as well as the wattage of the lamps.



E-17



P-21

Starter Application Table

Type	Applicable Fluorescent Lamps
FG-7E or FG-7P	FL4, FL-6, FL-8, FL-10 GL-6, GL-10
FG-1E or FG-1P	FL15, FL-20SS/18, FL-20S, FL-20, FL-20SS, FL-20S/EL, FL-20EL FL-30S, FCL-20, FCL-30, GL-15
FG-4P	FL-40S, FL40, FCL-40
FG-5P	FCL-40
FS-2	Single: FL-4, FL-6, FL-8 Series: FL4 – FL22
FS-U	Single: FL4 – FL13, FL15 – FL80

(to be continued)

Unit Per Pc.

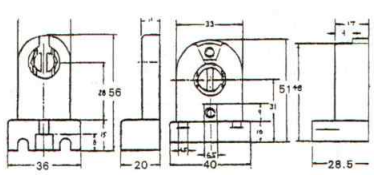
CODE	Type	Base Type	Size mm Diam. × Length
79 15 01	FG-7E	E-17	17 x 40
02	FG-1E	E-17	17 x 40
03	FG-7P	P-21	21 x 38
04	FG-1P	P-21	21 x 38
05	FG-4P	P-21	21 x 38
79 15 06	FG-5P	P-21	21 x 38
79 15 07	FS-2	P-21	21 x 38
79 15 08	FS-U	P-21	21 x 38

Fluorescent Lamp Holders

Porta-lámparas Fluorescentes　蛍光燈用ソケット　旋转弹簧荧光灯脚座

There are many types of lamp holders available. The most common types are illustrated and listed below with their respective specifications.

A. Spring Loaded Rotor Type





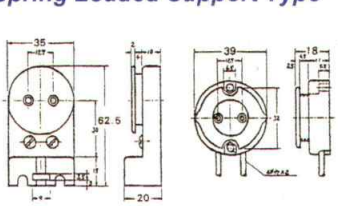
How to order: CODE

FL lamp holder, spring loaded rotor type, ELECTRICITY RATING, SIZE

Unit Per Pc.

CODE	Electricity Rating	Size mm W	Size mm H	Size mm D	Material
79 15 21	250 V × 1 Amp.	36	56	20	Phenol
22	250 V × 3 Amp.	40	51	28.5	Resin

B. Spring Loaded Support Type





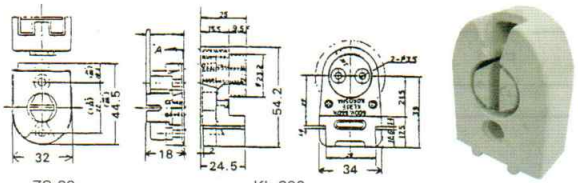
How to order: CODE

FL lamp holder, spring loaded support type, 250 volt, 1 amp, SIZE

Unit Per Pc.

CODE	Electricity Rating	Size mm W	Size mm H	Size mm D	Material
79 15 25	250 V × 1 Amp.	35	62.5	20	Phenol
26	250 V × 1 Amp.	39	39	18	Resin

C. KOKOSHA Spring Loaded Support Type



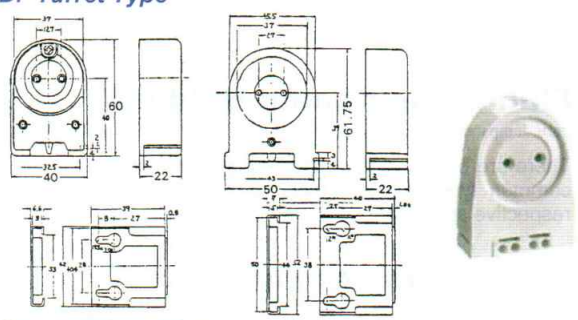
How to order: CODE

FL lamp holder, KOKOSHA spring loaded support type, MODEL

Unit Per Pc.

CODE	Model	Electricity Rating	Size mm			Material
			W	H	D	
79 15 28	ZS-22	300 V × 1 Amp.	32	44.5	18	Phenol
29	KL-238	600 V × 660 W	34	54.2	24.5	Resin

D. Turret Type



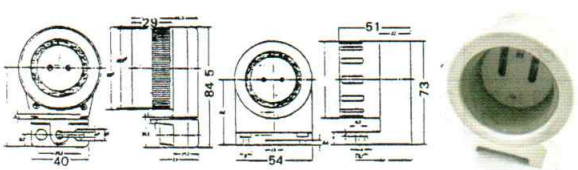
How to order: CODE

FL lamp holder, turret type, 300 volt, 1 amp, SIZE

Unit Per Pc.

CODE	Electricity Rating	Size mm			Material
		W	H	D	
79 15 32	300 V × 1 Amp.	40	60	22	Phenol
33	300 V × 1 Amp.	50	61.75	22	Resin

E. Waterproof Type



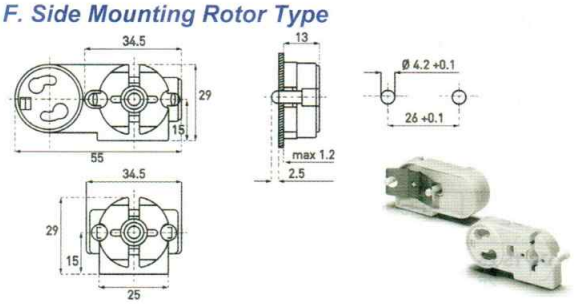
How to order: CODE

FL lamp holder, waterproof type, ELECTRICITY RATING, SIZE

Unit Per Pc.

CODE	Electricity Rating	Applica-tion	Size mm			Material
			W	H	D	
79 15 35	300V × 1 Amp.	20 ~ 40W	40	84.5	29	Phenol
36	300V × 3 Amp.		54	73	51	Resin

F. Side Mounting Rotor Type



How to order: CODE

FL lamp holder, With or Without Starter holder, side mounting complete with spring plate type, 250 volt, 2 amp, SIZE

Unit Per Pc.

CODE	Type	Electricity Rating	Application	Size mm		
				W	H	D
79 15 37	With Starter Holder	250V × 2A	T8 / T12	55	29	13
38	Without Starter Holder	250V × 2A	T8 / T12	25	29	13

Ballasts for Fluorescent Lamp

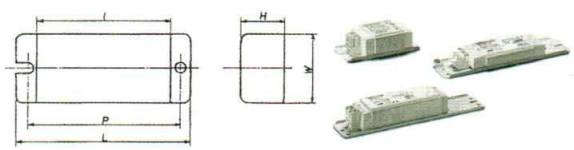
for Marine Use

(Ref. JIS F8431-1985)

Peactancias para Lámpara Fluorescente Uso Marino

船用蛍光燈安定器　船用荧光灯镇流器

Low power factor ballasts for marine fluorescent lamps supplied from 100V, 115V or 220V AC 60Hz and used on board at an ambient temperature of 50°C or less.



Principal Dimensions of Ballast

Unit: mm

Class	Watts	P	L	I	H	W
FBM-C	6	55 ± 2	63 or less	48 or less	35 or less	40 or less
	8	85 ± 2	100 or less	75 or less	35 or less	50 or less
	10	85 ± 2	100 or less	80 or less	40 or less	55 or less
	15	110 ± 2	130 or less	95 or less	40 or less	65 or less
	20	110 ± 2	130 or less	95 or less	40 or less	65 or less
	30	115 ± 2	140 or less	105 or less	50 or less	70 or less
	40	115 ± 2	140 or less	110 or less	50 or less	70 or less
FBM-T	40	160 ± 2	215 or less	185 or less	50 or less	70 or less

How to order: CODE

FL lamp ballast, CLASS, WATTAGE

Unit Per Pc.

CODE	Class	Watts	Rated Input Voltage V	Rated frequency Hz	Rated Input Current A	Applicable Fluorescent Lamp	
						Type	Current A
79 15 51	FBM-C	6	100	60	0.147	FL6	0.147
79 15 52		8			0.170	FL8	0.170
79 15 53		10			0.230	FL10	0.230
79 15 54		15			0.300	FL15S	0.300
79 15 55		20	115		0.360	FL20	0.375
79 15 56		30			0.610	FL30	0.620
79 15 57	FBM-T	40			0.970/ 0.840	FL40	0.435
79 15 58	FBM-C	40	220	60	0.420	FL40	0.435

Remarks: Letters FBM of class symbol denote the ballast for marine fluorescent lamp and the last letter C denotes the choke coil type and T, the transformer type.

6. Lighting Fixtures

Lighting Fixtures

Proyectores 投光器 投光器

For Reflector Lamp

Proyectores para bombillas reflectoras

リフレクター電球用投光器 用于反射灯泡的泛光灯

Can be used with a reflector lamp such as RF, RS, as cargo lights. Available in flanged base and screw clamp types. Body and base are made of brass, and shade and guard are made of stainless steel. Class of Protection is IP-56.



Flanged Base



Screw Clamp

How to order: CODE

Lighting fixture, reflector lamp, TYPE of FITTING, LAMP BASE, APPLICABLE LAMP

Unit Per Pc.

CODE	Fitting	Lamp Base	Applicble Lamp	Weight kg
79 18 01	Flanged	E-26	RF&RS-100, 150, 200 W	3.2
02	- Base	E-39	RF&RS-300, 500 W	4.5
79 18 03	Screw	E-26	RF&RS-100, 150, 200 W	3.6
04	- Clamp	E-39	RF&RS-300, 500 W	4.9

Flood Type

Proyectores Intensivos y Extensivos

投光照明器具 投射式照明器材

Vibration-proof flood lighting fixture. Can be used with high pressure sodium lamps. Aluminium reflector with steel frame. Ballasts are sold separately.



Mirror Reflector (Narrow Beam)



Diamond Cut Reflector (Wide Beam)

Unit Per Pc.

CODE	Type of Reflector	Beam Angle	Base Size	Applicable Lamp	Weight kg
79 18 16	Mirror	Narrow 20°	E-39	Incandescent lamp KF 1000W High Pressure Sodium lamp NH700W/1000W	20.0
79 18 17	Diamond Cut	Wide 55°			20.0

LED Flood Lights – IP65

Aparatos de iluminación LED LED 投光器 LED 泛光灯

Energy saving LED flood lighting fixtures, designed as a replacement of traditional high output floodlights. Made of aluminium base, waterproof (IP65), wide beam angle 120 , Lifespan for 30,000 hours.



Unit Per Set

CODE	Voltage	Watt	Colour	Dimensions H x W x D (mm)	Weight
79 20 19 20	AC100 - 240V	30W	Cool White Day Light	230x195x52	1.2 Kg
79 18 18 19		50W	Cool White Day Light	285x240x68	1.6 Kg
79 20 30 33		70W	Cool White Day Light	337x290x73	2.5 Kg
79 18 20 25		100W	Cool White Day Light	337x290x77	3.0 Kg
79 18 26 27		150W	Cool White Day Light	425x325x77	3.5 Kg
79 18 28 29		200W	Cool White Day Light	425x325x100	5.4 Kg
79 20 34 35		300W	Cool White Day Light	435x393x100	7.1 Kg

LED Floodlights - IP 66

Proyectores LED IP66 LED 投光器 IP66 LED 泛光灯 IP66

The versatile floodlight made of marine grade aluminum alloy with powder coating and comes with 4mm tempered glass front cover. Reliable AC driver on board to enhance service life. Rapid heat-dispensing design prolongs lamp life and optimizes lumen output. Long service life of 100,000 hours @ 50°C. JIS and IEC safety and EMC compliance. Ingress Protection: 66. Interchangeable modules. Wide or Narrow beam angle available. Triac dimming compatible (220-240VAC & 100V-120VAC only).

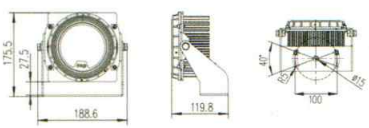
Application: Decks, Marinas, Docks, Ports, Warehouses. ABS and IEC60533 certified. Additional optional SUS316 Stainless steel protection guard for 1 module series.

1x Wide Angle Module



Ideal Replacement:



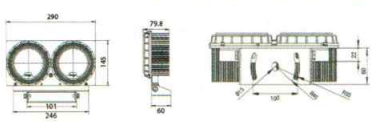


2x Wide Angle Module



Ideal Replacement:



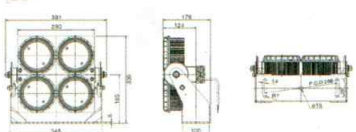


4x Lights, Wide Angle Module



Ideal Replacement:





Unit Per Pc.

CODE	Module	Voltage	Power	CCT	System Lumen	Weight kg
79 18 05	1	220-240V AC	56W	5,000K	5,400 lm	1.9
79 18 06		100-120V AC			4,500 lm	
79 18 07		20- 32V DC			4,600 lm	
79 18 08	2	220-240V AC	112W	5,000K	11,000 lm	3.5
79 18 09		100-120V AC			9,000 lm	
79 18 10		20- 32V DC			9,800 lm	
79 18 15	4	220-240V AC	224W	5,000K	22,000 lm	9.3
79 18 30		100-120V AC			18,000 lm	

LED Floodlights with Beam Angle

Proyector LED con ángulo de haz IP66
ビーム角付 LED 投光器 IP66　LED 泛光灯，光束角 IP66

Long service life of >50,000 hours L70 @ 50°C. JIS and IEC safety and EMC compliance. Ingress Protection: 66 (Housing), 67 (Junction Box). ABS and IEC60533 certified. Flood, Medium and Narrow beam angles available.

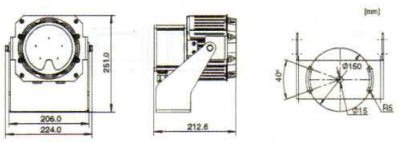
Application: Decks, Marinas, Docks, Ports, Warehouses. Additional optional SUS316 Stainless steel protection guard for 1 module series.

1x Wide Angle Module



Ideal Replacement:



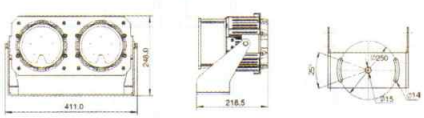


2x Wide Angle Module



Ideal Replacement:





4x Wide Angle Module



Ideal Replacement:





Unit Per Pc.

CODE	Module	Beam Angle (50%)	Beam Angle (10%)	Voltage	Power	CCT	System Lumen	Weight kg
79 18 38	1	17°	32°	100-240V AC	90W	5,000K	11,400 lm	4.35
79 18 39		45°	87°				10,800 lm	
79 18 40		105°	148°				11,700 lm	
79 18 48	2	17°	32°		180W	5,000K	22,800 lm	8.6
79 18 49		45°	87°				21,600 lm	
79 18 50		105°	148°				23,400 lm	
79 18 56	4	17°	32°		360W	5,000K	45,600 lm	17
79 18 59		45°	87°				43,200 lm	
79 18 60		105°	148°				46,800 lm	

LED Floodlights - IP67

Proyectores LED IP67　LED 投光器 IP67
LED 泛光灯 IP67



AC 85 – 265V Type

High watertight LED floodlight (IP67) made of Stainless steel. Lifespan for 50.000 hours.

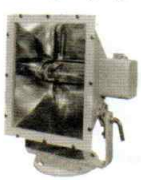
Unit Per Pc.

CODE	Voltage	Power	Colour	Dimension HWD mm	System Lumen	Weight kg
79 18 68	AC 85 - 265V	30W	Daylight	340 × 390 × 145	3,000	6.0
79 18 69		50W		365 × 495 × 145	5,000	10.6
79 18 70		100W		490 × 624 × 145	10,000	16.7

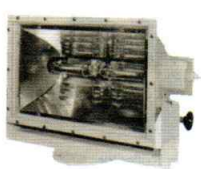
High Pressure Sodium Lamp Flood Lighting Fixtures

Proyectores de Lámpara de Sodio Alta Presión
角型ナトリウム投光照明器具　方形高压钠灯投光器

This floodlight of H.P. sodium light illuminates a larger area than the circular type of incandescent projector. Also used for funnel lighting and very efficient for use in dense fog. Vibration proof, water proof and airtight. Furnished without lamps. Accompanying ballast is another order.



400W x 1



400W x 2

How to order: CODE

Flood lighting fixture, high pressure sodium lamp, WATTAGE and NUMBER of LAMPS, VOLTAGE

Unit Per Set

CODE		79 18 21	79 18 22	79 18 23	79 18 24
Lamp	Watt × Nos.	400W × 1		400W × 2	
	Luminous-flux. (lm)	47,000		47,000 × 2	
AC Voltage		110 V	220 V	110 V	220 V
Dimensions mm		W × D × H 430 × 285 × 543		W × D × H 740 × 285 × 543	
Height of Light Source		332 mm			
Base Flange	Out Dia.	240 mm			
	Bolt Circle	200 mm			
Material	Body	Stainless Steel			
	Bracket	Mild Steel			
Weight		19 kg		30 kg	

High-Brightness LED Flood Lighting Fixtures

Aparatos de iluminación LED de alta luminosidad
高輝度 LED 投光器　高亮度 LED 泛光灯

A vibration-proof, shock resistance and robust flood lighting with High-brightness LED. 1/6 of power consumption compared with incandescent lamp, and no mercury used as compliance with ROHS.


SLD-120


SLD-150


SLD-240

How to order: CODE

LED Flood lighting fixture, high-brightness, WATTAGE and NUMBER of LAMPS, VOLTAGE

Unit Per Set

CODE		79 18 35	79 18 36	79 18 37
Model		SLD-120	SLD-150	SLD-240
Lamp (Watt × Nos.)		13W × 6	3W × 12	13W × 12
Max. Luminous flux		More than 76,000 cd	More than 400,000 cd	More than 265,000 cd
Protection Class		IP56		
Power Source		AC100V – 220V		
Material	Body	Aluminium		
	Bracket	Aluminium		
Dimensions mm (W × H × D mm)		256×254×41	333×282×141	508×335×133
Weight kg		4.7 kg	7.5 kg	10.5 kg

Name of Mfr: Shonan Kosakusyo Co, Ltd.

Rechargeable LED Portable Floodlight

Proyector portátil LED recargable
充電式 LED ポータブル投光器　可充电 LED 便携式泛光灯



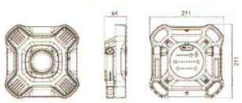
The aluminium alloy LED front frame comes with polycarbonate diffuser and ABS plastic housing. High performance COB LED with rechargeable lithium ion battery. Long service life of 50,000 hours LED lifespan, battery life up to 500 charges. USB power bank functions for emergency charging of mobile devices. Swivel stand can rotate 180 °. 5/7 step dimming available. Vibration and impact resistant. RoHS safety compliant. Ingress Protection: 54.

Application: Decks, Marinas, Docks, Ports, Warehouses.

20W power



40W Power



Unit Per Pc.

CODE	Main Voltage	Power	CCT	System Lumen	Weight kg
79 18 78	100-240V AC	20W	5,000 K	2,600 lm	0.7
79 18 79	100-240V AC	40W	5,000 K	5,000 lm	1.5

Explosion Proof LED Floodlights

Proyectores LED antideflagrantes
防爆 LED 投光器　防爆 LED 泛光灯

Made of marine grade seawater resistant aluminium alloy body with anti-corrosion power coating and SUS316 stainless steel mounting bracket, protection guard and external fasteners. Ultra long Service life of 100,000 hours at 40°C. JIS and IEC safety and EMC compliance. ATEX and IECEx approvals certified by CSA and SIRA for Zones 1/2 & 21/22 applications.

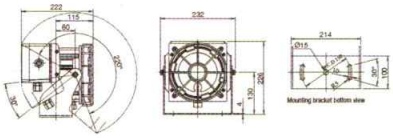
EX class – II 2G Ex db be op is IIC T6/T5/T4 Gb & II 2D Ex tb op is IIIC T80°C/T100°C/T135°C Db. Ingress Protection: 66, 67.

Available in both narrow and wide beam angles.

1 module



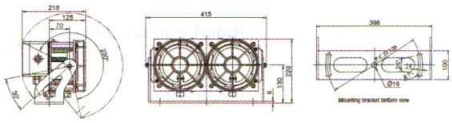
Ideal Replacement:
150W (MH),
250W (Mercury),
500W (Halogen)



2 modules



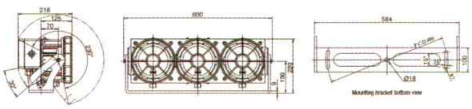
Ideal Replacement:
250W (MH),
400W (Mercury),
1,000W (Halogen)



3 modules



Ideal Replacement:
150W (HPS),
400W (MH),
1,500W (Halogen)



Unit Per Pc.

CODE	Module	Main Voltage	Beam Angle	Power	CCT	System Lumen	Weight kg
79 18 45	1	100V-120V AC / 220-240V AC	108°	78W	5,000K	6,000 lm	5.8
79 18 65			36°			5.680 lm	6.0
79 18 75	2		108°	156W		12,000 lm	11.5
79 18 80			36°			11,800 lm	11.7
79 18 85	3		108°	234W		17,100 lm	17.0
79 19 25			36°			16,900 lm	17.3

Marine Non-Watertight Fluorescent Ceiling Lights

Luminaria Fluorescente no Estanca
船用萤光天井灯（非防水）　船用天花板日光灯（无防水）

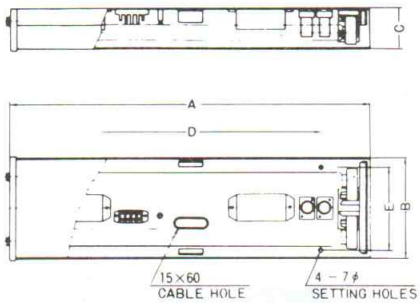
(Ref. JIS F 8436-1983)



Mainly used for lighting living quarters in ships at an ambient temperature of 40°C or less. Made of a steel plate with melamine resin baked finish and milky white acrylic diffuser. Glow starting with high or low power factor ballast. One, two and three lamp types, as well as surface and recessed types are available.

When ordering, please specify the voltage and frequency required.

Surface Mounting with Diffuser



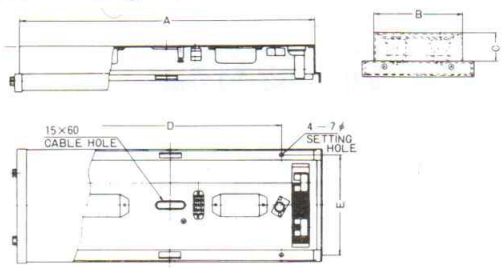
How to order: CODE

FL ceiling light, non-watertight, surface mounting with diffuser, TYPE, VOLTAGE, WATTAGE, NUMBER of LAMPS

Unit Per Pc.

CODE	Type	Lamps	Dimensions mm				
			A	B	C	D	E
Rated Voltage 100, 115							
79 18 41	KQB201	20W × 1	660	180	55	480	140
42	KQB401	40W × 1	1,280	180	55	550	140
79 18 43	KQB202	20W × 2	660	180	55	480	140
44	KQB402	40W × 2	1,280	180	55	550	140
79 19 01	KQB203	20W × 3	660	300	55	480	250
Rated Voltage 220							
79 19 02	KQB201	20W × 1	660	180	55	480	140
03	KQB202	20W × 2	660	180	55	480	140
04	KQB203	20W × 3	660	300	55	480	250
79 18 46	KQB401	40W × 1	1,280	180	55	550	140
47	KQB402	40W × 2	1,280	180	55	550	140

Recessed Fitting with Diffuser



How to order: CODE

FL ceiling light, non-watertight, recessed fitting with diffuser, TYPE, VOLTAGE, WATTAGE, NUMBER of LAMPS

Unit Per Pc.

CODE	Type	Lamps	Dimensions mm				
			A	B	C	D	E
Rated Voltage 100, 115							
79 18 51	KQA201	20W × 1	642	140	55	500	160
52	KQA401	40W × 1	1,250	140	70	500	160
79 18 53	KQA202	20W × 2	642	140	55	500	160
54	KQA402	40W × 2	1,250	140	70	500	160
79 18 55	KQA203	20W × 3	642	260	55	500	280
Rated Voltage 220							
79 19 05	KQA201	20W × 1	642	140	55	500	160
06	KQA202	20W × 2	642	140	55	500	160
07	KQA203	20W × 3	642	260	55	500	280
79 18 57	KQA401	40W × 1	1,250	140	70	500	160
58	KQA402	40W × 2	1,250	140	70	500	160

Marine Watertight Fluorescent Ceiling Lights

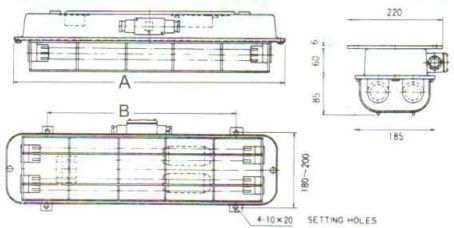
Luminaria Fluorescente Estanca

船用蛍光天井灯（防水） 船用天花板日光灯（防水）

(Ref. JIS F8437-1983)

Mainly used for the lighting of machinery room, galleys, bath rooms, outdoor passageways, in ships at an ambient temperature of 45°C or less. When ordering, please specify the voltage and frequency required.

Surface Mounting Drip-proof Fitting with Guard



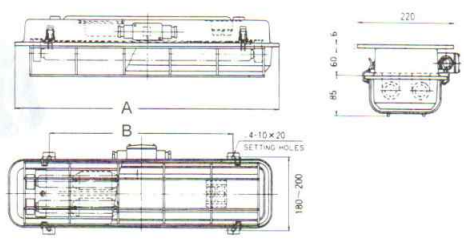
How to order: CODE

FL ceiling light, drip-proof, surface mounting with guard, TYPE, VOLTAGE, WATTAGE, NUMBER of LAMPS

Unit Per Pc.

CODE	Model	Lamps	Dimensions mm	
			A	B
Rated Voltage 100, 115				
79 18 61	KGW201	20W x 1	715	500
62	KGW202	20W x 2	715	500
79 18 63	KGW401	40W x 1	1,335	1,100
64	KGW402	40W x 2	1,335	1,100
Rated Voltage 220				
79 19 08	KGW201	20W x 1	715	500
09	KGW202	20W x 2	715	500
79 18 66	KGW401	40W x 1	1,335	1,100
67	KGW402	40W x 2	1,335	1,100

Watertight Fitting with Diffuser & Guard



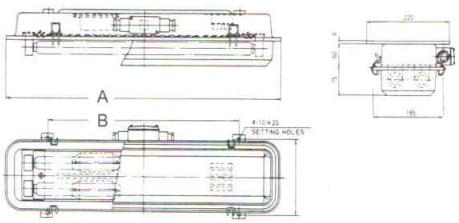
How to order: CODE

FL ceiling light, watertight, surface mounting with diffuser and guard, TYPE, VOLTAGE, WATTAGE, NUMBER of LAMPS

Unit Per Pc.

CODE	Model	Lamps	Dimensions mm	
			A	B
Rated Voltage 100, 115				
79 18 71	KAW201	20W x 1	715	500
72	KAW202	20W x 2	715	500
79 18 73	KAW401	40W x 1	1,335	1,100
74	KAW402	40W x 2	1,335	1,100
Rated Voltage 220				
79 19 10	KAW201	20W x 1	715	500
11	KAW202	20W x 2	715	500
79 18 76	KAW401	40W x 1	1,335	1,100
77	KAW402	40W x 2	1,335	1,100

Watertight Fitting with Diffuser



How to order: CODE

FL ceiling light, watertight, surface mounting with diffuser, TYPE, VOLTAGE, WATTAGE, NUMBER of LAMPS

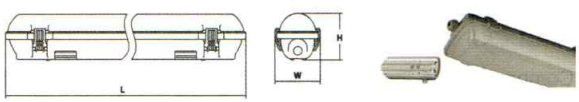
Unit Per Pc.

CODE	Model	Lamps	Dimensions mm	
			A	B
Rated Voltage 100, 115				
79 18 81	KEW201	20W x 1	715	500
82	KEW202	20W x 2	715	500
79 18 83	KEW401	40W x 1	1,335	1,100
84	KEW402	40W x 2	1,335	1,100
Rated Voltage 220				
79 19 12	KEW201	20W x 1	715	500
13	KEW202	20W x 2	715	500
79 18 86	KEW401	40W x 1	1,335	1,100
87	KEW402	40W x 2	1,335	1,100

LED Watertight Fixtures with Diffuser

Luminarias estancas LED con difusor

ディフューザー付 LED 防水器具　带扩散器的 LED 防水灯具



Innovative LED Watertight Fixture, IP65 Waterproof. High impact resistant polycarbonate body and diffuser.

How to order: CODE

LED ceiling light, watertight, surface mounting with diffuser, TYPE, VOLTAGE, WATTAGE, COLOUR

Unit Per Pc.

CODE	Voltage	Lamps	Colour	Dimensions L × W × H (mm)
79 18 88	100-240V	11.5W × 1	Cool White	655 × 89 × 92
89		11.5W × 1	Daylight	655 × 89 × 92
79 18 90		11.5W × 2	Cool White	655 × 130 × 92
94		11.5W × 2	Daylight	655 × 130 × 92
79 18 95		23W × 1	Cool White	1,265 × 89 × 92
99		23W × 1	Daylight	1,265 × 89 × 92
79 19 00		23W × 2	Cool White	1,265 × 130 × 92
14		23W × 2	Daylight	1,265 × 130 × 92

LED Watertight Luminaires

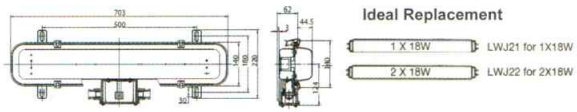
Luminarias estancas LED　LED 防水照明器具　LED 防水灯具

LWJ Series (JIS Type)



Triac dimming compatible, with specially designed polycarbonate diffuser to optimize LED light transmission. Including built-in high thermal efficient linear module that allows for operation at ambient temperature of up to 45ºC without compromising long service life of 50,000 hours L70 @ 45ºC. JIS and IEC safety and EMC compliance. ABS and IEC60533 certified. Surface Mounted. Diffuser material: Poly Carbonate, Housing Material: SUS316 Stainless Steel or Zinc coated steel, Power coated green. Flexible wiring, Heat resistant up to 105°C. Protection Class: IP56.

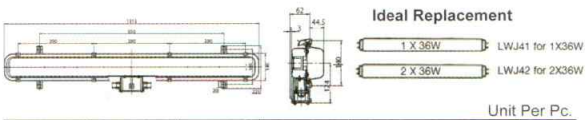
2FT 10W or 20W Type



Unit Per Pc.

CODE	Main Voltage	Power	system Lumen	Dimensions L×W×H mm	Weight Kg
Housing: Zinc Coated Steel					
79 19 15	220-240V AC	1×10W	1,000 lm	703×220×106.5	3.1
79 19 16		2×10W	2.000 lm		3.3
Housing: SUS 316					
79 19 17	220-240V AC	1×20W	1,000 lm	703×220×106.5	3.2
79 19 18		2×20W	2.000 lm		3.4

4FT 20W or 40W Type



Unit Per Pc.

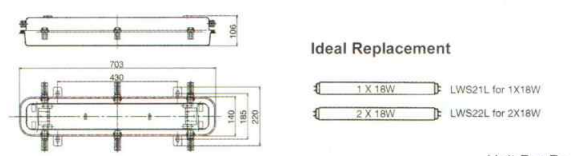
CODE	Main Voltage	Power	system Lumen	Dimensions L×W×H mm	Weight Kg
Housing: Zinc Coated Steel					
79 19 19	220-240V AC	1×10W	2,000 lm	1,313×220×106.5	5.1
79 19 20		2×10W	4.000 lm		5.5

LWS Series (IEC type)



Superior thermal design to allow for operation at high ambient temperature up to 45ºC. Long service life of 50,000 hours @ 45ºC (Ta). Polycarbonate diffuser to optimize LED light transmission. JIS and IEC safety and EMC compliance. ABS and IEC60533 certified. Surface Mounted. Diffuser material: Poly Carbonate, Housing Material: SUS316 Stainless Steel or Zinc coated steel, Power coated white. With Metal Bracket. Flexible wiring, Heat resistant up to 105°C. Protection Class: IP67. Available with battery backup system and emergency lighting.

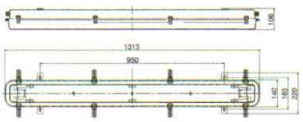
2FT 10W or 20W Type



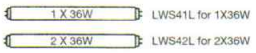
Unit Per Pc.

CODE	Main Voltage	Power	System Lumen	Dimensions L×W×H mm	Weight Kg
Housing: Zinc Coated Steel					
79 19 67	220-240V AC	1×10W	1,000 lm	703×220×106	2.6
79 19 68		2×10W	2.000 lm		2.7
Housing: SUS 316					
79 19 69	220-240V AC	1×10W	1,000 lm	703×220×106	2.7
79 19 70		2×10W	2.000 lm		2.8

4FT 20W or 40W Type



Ideal Replacement



Unit Per Pc.

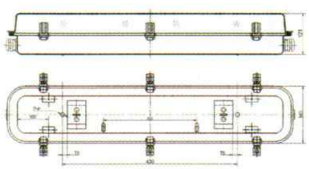
CODE	Main Voltage	Power	System Lumen	Dimensions L×W×H mm	Weight Kg
Housing: Zinc Coated Steel					
79 19 71	220-240V AC	1×20W	2,000 lm	1,313×220×106	4.8
79 19 72		2×20W	4.000 lm		5.0
Housing: SUS 316					
79 19 73	220-240V AC	1×20W	2,000 lm	1,313×220×106	4.9
79 19 74		2×20W	4.000 lm		5.1

LWE Series

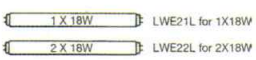
Same specification with LWS Series but without Metal Bracket.



2FT 10W or 20W Type



Ideal Replacement



Unit Per Pc.

CODE	Main Voltage	Power	System Lumen	Dimensions L×W×H mm	Weight Kg
Housing: Zinc Coated Steel					
79 19 75	220-240V AC	1×10W	1,000 lm	703×220×106	2.6
79 19 76		2×10W	2.000 lm		2.7
Housing: SUS 316					
79 19 77	220-240V AC	1×20W	1,000 lm	703×220×106	2.7
79 19 78		2×20W	2.000 lm		2.8

Replacement LED Linear

Unit Per Pc.

CODE	Watt	Length	CODE	Watt	Length
79 19 44	12.5W	2 FT	**79 19 45**	24W	4 FT
79 19 79	10W	2 FT	**79 19 80**	20W	4 FT

LWM Series

Superior thermal design to allow for operation at high ambient temperature up to 60°C, suitable for usage in hot engine room. Designed with junction box for fast termination and reliable AC driver on board to enhance service life of 50,000 hours @ 50°C (Ta). Polycarbonate diffuser prevents glare for better eye comfort. JIS and IEC safety and EMC compliance. ABS and IEC60533 certified. Surface Mounted. Diffuser material: Poly Carbonate, Housing Material: SUS316 Stainless Steel or Zinc coated steel, Power coated green or white. Flexible wiring, Heat resistant up to 105°C. Protection Class: IP67.

Optional add-on of SUS316 stainless steel protection guard.

IEC Standard



Unit Per Pc.

CODE	Main Voltage	Power	system Lumen	Dimensions L×W×H mm	Weight Kg
Housing: Zinc Coated Steel					
79 19 81	100-120V AC/220-240V AC	20W	2,000 lm	724×180×51.7	2.0
79 19 82		40W	4.000 lm	1,293.2×180×51.7	3.7
Housing: SUS 316					
79 19 83	100-120V AC/220-240V AC	20W	2,000 lm	724×180×51.7	2.1
79 19 84		40W	4.000 lm	1,293.2×180×51.7	3.8

JIS Standard



Unit Per Pc.

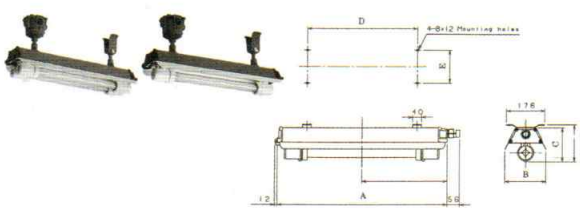
CODE	Main Voltage	Power	system Lumen	Dimensions L×W×H mm	Weight Kg
Housing: Zinc Coated Steel					
79 19 85	100-120V AC/220-240V AC	20W	2,000 lm	630×229×51.7	2.0
79 19 86		40W	4.000 lm	1,219.2×229×51.7	3.7
Housing: SUS 316					
79 19 87	100-120V AC/220-240V AC	20W	2,000 lm	630×229×51.7	2.1
79 19 88		40W	4.000 lm	1,219.2×229×51.7	3.8

Flameproof Fluorescent Ceiling Lights

Luminaria Fluorescente Resistente a la Llama

防爆萤光天井燈　防爆式天花板日光灯

Composed of a flameproof lamp holder unit, an increased safety body and an explosion proof ballast for use in hazardous areas. Meets the requirement of the IEC standards, IP65. The body and socket are made of corrosion-proof aluminium alloy and the bolts are made of stainless steel for corrosion-proof and weather-proof.



How to order: CODE

FL ceiling light, flameproof, VOLTAGE, WATTAGE, NUMBER of LAMPS, No-GUARD TYPE or With GUARD

Specifications

Material Body Socket Box Reflector Terminal Box Suspension Pipe	 Corrosion-proof aluminium alloy Corrosion-proof aluminium alloy Sheet steel Die casting Carbon steel
Colour & Finish	Body : Grey Reflector & socket box : White Finish : Melamin resin coating
Type of Protection	Ex des IIC T5
Degree of Protection	IEC standard 79, IP65

No-guard Type

Unit Per Pc.

CODE	Lamps	Dimensions mm			Fitting Size mm	
		A	B	C	D	E
Rated Voltage, 100						
79 19 21	20W x 1	768	188	156	500	150
22	20W x 2	768	188	156	500	150
79 19 23	40W x 1	1,386	188	156	500	150
24	40W x 2	1,386	188	156	500	150
Rated Voltage, 220						
79 19 26	20W x 1	768	188	156	500	150
27	20W x 2	768	188	156	500	150
79 19 28	40W x 1	1,386	188	156	500	150
29	40W x 2	1,386	188	156	500	150

With Guard Type

Unit Per Pc

CODE	Lamps	Dimensions mm			Fitting Size mm	
		A	B	C	D	E
Rated Voltage, 100						
79 19 31	20W x 1	768	188	161	500	150
32	20W x 2	768	188	161	500	150
79 19 33	40W x 1	1,386	188	161	500	150
34	40W x 2	1,386	188	161	500	150
Rated Voltage, 220						
79 19 36	20W x 1	768	188	161	500	150
37	20W x 2	768	188	161	500	150
79 19 38	40W x 1	1,386	188	161	500	150
39	40W x 2	1,386	188	161	500	150

LED Recessed Luminaires

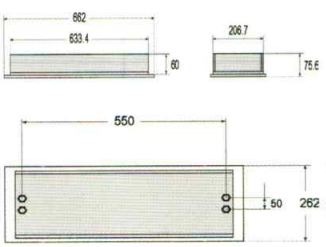
Lámparas LED empotradas
埋込み型 LED 蛍光灯器具　　嵌入式 LED 荧光灯灯具



Triac dimming compatible, and integrated with LED linear module(s) to provide high illumination performance. Long service life of >50,000 hours L70 @ 45ºC. JIS and IEC safety and EMC compliance. Mounting Method: 4 mounting brackets, Hole cut out: 638 X 211mm (2FT), 1,247 x 211 (4FT). Diffuser material: PMMA (Polymethylmethacrylate) ice crystal, Housing material: Zinc coated steel, Powder coated white. Flexible wiring, Heat resistant up to 105°C. Protection Class: IP44 in conjunction with ceiling.

Available equipped type with "Battery backup system or "Emergency lighting", if required.

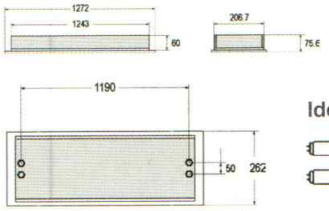
2FT 12.5W or 25W Type



Unit Per Set

CODE	Main Voltage	Power	System Lumen	Dimensions L × W × H mm	Weight Kg
79 19 40	220–240V	1 × 12.5W	950 lm	662×262×75.6	3.7
41	AC	2 × 12.5W	1,900 lm		4.0

4FT 25W or 50W Type



Unit Per Set

CODE	Main Voltage	Power	System Lumen	Dimensions L × W × H mm	Weight Kg
79 19 42	220–240V	1 × 24W	1,900 lm	1,272×262×75.6	6.9
43	AC	2 × 24W	3,800 lm		7.5

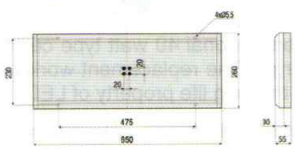
LED Surface Luminaires

Luminarias LED de superficie　LED 面照明器具　LED 表面灯具

Triac dimming compatible, with specially designed polycarbonate diffuser to optimize LED lighting performance. Long service life of >50,000 hours L70 @ 45ºC. JIS and IEC safety and EMC compliance. Mounting Method: 4 mounting holes, ø5.5mm. Diffuser material: Poly Carbonate, Housing Material: Zinc coated steel, Power coated white. Flexible wiring, Heat resistant up to 105°C.

Protection Class: IP20 in conjunction with ceiling. Available equipped type with "Battery backup system or "Emergency lighting", if required.

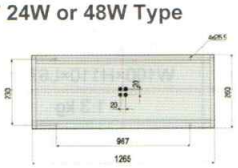
2FT 12.5W or 25W Type



Unit Per Set

CODE	Main Voltage	Power	System Lumen	Dimensions L × W × H mm	Weight Kg
79 19 46	220–240V	1 × 12.5W	950 lm	650 × 260 × 55	2.5
47	AC	2 × 12.5W	1,900 lm		2.8

4FT 24W or 48W Type



Unit Per Set

CODE	Main Voltage	Power	System Lumen	Dimensions L × W × H mm	Weight Kg
79 19 48	220–240V	1 × 24W	1,900 lm	1,265 × 260 × 55	5.0
49	AC	2 × 24W	3,800 lm		5.6

Replacement LED Linear

Unit Per Pc.

CODE	Watt	Length	CODE	Watt	Length
79 19 44	12.5 W	2 FT	**79 19 45**	24 W	4 FT
79 19 50	10 W		**79 19 66**	20 W	

When ordering shades or guards for lighting fixtures ;

Shape and size are different from manufacturers for the lighting fixtures. Please specify following necessary information for your suppliers.

Manufacturer's name .....
Model / Type .....
Part number .....

LED Ceiling Lights

Plafones LED　LED 照明器具　LED 吸顶灯



Energy saving LED fixture for living quarters (IP20). Housing/Body: PC milky cover, PC body.

Unit Per Pc.

CODE	Voltage	Watt	Colour	Lumen Output	Dimensions L × W × H mm	Weight kg
79 20 09	100-240V AC	16W	Warm	1,400 lm	600 × 135 × 46	0.6
79 20 10		32W	White	2,800 lm	1,200 × 135 × 46	1.1

Ceiling Lights

for LED Fluorescent Lamp

Luces para el techo con lámparas fluorescentes LED
LED 蛍光灯器具　LED 吸顶荧光灯



Energy saving LED fluorescent lamp fixture for vessel's engine room. The 24 watt type ceiling light create the illuminance as same as of conventional 40 watt type ceiling light, which save a lot of energy. The replacement work will be extremely reduced due to the long life property of LED.

Material: Housing–stainless steel and diffuser–polycarbonate. Please ask your local supplier for more details.

Unit Per Set

CODE	79 19 51	79 19 52
Lamp	10W x 2	24W x 1
Frequency	50 / 60 Hz	
Phase	Triple	Single
Voltage	110 - 240V	
Protection Degree	IP 67	IP 55 (Cable gland wiring type)
Size	W193×H116×L692mm	W100×H110×L670mm
Weight	3.2 kg	1.3 kg
Model as Reference	Aqua Signal No.1445203203	Toka Seiki ML-241

LED Panel Lights

Panel de iluminación LED　LED パネルライト　LED 面板灯

Made of marine grade aluminium, comes with high-efficiency light guide. Easy installation with no external drivers needed, and super slim design for surface mounted application. High-efficiency constant current driver. Long service life of 50,000 hours L70 @ 40°C. Cabin entry: 2 plastic cable glands M20, and cable max. 13mm dia. JIS and IEC safety and EMC compliance.

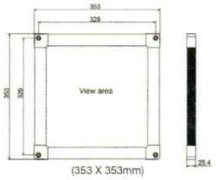
*Note: Replace whole unit when light not working.

PL 353353 Series

353 × 353 mm



70% more energy-efficient compared to 1 × 18W fluorescent lighting system.



(353 X 353mm)

Weight: 2.7 kg

Ideal replacement



Unit Per Set

CODE	IP	Main Voltage	Power	OCT	Driving Current	System Lumen
79 19 53	22	100-240V AC	10W	4,000 K	350 mA	850 lm
79 19 55	22	100-240V AC/24V DC	10W (AC) / 5W (DC)			850 lm (AC) >120 lm (DC)

PL 625257 Series

625 × 257 mm

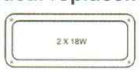


70% more energy-efficient compared to 2 × 18W fluorescent lighting system.



Weight: 3.3 kg

Ideal replacement



Unit Per Set

CODE	IP	Main Voltage	Power	OCT	Driving Current	System Lumen
79 19 57	22	100-240V AC	24W	4,000 K	800 mA	1,700 lm
79 19 59	22	100-240V AC/24V DC	24W (AC) / 5W (DC)			1,700 lm (AC) >120 lm (DC)

PL 625625 Series

625 × 625 mm

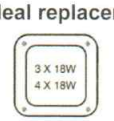


70% more energy-efficient compared to 3 × 18W fluorescent lighting system.



Weight: 7.0 kg

Ideal replacement



Unit Per Set

CODE	IP	Main Voltage	Power	OCT	Driving Current	System Lumen
79 19 61	22	100-240V AC	47W	4,000 K	800 mA	2,800 lm
79 19 63	22	100-240V AC/24V DC	47W (AC) / 5W (DC)			2,800 lm (AC) >120 lm (DC)

IP Rating Chart

The IP (International Protection, or Ingress Protection) Code consists of the letters IP followed by two digits, as defined in international standard IEC 60529.
The first digit indicates the level of protection that the enclosure provides against access to hazardous parts (e.g., electrical conductors, moving parts) and the ingress of solid foreign objects.

First Digit: Solid

Level	Object size protected against	Effective against
0	Not protected	No protection against contact and ingress of objects.
1	>50 mm	Any large surface of the body, such as the back of the hand, but no protection against deliberate contact with a body part.
2	>12.5 mm	Fingers or similar objects.
3	>2.5 mm	Tools, thick wires, etc.
4	>1 mm	Most wires, screws, etc.
5	Dust protected	Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact.
6	Dust tight	No ingress of dust; complete protection against contact.

The second digit indicates the protection of the equipment inside the enclosure against harmful ingress of water.

Second Digit: Liquid

Level	Object size protected against	Effective against
0	Not protected	-
1	Dripping water	Dripping water (vertically falling drops) shall have no harmful effect.
2	Dripping water when tilted up to 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle up to 15° from its normal position.
3	Spraying water	Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect.
4	Splashing water	Water splashing against the enclosure from any direction shall have no harmful effect.
5	Water jets	Water projected by a nozzle (6.3mm) against enclosure from any direction shall have no harmful effects.
6	Powerful water jets	Water projected in powerful jets (12.5mm nozzle) against the enclosure from any direction shall have no harmful effects.
7	Immersion up to 1 m	Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion).
8	Immersion beyond 1 m	The equipment is suitable for continuous immersion in water under conditions which shall be specified by the manufacturer. Normally, this will mean that the equipment is hermetically sealed. However, with certain types of equipment, it can mean that water can enter but only in such a manner that it produces no harmful effects.

LED Aisle Lights

Luces LED para pasillos　LED 通路灯　LED 通道灯

A long life, minimize the waste cost for replacement of fluorescent lamp, also respond to Restricting the use of Hazardous Substance (RoHS). Thin-design and a self-powered ceiling, suitable for aisle light. Material: Metal frame – Aluminium, Rest frame: Polycarbonate. Operating temperature: -30 to +50°C.



Unit Per Pc.

CODE	79 19 65
Model	CNL-01
Voltage	AC 100-240V
Wattage	19 W x 1
Power Factor	90Min (%)
Colour Temperature	6,000 K
Luminous Flux	1,900 lm
Dimension (L x W x H)	602 x 73 x 34 mm
Weight	1.0 kg

Name of Mfr. : Toka Seiki Co., Ltd.

Explosion-Proof LED Ceiling Lights

Plafones LED antideflagrantes

防爆型 LED 萤光灯器具　防爆 LED 吸顶灯

Energy saving Ex LED fixture for hazardous areas (T6), watertight (IP66). Type of protection: A-tex II 3G Ex nA IIC T6, Zone 2 and 22. Housing: Compressed fibreglass reinforced polyester. Diffuser: Injected polycarbonate transparent with UV protection. Closing clips: Stainless Steel.



Unit Per Pc.

CODE	Voltage	Watt	Colour	Dimensions L × W × H mm	Lumen Output	Weight Kg
79 19 30	AC 220-240V	18	Cool	665 × 145 × 101	2,200	1.9
79 19 35		32	White	1,289 × 145 × 101	4,800	3.2

Explosion Proof LED Bulkhead Lights

Luces de mamparo LED antideflagrantes

防爆 LED 壁付灯　防爆 LED 壁灯



Standard



Emergency

A compact, versatile, and robust light ideal for safely illuminating walkways, steps and entrances within hazardous areas. ATEX, IECEx and UKEX certified for safe use in Zones 1/21, all models in the range feature Wolf's patented DLO (Directional Linear Optics) technology, which means the beam can be directed exactly where needed, with no light overspill or wasted lumens, and there's no glare - even when installed at eye level.

The Emergency LED Bulkhead has all the features and benefits of the standard Bulkhead range, with the additional safety of an emergency back-up should power fail in the Hazardous Area. Different emergency mode durations are available and selectable on board by the installer.

Unit Per Set

CODE	79 19 89	79 19 90	79 19 91	79 19 92
Type	Standard		Emergency	
Model	LBXS-L-59	LBXS-L-65	LBXE-L-59	LBXN-L-59
Input Voltage Range	88 - 140V AC; 180 - 277 V AC		100-140V AC; 200-277V AC	
Input Power (W)	24	16	32	6
Frequency	50 - 60 Hz			
Power Factor	>0.95		>0.90	
Lumen Output (Max)*	1,629	1,086	1,629 (output dependent on duration setting 1, 2 or 4 hours)	
Colour Temperature	5,000K			
LED Module & Qty	1 x DLO (Directional Linear Optics)			
Lower Temp. Limit	-50°C		-40°C	
Upper Temp. Limit	59°C	65°C	59°C	
Certificate	ExVeritas 19 ATEX 0439X / IECEx EXV 19.0002X / ExVeritas 21 UKEX 0945X			
Weight	4 kg		5.5 kg	

Name of Mfr.: Wolf Safety Lamp Company

Explosion Proof LED Linear Lights

Luces lineales LED antideflagrantes
防爆 LED リニアライト　防爆 LED 线性灯



Standard



Emergency

ATEX, IECEx and UKEX certified for safe use in Zones 1 and 21 potentially explosive atmospheres. Ideal for illuminating hazardous area walkways, corridors, and long and large open areas, all products are IP66/67 rated, tough, reliable, and ideal for indoor or outdoor use in new installations and for replacing existing fluorescent or LED installations for improved performance and lower energy consumption. Available with Forward Facing Array LEDs or Directional Linear Optics LEDs for low glare.

The Emergency linear has all the features and benefits of the standard range with the additional safety of an emergency back-up should power fail in the Hazardous Area. Different emergency mode durations are available and selectable on board by the installer. Available with Forward Facing Array LEDs or Directional Linear Optics LEDs for low glare.

Unit Per Pc.

CODE	79 19 93	79 19 94	79 19 95	79 19 96
Type	Standard			
Model	LMX2S-F-60	LMX2S-L-60	LMX4S-F-60	LMX4S-L-60
Input Voltage Range	88 - 140V AC; 180 - 277 V AC			
Input Power (W)	23W	24W	46W	48W
Beam Angles	115°	90°	115°	90°
Frequency	50 - 60 Hz			
Power Factor	>0.90			
Enclosure Size	2 ft		4 ft	
Lumen Output (Max)*	2,629	1,988	5,258	3,976
LED Module & Qty	1x FFA	1 x DLO	2 x FFA	2 x DLO
Dust Surface Temp.	T80°C/ T90°C (dependent on model)			
Gas Temp. Class	T4			
Lower Temp. Limit	-50°C			
Upper Temp. Limit	60°C			
Approval	II 2 G Ex eb mb IIC T4 Gb II 2 D Ex tb IIIC T80°C...T90°C Db (dependent on model type)			
Certificate	ExVeritas 19 ATEX 0433X, IECEx EXV 19.0001X, ExVeritas 21 UKEX 0946X			
Weight	5 kg		9 kg	

Name of Mfr.: Wolf Safety Lamp Company

Unit Per Pc.

CODE	79 19 97	79 19 98	79 19 99	79 20 00
Type	Emergency			
Model	LMX2E-F-60	LMX2E-L-60	LMX4E-F-60	LMX4E-L-60
Input Voltage Range	100 - 140V AC; 200 - 277 V AC			
Input Power (W)	31W	32W	52W	56W
Beam Angles	115°	90°	115°	90°
Frequency	50 - 60 Hz			
Power Factor	>0.90			
Enclosure Size	2 ft		4 ft	
Lumen Output (Max)*	2,629	1,988	5,258	3,976
LED Module & Qty	1x FFA	1 x DLO	2 x FFA	2 x DLO
Dust Surface Temp.	T90°C			
Gas Temp. Class	T4			
Lower Temp. Limit	-40°C			
Upper Temp. Limit	60°C			
Approval	II 2 G D Ex eb mb IIC T4 Gb Ex tb IIIC T80°C..90°C Db			
Certificate	ExVeritas 19 ATEX 0433X, IECEx EXV 19.0001X, ExVeritas 21 UKEX 0946X			
Weight	6.5 kg		10.5 kg	

Name of Mfr.: Wolf Safety Lamp Company

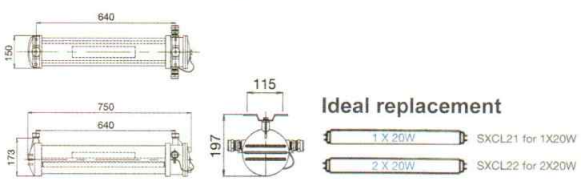
Explosion-Proof LED Tubular Light

Tubo de luz LED antideflagrante
防爆型 LED チューブライト　防爆 LED 管状灯



Made of aluminium alloy housing with anti-corrosion powder coating with option for glass or polycarbonate diffuser. Long Service life of 100,000 hours. JIS and IEC safety and EMC compliance. ATEX and IECEx approvals certified by CSA and SIRA for Zones 1/2 & 21/22 applications. EX class – Ex db IIC T6 Gb and Ex tb IIIC T85°C Db. Ingress Protection: 66. Available equipped type with 3hrs battery back up for sustained emergency lighting using secondary LED light source. Maintained and non-maintained modes are supported.

2FT 12.5W or 25W Type



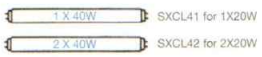
Unit Per Pc.

CODE	Main Voltage	Power	System Lumen	Dimensions L × W × H mm	Weight Kg
Diffuser: Polycarbonate					
79 21 06	100 – 120V AC	1 x 12.5W	970 lm	750 x 173 x 197	5.6
79 21 07		2 x 12.5W	1,940 lm		5.7
79 21 08	220 – 240V AC	1 x 12.5W	970 lm		5.6
79 21 09		2 x 12.5W	1,940 lm		5.7
Diffuser: Glass					
79 21 10	100 – 120V AC	1 x 12.5W	970 lm	750 x 173 x 197	8.7
79 21 11		2 x 12.5W	1,940 lm		8.8
79 21 12	220 – 240V AC	1 x 12.5W	970 lm		8.7
79 21 13		2 x 12.5W	1,940 lm		8.8

4FT 24W or 48W Type



Ideal replacement



Unit Per Pc.

CODE	Main Voltage	Power	System Lumen	Dimensions L × W × H mm	Weight Kg
Diffuser: Polycarbonate					
79 21 14	100 – 120V AC	1 x 24W	1,940 lm	1360 x 173 x 197	8.7
79 21 15		2 x 24W	3.880 lm		8.9
79 21 16	220 – 240V AC	1 x 24W	1,940 lm		8.7
79 21 17		2 x 24W	3.880 lm		8.9
Diffuser: Glass					
79 21 18	100 – 120V AC	1 x 24W	1,940 lm	1360 x 173 x 197	14.7
79 21 19		2 x 24W	3.880 lm		14.9
79 21 23	220 – 240V AC	1 x 24W	1,940 lm		14.7
79 21 24		2 x 24W	3.880 lm		14.9

90 – 260V Type



Energy saving Ex LED fixture for hazardous areas (T5), watertight (IP67)

Type of protection: A-TEX II 2G Ex de op is IIC T5 Gb, Zone 1, 2 (gas) and 21, 22 (dust)

Housing: Aluminium die casting, yellow epoxy powder coated.

Unit Per Pc.

CODE	Main Voltage	Power	System Lumen	Dimensions L × W × H mm	Weight Kg
Diffuser: Polycarbonate					
79 21 39	90 – 260V AC	2 x 10W	2,160 lm	208 x 784	6.5
79 21 40		2 x 18W	4,200 lm	208 x 1,390	9.2

Cargo Lights

Pantalla Bodega カーゴランプ 貨灯

Single Base Cargp Lights

Lámparas Cargp de Base Única 簡易形カーゴランプ 軽型貨灯

Ref. JIS F 8430



Drip proof single base cargo lights for marine use. Main body is made of painted steel plate.

How to order: CODE

Cargo light, single base, TYPE, WATTAGE

Unit Per Pc.

CODE	Type	Lamp			Guard Diam. mm	Construction
		Watt	Number	Base		
79 20 03 04	No. 2	300 500	1	E39	400	Drip-proof

Quadruple Base, Semi Portable Type

Base cuádruple, tipo semiportátil

4 灯用カーゴライト 四个照明灯的货物照明灯

(Ref. JIS F8412-1983)



Drip proof, vibration proof, quadruple base cargo light. Main body made of steel sheet and painted for marine use.

How to order: CODE

Cargo light, quadruple base, semi portable type, No. 1 – 3, 60 watts, LAMP BASE

Unit Per Pc.

CODE	Type	Lamp Watt	Lamp Number	Lamp Base	Guard Diam. mm	Construction
79 20 07	No. 1-3	60	4	E26	410	Drip Proof & Vibration Proof
08				B22		

Projector Type

Proyector Estanco de Carga

二種カーゴライト 投影式装卸貨用照明灯

(Ref. JIS F8412-1983)



Waterproof single base projector type cargo lights for marine use. Main body made of painted steel plate.

How to order: CODE

Cargo light, projector type, TYPE, WATTAGE, LAMP BASE

Unit Per Pc.

CODE	Type	Lamp Watt	Lamp Number	Lamp Base	Guard Diam. mm	Construction
79 20 11	No. 2-1	200	1	E26	350	Water Proof
12				B22		
79 20 13	No. 2-2	300	1	E39	410	
14		500				

Boat Deck Lights

Water & Vibration Proof

Luces para Cubierta de Bote Resistente al Agua y Vibración

ボートデッキランプ 小艇甲板灯

(Ref. JIS F8413-1983)



Water and vibration proof single base boat deck lights. Mainly used for illuminating a lifeboat during and immediately after the launching process. Main body made of painted steel sheet.

How to order: CODE

Boat deck light, water & vibration proof, TYPE, WATTAGE, LAMP BASE

Unit Per Pc.

CODE	Type	Lamp Watt	Lamp Number	Lamp Base	ΦD mm	Construction
79 20 21 22	No. 1	100 200	1	E-26	350	Water and Vibration Proof
79 20 23 24		100 200		B-22		
79 20 25 26	No. 2	300 500	1	E-39	410	

Boat Deck Lights

Watertight Sealed Beam Type

Luces de cubierta, Estancas Tipo Viga Sellada

防水密閉ビームタイプ・ボートデッキライト

船用甲板灯 水密密封光束型



Made of casting brass body with casting iron made fixing bed.

Unit Per Pc.

CODE	Type	Lamp		Height	Weight
		Volt	Watt	mm	kg
79 20 28	S1R	24 V	60 W	308	4.7
29	S2R	24 V	75/55 W	308	4.7

LED Boat Deck Floodlight

Proyector LED para cubierta de barco

LED ボートデッキ投光器　LED 船甲板泛光灯

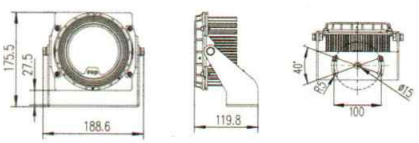
The versatile floodlight made of marine grade aluminum alloy with powder coating and comes with 4mm tempered glass front cover. Reliable driver on board to enhance service life. Rapid heat-dispensing design prolongs lamp life and optimizes lumen output. Long service life of 100,000 hours @ 50°C. JIS and IEC safety and EMC compliance. Ingress Protection: 66. ABS and IEC60533 certified. Interchangeable modules.

Application: Decks, Marinas, Docks, Ports, Warehouses.
Weight: 1.9 kg



Ideal Replacement:





Unit Per Pc.

CODE	Main Voltage	Power	CCT	System Lumen
79 20 05	20-32V DC	56W	5,000 K	4,900 lm

Marine Floodlighting Projectors

Water & Vibration Proof

Proyectores Marinos - Resistente al Agua y Vibración

船用プロジェクター　船用反射灯



(Ref. JIS F8417-1983)

Water and vibration proof single base flood lighting projector. Main body made of painted steel sheet. Mainly used on board ships.

Unit Per Pc.

CODE	Type	Lamp			φD mm
		Watt	Number	Base	
79 20 32	No. 2	500	1	E39	410

Front Glasses

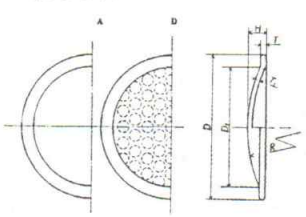
for Marine Electric Light

Cristal para Proyectores

船用カーゴランプ用前面ガラス　船用灯灯罩

(Ref. JIS F8403-1981)

Front glasses for cargo lights, flood-lighting projectors, boat deck lights and others. Available in two kinds of glass, transparent and mosaic.



Transparent　Mosaic

Unit Per Pc.

CODE	Type	Size mm			
		D	D_1	H	T
79 20 36	A300	300	280	30	8
37	D300	300	280	30	8
38	A350	350	325	35	9
39	D350	350	325	35	9

Denotes A .....Transparent Glass
D .....Mosaic Glass

Marine Pendant Lights

Water & Vibration Proof

Farol Techo - Resistente al Agua y Vibración　船用作業灯　吊式探照灯

(Ref. JIS F8414-1990)

Marine pendant light, mainly used for illuminating a working area such as in engine rooms and stores in ships. Water and vibration proof.



How to order: CODE

Pendant light, water & vibration proof, TYPE, LAMP BASE, WATTAGE

Unit Per Pc.

CODE	Type	Lamp Base	Lamp Voltage	Lamp Watt	Glass Globe
79 20 51	1	E-12	125	20	S 80A
52		B-15			
79 20 53	1M	E-12			
54		B-15			
79 20 55	2	E-26	250	60	S 90A
56		B-22			
79 20 57	2M	E-26			
58		B-22			
79 20 59	3	E-26		100	S120A
60	3M				
79 20 61	4			200	S135A
62	4M				

Remark: Main body material is metal casting but the letter "M" suffixed to type number denotes that of synthetic resins.

Marine Watertight Type Wall Lights

Farol Pared Tipo Estanco　船用防水型壁付灯　防水船用墙壁灯

Watertight Wall Light Fixture mainly used for the illumination of passageways in exposed areas on board ships.



Type W



Type WB-1



Type WB-2

Unit Per Pc.

CODE	Type	Watt	Applicable Glass Globe	Lamp Base	Main Body Material
79 20 66	W	60	F175A	E-26	Cast Iron
67	WB-1	20	S57A	B-15	Synthetic Resin
68	WB-2	60	S90A	E-26	Synthetic Resin

LED Marine Wall Lights

Luces LED navales para paredes　舶用 LED 壁付灯　船用 LED 壁灯

BG Series: Cable wiring connected by side entry

10W/12W/13W

Made of marine grade aluminium alloy with powder coating and PBT fiberglass reinforced body, polycarbonate diffuser and clear or red guard. Alternative to 100W incandescent bulb, and energy savings up to 90% compared to 100W incandescent bulb. Vibration-resistant. Long service life of

50,000 hours L70@45°C. JIS and IEC safety and EMC compliance. Ingress protection: 56. ABS and IEC60533 certified. Weight: 1.0 kg. Triac dimming compatible (220-240VAC & 100V-120VAC only). Please specify which guard is preferable, polycarbonate clear or polycarbonate red, when ordering.



Unit Per Pc.

CODE	Voltage	Power	CCT	Beam Angle	System Lumen
Guard: Polycarbonate Clear					
79 20 40	24V DC	10W	5,000K	160°	950 lm
41	100-120V AC	12W			900 lm
42	220-240V AC	13W			900 lm
Guard: Polycarbonate Red					
79 20 43	24V DC	10W	5,000K	160°	950 lm
44	100-120V AC	12W			900 lm
45	220-240V AC	13W			900 lm

CCT denotes Correlated Colour Temperature.

FG Series: Cable wiring connected by back entry, through wall

10W/12W/13W



Unit Per Pc.

CODE	Voltage	Power	CCT	Beam Angle	System Lumen
Guard: Polycarbonate Clear					
79 20 46	24V DC	10W	5,000K	160°	950 lm
47	100-120V AC	12W			900 lm
48	220-240V AC	13W			900 lm
Guard: Polycarbonate Red					
79 20 49	24V DC	10W	5,000K	160°	950 lm
50	100-120V AC	12W			900 lm
63	220-240V AC	13W			900 lm

CCT denotes Correlated Colour Temperature.

30W

Alternative to 300W incandescent bulb, and energy savings of up to 90% compared to 300W incandescent bulb. Long service life of 30,000 hours L70 @ 40°C. JIS and IEC safety and EMC compliance. ABS and IEC60533 certified. Ingress protection: 56. Weight: 1.5 kg.



Unit Per Pc.

CODE	Voltage	Power	CCT	Beam Angle	System Lumen
Guard: Polycarbonate Clear					
79 20 64	100-240V AC/DC	30W	5,000K	180°	2,900 lm
Guard: Polycarbonate Red					
79 20 65	100-240V AC/DC	30W	5,000K	180°	2,900 lm

CCT denotes Correlated Colour Temperature.

LED Marine Pendant Lights

Luces LED navales colgantes　船用 LED 作業灯　船用 LED 作业灯

EG 10W/12W/13W





A complete solution with heat sink, driver and polycarbonate diffuser. Made of marine grade aluminium alloy with powder coating and PBT fiberglass reinforced body, polycarbonate diffuser and clear or red guard. Vibration-resistant. Energy savings of up to 90% compared to 100W incandescent bulb. Long service life of 50,000 hours L70 @ 45°C. JIS and IEC safety and EMC compliance. ABS and IEC60533 certified. Triac dimming compatible (220-240VAC & 100V-120VAC only). Weight: 1.0 kg. IP56.

Unit Per Pc.

CODE	Voltage	Power	CCT	Beam Angle	System Lumen
Guard: Polycarbonate Clear					
79 20 69	24V DC	10W	5,000K	160°	950 lm
70	100-120V AC	12W			900 lm
92	220-240V AC	13W			900 lm
Guard: Polycarbonate Red					
79 20 93	24V DC	10W	5,000K	160°	950 lm
94	100-120V AC	12W			900 lm
95	220-240V AC	13W			900 lm

CCT denotes Correlated Colour Temperature.

EG30W

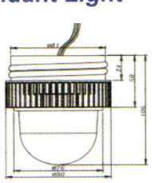
Alternative to 300W incandescent bulb, and energy savings of up to 90% compared to 300W incandescent bulb. Long service life of 30,000 hours L70 @ 40°C. JIS and IEC safety and EMC compliance. ABS and IEC60533 certified. Ingress protection: 56. Weight: 1.5 kg.

Unit Per Pc.

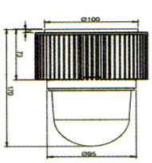
CODE	Voltage	Power	CCT	Beam Angle	System Lumen	Type
Guard: Polycarbonate Clear						
79 20 96	100-240V AC/DC	30W	5,000K	180°	2,900 lm	LMU03050PC
Guard: Polycarbonate Red						
79 20 97	100-240V AC/DC	30W	5,000K	180°	2,900 lm	LMU03050PR

CCT denotes Correlated Colour Temperature.

Replacement LED Modules for LED Wall Light and Pendant Light



Equivalent to 100W Incandescent Bulb (10/12/13W)



Equivalent to 300W Incandescent Bulb (30W)

Unit Per Pc.

CODE	Power
79 21 87	24V DC 10W
88	100-120V AC 12W
89	220-240V AC 13W
90	100-240 AC/DC 30W

LED Watertight Cargo Lights

Luces de carga estancas LED

LED 防水型カーゴライト　LED 防水货物灯

Energy saving LED High Bay light, as replacement of traditional cargo lights. Made of aluminium base, waterproof (IP65), beam angle 90°, lifespan for 30.000 hours, with eye bolt mounting.



Unit Per Pc.

CODE	Main Voltage	Power	Colour	Dimensions D × H mm	System Lumen	Weight kg
79 20 15	85-265V AC	100W	Daylight	275 × 115	10,000 lm	1.9
79 20 16		150W		310 × 120	15,000 lm	2.5
79 20 17		200W		345 × 125	20,000 lm	3.1

LED High Bay Lights

Iluminación LED para patios altos

LED 高天井照明　用于高天井的 LED 照明

The high bay LED light fixture provides high efficiency visibility. Aluminium construction ensures long life, waterproof (IP65) and high reliability with 50,000 working hours. Wide input voltage: AC 85-265V,50/60Hz, compliance with ROHS and CE.



Unit Per Pc.

CODE	Voltage	Power	Light Efficiency	Colour	System Lumen	Working lift
79 21 62	85-265V AC	150W	4,000K	Warm White	6,000 lm	50,000 hours
79 21 63		150W	6,500K	Daylight		

Explosion-Proof LED Pendant Light

Lámpara colgante LED antideflagrante

防爆タイプ LED ペンダントライト　防爆 LED 吊灯

SXPL Series

Made of marine grade seawater resistant aluminium alloy body with anti-corrosion powder coating, borosilicate glass diffuser and stainless-steel protection guard and external fastener. Long Service life of 50,000 hours. JIS and IEC safety and EMC compliance. ATEX and IECEx approvals certified by CSA and SIRA for Zones 1/2 & 21/22 applications. Ex Class – Ex db IIC T6 Gb and Ex tb IIIC T85°C Db.



Ingress Protection: 66.

Unit Per Pc.

CODE	Main Voltage	Power	CCT	Sytstem Lumen
79 21 03	24V DC	10W	5,000 K	950 lm
79 21 04	100-120V AC	12W		900 lm
79 21 05	220V-240V AC	13W		

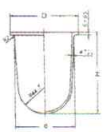
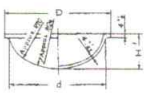
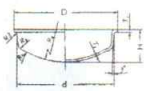
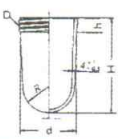
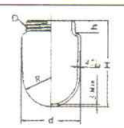
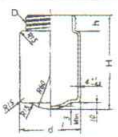
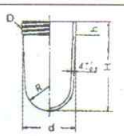
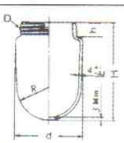
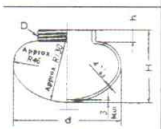
Glass Globes

for Marine Electric Light

Crital para Farol Marino　船用ガラスグローブ　船用灯灯罩

(Ref. JIS F8402-1982)

Glass globes used for marine electric lights with incandescent lamps.

Illustration	Type	Dimensions mm D	d	H	T/h	Colour
		Flange Type				
	90	105	90	150	6	A, AB, AG, AR AYR
	175	190	175	60	4	A
	250 300 350	262 312 362	250 300 350	85 90 95	4 4 4	B
		Screw in Type				
	57 80	59.9 - 60.3 83.4 - 83.7	57 80	75 90	22 26	A
	90	83.4 - 83.7	90	150	26	A, AB, AG, AR AYR
	110	83.4 - 83.7	110	160	26	B
	120	123.0 - 123.4	120	175	26	A
	135	123.0 - 123.4	135	220	26	A
	230	123.0 - 123.4	230	157	26	B

1. Symbols of class denote the shape of fitting part of globes as follows:
   F ... Flange type
   S ... Screw in type

2. Type is classified according to the outside diameter of the globe in mm.
3. Symbols of colour denote the following.
   A ..... Colourless Transparency
   B ..... Frosted
   AB ..... Transparent blue
   AG .... Transparent green
   AR..... Transparent red
   AYR... Transparent yellow

How to order: CODE

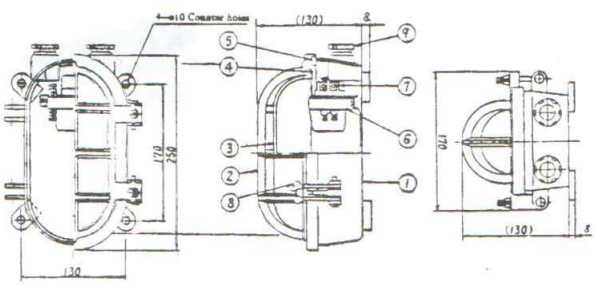
Glass globe, TYPE of FITTING, TYPE

Unit Per Pc.

CODE	Type	CODE	Type
79 20 71	F90A	**79 20 81**	S57A
72	F90AB	**82**	S80A
73	F90AG	**83**	S90A
74	F90AR	**84**	S90AB
75	F90AYA	**85**	S90AG
79 20 76	F175A	**79 20 86**	S90AR
77	F250B	**87**	S90AYS
78	F300B	**88**	S110B
79	F350B	**89**	S120A
		90	S135A
		79 20 91	S230B

Watertight Type Passage Lights

Luces para Pasillo Tipo Estanco　船用防水型通路燈　通道灯



(Ref. JIS F8441)

Watertight passage lights using incandescent lamps of 40 watts or less at 110V or less as a light source, mainly applied for weather decks aboard in a place of ambient temperature 40°C or less.

Specification

Material	1. Body Cast Iron 2. Guard Cast Iron 3. Globe Glass 4. Gasket Synthetic Rubber 5. Gasket Synthetic Rubber 6. Screw Brass
Size mm	Overall Length 250 mm Overall Width 170 mm Overall Depth 130 mm
Voltage	110 V
Wattage	40 W

79 21 01	Passage light, watertight, with guard, E-26 × 40W	Pc.
79 21 02	Passage light, watertight, without guard, E-26 × 40W	Pc.

Chart Table Lights

Wall Mounting

Luces de mesa Chart　壁付け海図台灯　图台灯



Bellow Type　Pantagraph Type

Unit Per Set

CODE		79 21 20	79 21 21
Extended Type		Bellow Type	Pantagragh Type
Extended to		820 mm	880 mm
Unextended		225 mm	180 mm
Setting Hole		75 × 75 × 90 mm × 6	65 × 95 mm × 4
Shade Size		160Φ × 155H mm	160Φ × 145H mm
Material	Shade	Aluminium Plate	Steel Plate
	Arm	Brass Plate	Steel Plate
	Base	Cast Iron	Cast Iron
Lamp		40W or 60W	
Base		E-26	
Weight		3.9 kg	3.0 kg

Flexible LED Chart Table Light

Lámpara LED flexible de sobremesa
LED チャートテーブルライト　灵活的 LED 图表台灯



Made of an Anodized aluminum body, the 53cm flexible gooseneck light features CREE XP-G LED light source. 3-step dimming. Push-pull focusing lens. Long LED Lifespan of 60,000 hours at L70. USB Type-C power input. Vibration resistant. JIS and IEC safety and EMC compliance. Ingress Protection: 20. Application: Bridges and Cabins Weight: 0.216 kg. Available equipped type with red diffuser.

79 21 22	Flexible LED chart table light, 100-240V AC, 2W 6,500 K, 200 lm	Pc.

Universal Table Lights

Luces Universales para Mesa　卓上燈　万向桌灯

Designed for lighting study areas. Lighter and easy to handle due to spring suspension. Can be fitted on a desk or wall by simply exchanging bases.

Available in incandescent lamp and fluorescent lamp types. FL type of 220V requires a special ballast.



Incandescent Lamp Type　F.L. Lamp Type

Fitting Base



Clamp Bracket　Table Base　Wall Bracket

How to order: CODE

Universal table light, TYPE of LAMP, WATTAGE, FITTING TYPE

Unit Per Set

CODE	For	Watts	Maximum Height mm	Fitting Parts
79 21 25	Incandescent Lamp	100W	865	Clamp Bracket
79 21 26				Table Base
79 21 27				Wall Bracket
79 21 28	F.L. Lamp	20W × 1	840	Clamp Bracket
79 21 29				Table Base
79 21 30				Wall Bracket

LED Downlights

Luces LED descendentes　LED ダウンライト　LED 筒灯

DL Series Swint Downlight



Made of marine grade aluminium alloy with powder coating, and polycarbonate diffuser. Built-in with integrated driver for ease of installation, and vibration-resistant. Energy savings of up to 86% compared to 50W halogen. Superior heat sink designed to enhance the service life. Long service life of 50,000 hours L70 @ 40°C. JIS and IEC safety and EMC compliance. ABS and IEC60533 certified. Application: Cabins, Passageways, Galleys, Meeting rooms. Protection Class: IP44 in conjunction with ceiling. Note: Replace whole unit when light is not working.

Ideal Replacement: DL7A2S (7W) for CFL 50W

Unit Per Pc.

CODE	**79 21 31**
Model	LDAS074KA22W
Main Voltage	220 – 240V AC
Power	7W
CCT	4,000K
Beam Angle	105°
System Lumen	566 lm
Dimensions	Dia 97 × H 40.5 mm
Weight	0.2 kg

DL Series Downlight



Made of marine grade aluminium alloy with powder coating, comes with polycarbonate diffuser. Triac dimming compatible (220-240 VAC only). Designed with reliable AC driver on board to enhance the service life. Vibration-resistant. Energy savings of up to 60% compared to compact fluorescent system. Long service life of 50,000 hours L70 @ 40°C. JIS and IEC safety and EMC compliance. ABS and IEC60533 certified. Application: Cabins, Passageways, Galleys, Meeting rooms. Protection Class: IP44 in conjunction with ceiling.

*Note: Replace whole unit when light is not working.

Ideal Replacement:
DLA12040 (12W) for 18W CFL
DLA15040 (15W) for 26W CFL

Unit Per Pc.

CODE	Voltage	Power	CCT	Beam Angle	System Lumen
79 21 32	24V DC	15W	4,000K	85°	1,050 lm
35	100-120AV	15W			1,050 lm
33	220-240V AC	12W			820 lm
34	220-240V AC	15W			1,050 lm

DLS Series



Fire-rated for 30, 60 and 90mintues. Made of steel with powder coating, aluminium heatsink, Polymethyl methacrylate (PMMA) diffuser and polycarbonate bezel. Vibration-resistant. Energy savings of up to 55% compared to compact fluorescent system. Long service life of 50,000 hours L70 @ 40°C. JIS and IEC safety and EMC compliance. ABS certified. Application: Cabins, Passageways, Galleys, Meeting rooms. Protection Class: IP65 in conjunction with ceiling.

Note: Replace whole unit when light is not working.

Ideal Replacement: DLSS88A2 (8W) for 18W CFL

Unit Per Pc.

CODE	**79 21 38**
Model	LDDS08XKA22W
Main Voltage	220-240V AC
Power	8W
CCT	3,000/4,000/6,000K Selectable
Beam Angle	60°
System Lumen	900 lm
Dimensions	Dia 88 × H 30 mm
Weight	0.3 kg

Bed Lamp Fixtures

Luces de Camarote　船用寝台灯　船用床头灯

Incandescent Lamp Use



Chrome plate finished brass made base and body with frost glass globe.

Unit Per Pc.

CODE	Lamp Base	Watt	Size mm
79 21 36	E-26	20	230 × 115 × 120
79 21 37	B-22		

Fluorescent Lamp Use



Made of synthetic resin foundation covered with milky white polystyrene diffuser. When ordering, please specify power source voltage and applicable wattage of the fluorescent lamp.

How to order: CODE

Bed lamp fixture, FL lamp, VOLTAGE, WATTAGE

Unit Per Set

CODE	Lamp	Size mm Width × Height × Depth
	AC 110 volt	
79 21 41	8 W × 1	393 × 110 × 90
42	10 W × 1	393 × 110 × 90
43	15 W × 1	504 × 110 × 90
	AC 220 volt	
79 21 45	8 W × 1	393 × 110 × 90
46	10 W × 1	393 × 110 × 90
47	15 W × 1	504 × 110 × 90

LED Berth Lights

Luces LED para camarotes　LED 寝台灯　LED 卧铺灯

Special design polycarbonate diffuser to optimize the LED light transmission.



Slim profile design that is easily mounted to provide illumination performance while using significantly less energy, and useful for lighting in Passageways, Cabins, Lounges, Dinning rooms, and Accommodation areas. Long service life of 50,000 hours L70 @ 40°C. JIS and IEC safety and EMC compliance. 2 mounting holes Φ5.5mm.

Material: Diffuser- Polycarbonate, Housing- Galvanized steel, powder coated white.

Protection Class: IP20 in conjunction with ceiling.

*Note: Replace whole unit when light is not working.

Unit Per Pc.

CODE	Main Voltage	Power	System Lumen	Dimensions L x W x H mm	Weight Kg
79 21 48 **49**	100-120V AC 220-240V AC	4W	280 lm	230 × 70 × 31.6	0.25

USB Charging Port Series



Lights includes dimming function with dimming knob and 2 USB ports with optional universal socket. Housing- Aluminum, powder coated white. 2 mounting holes, D4.2mm, L14.2mm.

Unit Per Pc.

CODE	Main Voltage	Power	System Lumen	Dimensions L x W x H mm	Weight Kg
79 21 53 **54**	100-120V AC 220-240V AC	4W	370 lm	320 × 65 × 70	1.0

7. Hand Lamps

Watertight Hand Lamps

Lámpara Portátil de Mano Estanca 防水手さげ灯 防水工作灯



Watertight hand portable lamp with S90A screw globe and cast iron body and guard. Handle grip is made of hard wood or hard rubber and a hanging hook is fixed. Suitable for 60 watt lamp either E-26 or B-22. 350 mm overall length. Lamp excepted.

Unit Per Pc.

CODE	Lamp Base	Lamp Watts	Applicable Glass Globe
79 21 51	E-26	60	SAO-90
79 21 52	B-22		

Non-Watertight Hand Lamps

Lámpara Portátil de Mano No Estanca 非防水手さげ灯 无防水工作灯



Plastic handle and iron guard hand lamp with hanging hook. 100 mm guard diameter and 265 mm overall length. Rated voltage 125V.

Unit Per Pc.

CODE	Lamp Base	Watts
79 21 66 **67**	E-26 B-22	60

LED Safety Guide Hand Lamp

Lámpara LED de mano de guía de seguridad
LED 作業用安全指示灯 LED 作业安全指示灯



A handy lamp used for Indicating emergency with red high luminance LED light. Made of red colour polycarbonate resin, and 2 x AA battery operated.

*Continuous Lighting: 160 hours
*Continuous Flashing: 100 hours
*Waterproof type

CODE	Description	Unit
79 21 68	LED Safety Guide Hand Lamp, red color waterproof	Pc.

Explosion Proof Portable Hand Lamps

Lámparas Manuales Portátiles Anti-deflagrantes
防爆型ハンドランプ 携帯式手提灯



This explosion proof portable hand lamp is specially designed for use in hazardous atmospheres containing explosive and combustible gases and vapours.

How to order: CODE

Portable hand lamp, explosion-proof, VOLTAGE, WATTAGE

Unit Per Pc.

CODE	Wattage	Voltage	Lamp Base
79 21 71	60W	110	E-26
79 21 72		220	
79 21 73	100W	110	
79 21 74		220	

LED Marine Portable Work Lights

Luces LED de trabajo portátiles navales
舶用 LED 手提げ灯 船用 LED 手提灯



A complete solution with heat sink, driver and polycarbonate diffuser. Made of marine grade aluminium alloy with powder coating and polycarbonate body, diffuser and clear or red guard. Vibration-resistant, and energy savings of up to 90% compared to 100W incandescent bulb. Long service life of 50,000 hours L70 @ 45°C. JIS and IEC safety and EMC compliance. ABS and IEC60533 certified. Beam Angle: 160°, System Lumen: 10W 950lm,12W and 13W 900 lm, IP 56, Weight: 1.0 Kg. Triac dimming compatible (220-240VAC & 100V-120VAC only).

10W/12W/13W

Unit Per Pc.

CODE	Voltage	Power	CCT	Beam Angle	System Lumen
79 21 75	24V DC	10W	5,000K	160°	900 lm
79 21 76	100-120V AC	12W			900 lm
79 21 77	220-240V AC	13W			950 lm

30W (100-240V AC/DC)

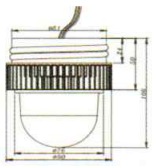


Alternative to 300W incandescent bulb, and energy savings of up to 90% compared to 300W incandescent bulb. Long service life of 30,000 hours L70 @ 40°C. ABS and IEC60533 certified. Beam Angle: 180°, System Lumen: 2,900lm, IP 56, Weight: 1.5 Kg.

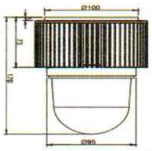
Unit Per Pc.

CODE	Guard	Voltage	Power	CCT	Beam Angle	System Lumen
79 21 85	Clear	100-120V AC/DC	30W	5,000K	180°	2,900 lm
79 21 86	Red					

Replacement LED Modules for Portable Work Light



Equivalent to 100W Incandescent Bulb (10/12/13W)



Equivalent to 300W Incandescent Bulb (30W)

Unit Per Pc.

CODE	Power
79 21 87	24V DC 10W
88	100-120V AC 12W
89	220-240V AC 13W
90	100-240 AC/DC 30W

Rechargeable LED Portable Work Light

Luz de trabajo portátil LED recargable
充電式 LED ポータブル作業灯　可充电 LED 便携式工作灯



The heavy-duty COB LED features an aluminium alloy handle with polycarbonate diffuser and thermoplastic rubber at both ends for impact protection. Hanger hook and magnetic base for easy mounting. 2 steps dimming and torch mode via LED at the top. Service life of 50,000 hours LED lifespan, battery life up to 500 charges. Lithium-ion battery rechargeable by 5V 1A micro USB port. Vibration and impact resistant. RoHS safety compliant. Ingress Protection: 54. Application: Engine rooms, Low Visibility Areas, Decks, Warehouses, Yards.

79 21 55	Portable Work Light Rechargeable, 3W 100-240V AC, 5,000 K, 300 lm	Pc.

Watertight Fluorescent Hand Lamps *(Line Lights)*

Lámparas Manuales Fluorescentes (Luces de Linea)
作業用防水蛍光灯　防水工作日光灯



This polycarbonate cylindrical type fluorescent hand lamp with built in ballast has the following advantages:

1. This line light will not break easily if it is hit or dropped.
2. It is waterproof.
3. If the fluorescent lamp is broken inside, this line light is not liable to ignite.
4. Since pieces of broken glass will not scatter, it will not cause damage to any apparatus.
5. This line light is cold-proof so that it can be used in any cold place.

Specifications

Voltage & Hz	100-110V/200V 50 or 60 Hz	
Starter	Glow Start Type	
Lamp	FL20	FL10
Ampere	0.36A	0.23A
Average Life	7,500h	5,000h
Size	964L × 74 mm	714L × 74Φ mm
Weight	2 kg	1.8 kg
Accessories	1. Cabtyre Cable 2.5 Mtrs 2. Watertight Plug	

How to order: CODE

FL hand lamp, watertight, VOLTAGE, WATTAGE

Unit Per Pc.

CODE	Wattage	Voltage	Starter
79 21 81	10W	100/110V	FG-1E
82	20W	100/110V	FG-1E
83	10W	200V	FG-1E
84	20W	200V	FG-1E

Explosion-Proof LED Hand Lamps

Luces de trabajo LED antideflagrantes
防爆型 LED 作業灯　防爆 LED 工作灯



The Explosion proof LED portable lamp is ATEX Directive Certified for use in Zones 1 and 2 hazardous locations. Suitable for inspection and work in confined space applications, such as metal tanks. Wide voltage input from AC12-24V AC/DC and AC 90-260V,50/60Hz.

Unit Per Pc.

CODE	79 21 64	79 21 65
Voltage & Hz	AC12-24V AC/DC	AC90-260V 50/60Hz
Output	1,200 Lumens (effective lumens)	
Light Source Power	LED 12W	
Areas of Class (Gases)	Zone 1 and 2, Gas Groups: IIA, IIB, and IIC	
Areas of Class (Dusts)	Zone 21 and 22, Dust Groups: IIIA, IIIB, and IIIC	
Temperature Class (Gases / Dusts)	T4 / 95°C	
Light Source Life	100,000 Hours	
Dimension	Φ63 × 405 mm	
Weight	640 g (without cable)	

Name of Mfr.: Fortune Protection Safety Ltd.

8. Warning Lights

Rotary Warning Lights

Luces Rotativas de Señales (Alarma)　標識用回転灯　警告用回转灯



All-polycarbonate plastic resin construction with single reflector, producing 180 - 215 flashes per minute horizontally 360°. Available globe colours are red and yellow. Size 180 mm (φ) x 206 mm (H).

How to order: CODE

Rotary warning light, VOLTAGE, WATTAGE, COLOUR

Unit Per Pc.

CODE	Colour	Rated Voltage	Lamp	Beam Intensity cd.	Flashhes Per Minute	Nt Wt. kg
79 21 91	Red	DC12V	12V	30,000	200	1.3
79 21 92	Yellow		40W			
79 21 93	Red	DC24C	24V			
79 21 94	Yellow		40W			
79 21 95	Red	AC100V	100V	7,500	180/215 (50/60Hz)	1.2
79 21 96	Yellow		30W			
79 21 97	Red	AC200V	200V	3,000		
79 21 98	Yellow		30W			

9. Flashlights

Strong Flashlights

Linternas Fuertes　ストロングライト　強力手电筒

All plastic light with a range of more than 300 meters.



Regular (6 Batteries)



Regular (4 Batteries)

How to order: CODE

Strong flashlight, NUMBER of BATTERIES, REMARK

Unit Per Pc.

CODE	Number of Battery	Remarks
79 22 01	R20P (UM-1) × 6	Regular
02	R20P (UM-1) × 4	Regular

Industrial Flashlights

Linternas Industriales　懐中電灯　手电筒

Industrial flashlights made of tough plastic.



Unit Per Pc.

CODE	Battery	Remarks
79 22 12	R20P (UM-1) × 2	Industrial
13	R20P (UM-1) × 3	Industrial

Industrial Quality LED Flashlights

Linternas LED de calidad industrial　LED 懐中電灯　LED 手电筒

Extremely durable industrial grade switch with a super tough polycarbonate lens.

Power source : 2 x D cell Alkaline
Light source : LED
Light output : 50 Lumens
Beam distance : 75 meter



79 22 10	Flashlight, LED, industrial 2618 LED	Pc.

Intrinsically Safe LED Flashlights

Razor Model 60160 & 60170

Linternas LED intrinsecamente seguras

本質安全防爆 LED 懐中電灯　本质安全防爆 LED 手电筒



#60160



#60170

A LED flashlight exhibits a piercing beam supported by its deep dish reflector, focuses light from high output LED. A Zone Zero safety classification makes it the safest of its kind.

Unit Per Pc.

CODE	**79 22 29**	**79 22 18**
Model	Razor #60160	Razor #60170
Max. Output	High :325 lm/Low 125 Lm	High :325 lm/Low 125 Lm Downlight: 150 lm
Runtime	High 7 hours/Low 24 hours	High 7 hours / Low 24 hours Downlight: 20 hours
Batteries	3 x AA Cells	
Safety Rating	Intrinsically safe - Zone Zero rating	
Ingress Protection	X7	
Safety Standard	ATEX/IECEx: Zone 0, Ex ia IIC T2 Ga, UL 913, Class I,II,III Div I & II A-G T2	
Body Colour	High-Vis Yellow	
Size & Weight	L: 181 x W: 50 x H: 50 mm, Weight: 227 grm	

Name of Mfr.: KBS Innovations

Safety Approved LED Flashlights

Linternas LED de seguridad aprobada

防爆型 LED 懐中電灯　防爆型 LED 手电筒

For use in hazardous atmospheres and switch guard prevents accidental lighting.



2217 LED



2224 LED

Unit Per Pc.

CODE	**79 22 35**	**79 22 36**
Model	2217 LED	2224 LED
Power Source	2 × 'D' cell Alkaline	3 × 'D' cell Alkaline
Beam Distance	100 mtr	88 mtr
Light Output	80 lumens	60 lumens
Runtime	200 hrs	250 hrs
Weight	0.17 kg	0.14 kg
Safety Approvals	UL protection method, Intrinsically safe, Divisions 1 & 2, Class I, II, III Div 1 Groups A-G, Class I, II, III Div 2 Groups A-G, Operating Temp T5	

Name of Mfr.: KBS Innvations

ATEX Specification Models



2217 LED ATEX

Unit Per Pc.

CODE	**79 22 37**
Model	2217 LED ATEX
Power Source	2 × 'D' cell Alkaline
Beam Distance	100 mtr
Light Output	80 lumens 2,450 candelas
Runtime	200 hrs
Weight	0.14 kg
Safety Approvals	IECEx protection Methods: Ex ia IIB T3 Ga, Ex ia IIIB T145°C Da, -5°C ≤ +40°C UL protection Methods: Intrinsically Safe Division 1 and 2, Class I, II, III Div 1 Groups A-G, Class I, II, III Div 2 Groups A-G. T5, ATEX protection Methods: II 1GD Ex ia IIB T3 Ga, Ex ia IIIB T145°C Da -5°C ≤ Ta ≤ +40°C, Zone 0

Name of Mfr.: KBS Innvations


SF-12 LED


DS-12 LED

Unit Per Pc.

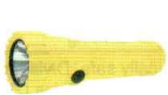
CODE	79 22 30	79 22 60
Model	SF-12	DS-12
Light Source	Cree XP-E LED	
Power Source	3 × 'C' cell Alkaline	
Beam Distance	93 mtr (low) 137 mtr (high)	100 mtr (low) 140 mtr (high)
Light Output	55 lumens (low) 124 lumens (high)	65 lumens (low) 130 lumens (high)
Runtime	80 hrs (low) 42 hrs 30min. (high)	98 hrs (low) 55 hrs (high)
Weight	190 grm	
Safety Approvals	UL - Class I Div 1 Group A,B,C,D, Class II D 1 Group E,F,G, Class III, Operating Temp T4 Atex – Ex II 1 G Ex ia IIC T4 IECEx – Ex II 1 G Ex ia IIC T4 CE & ROHS Approved	

Name of Mfr.: Day Sun Technology Ltd.

Intrinsically Safe LED Flashlights Zone 0, 1, 2

Linterna LED antideflagrante para zonas 0, 1 y 2
防爆型 LED 懐中電灯　ゾーン 0, 1, 2 対応
防爆 LED 手电筒，用于 0、1 和 2 区

ATEX Directive certified for safe use in hazardous locations in zones 0, 1& 2 and zones 20, 21 & 22. Suitable for use in in offshore oil and gas, marine vessels, refining and petrochemical industries.


EX-6180


EX-5380


EX-7180

Unit Per Pc.

CODE	79 22 05	79 22 06	79 22 07
Model	EX-6180	EX-5380	EX-7180
Power Source	2 × LR20(D) Primary Alkaline cells	2 × LR6 (AA) Alkaline Batteries	2 × LR3 (AAA) Alkaline Batteries
Beam Distance	80 mtr	81 mtr	35 mtr
Light Output	- Source Lumens: 148 lm - Effective Lumens: 124 lm	- Source Lumens: 174 lm - Effective Lumens: 110 lm	- Source Lumens: 68 lm - Effective Lumens: 53 lm
Power	3V 1.7W	3V 1.2W	3V 0.6W
Light Duration	15 hours	4.75 hours	4.4 hours
Dimension	Φ65 × 200 mm	Φ40 × 172 mm	Φ23 × 137 mm
Weight	176 g (without battery)	114 g (without battery)	31 g (without battery)

Name of Mfr.: Fortune Protection Safety Ltd.

Accessory Parts for Flashlight

Accesorios para linternas　フラッシュライト付属品　手电筒配件

The removable wand allows you to direct light beam when needed. Fits for all 2 and 3 D-cell flashlights, which slip on and off very easily. 6-1/2" in length, available in color red. Helmet clip is also available when required.



Unit Per Pc.

CODE	Description	Model
79 22 43	Slip on wand 8" for flashlight - Color Red	23863
79 22 49	Helmet Clip	10B-2261

Name of Mfr.: KBS Innovations

Rechargeable LED Lanterns

Linternas LED recargables
充電式 LED ランタン　可充电 LED 灯笼



Powerful flood beam lantern illuminates work areas and only weights 860 grams. Articulating head, super tough nylon construction, waterproof for 24 hours at 1mtr. Wall mountable.

Unit Per Pc.

CODE	79 22 69
Model	Lighthawk Vision 600
Lamp	Advanced LED Technology
Power Source	4 CELL Lithium Ion Rechargeable Battery
Beam Distance	250 mtr
Light Output	600 lumens
Runtime	6.25 hours
Dimensions (mm)	L 241 × W 79 × H 130
Weight	0.86 kg

Name of Mfr.: KBS Innovations

Intrinsically Safe Rechargeable LED Lanterns

Linternas LED recargables, intrínsecamente seguras
本質安全型 LED 充電式ランタン
本质安全型可充电 LED 灯



Intrinsically safe, super lightweight, full size, long range rechargeable lantern. Available in dual mode spot beam (high/low). Waterproof and submersible.

Unit Per Pc.

CODE	79 22 70
Model	Lighthawk GEN II
Lamp	Advanced LED Technology
Power Source	4 CELL Lithium Ion Rechargeable Battery
Beam Distance	447 mtr
Light Output	300 lumens on high / 125 lumens on low
Runtime	7 hours on high / 14 hours on low
Ingress Protection	IP 67
Safety Approvals	Intrinsically Safe, UL Protection Methods UL 913 CSA C22.2 No 157, Class I, II, III, Divisions 1 & 2, Groups C-G, T1, Meets NFPA 1901 14.1.11.2 2003 Edition
Dimensions (mm)	L 241 × W 79 × H 130
Weight	0.86 kg

Name of Mfr.: KBS Innovations

Safety Approved LED Lanterns

Linternas LED antideflagrantes
防爆型 LED ランタン　防爆 LED 灯笼

For use in hazardous atmospheres, and waterproof IP 67 rating.


2206 LED

Unit Per Pc.

CODE	79 22 41
Model	2206 LED
Power Source	4 x 'D' cell Alkaline
Beam Distance	165 mtr
Light Output	90 lumens
Runtime	150 hours
Safety Approvals	UL protection methods, UL 913 CSA C22.2, Intrinsically Safe, Divisions 1 & 2, Class I, II, III Div 1 Groups A-G, Class I, II,III Div 2 Groups A-G, Operating Temp T5
Weight	0.42 kg

Name of Mfr.: KBS Innovations

Rechargeable Flashlights

Linternas Recargables　充電式懐中電灯　充电式手电筒

Extra-bright beam with polished reflector. Battery replacement is unnecessary, as Cadnica batteries can be recharged hundreds of times. No danger of over-charging.



Unit Per Pc.

CODE	Volt	Continuous Operation	Charging Time	Flange Base Bulb Type
79 22 45		70 min.	10 hours	2.5 V 350 mA
47	100 V	60 min.	10 hours	6 V 550 mA
48		130 min.	16 hours	6 V 550 mA
79 22 46	220 V	70 min.	10 hours	2.4 V 600 mA

Rechargeable Safety Hand Lamp Zone 0, 1, 2

Lámparas de mano recargables conformes a la normativa ATEX
充電式 ATEX 規則適合ハンドランプ　符合 ATEX 标准的可充电手灯

Intrinsically Safe Hand Lamp is ATEX Directive certified for safe use in hazardous locations in zones 0, 1 & 2 and zones 20, 21&22. Suitable for use in offshore oil and gas, marine vessels, refinery and petrochemical industries. Compatible Charger input voltage AC 90-260V,50/60Hz



Unit Per Pc.

CODE		79 22 14
Product Reference		EX-2480Z0
Product Description		'ia' Intrinsically Safe
Area of Class (Gases)		Zones 0, 1 & 2 Gas Groups IIA, IIB and IIC
Temp. Class (Gases)		T4
Area of Class (Dust)		Zones 20, 21 & 22 Dust Groups IIIA, IIIB and IIIC
Temp. Class (Dusts)		135°C
Ambient Temperature		-20°C to +40°C
Ex Mark		I M1 Ex ia I Ma II 1G Ex ia op is IIC T4 Ga II 1D Ex ia IIIC T135°C Da
Beam Type		Spot / Flood
Light Source:	Type	High Power LED Bulb
	Watts	3 Watts
	Output	Up to 165 lm
	Duration	Up to 7 hours at high mode
Power Source	Type	Rechargeable Battery, Lithium-Ion
	Volts	3.2V 2,000 mAh
Ingress Protection		IP66
Weight (Excl. Cells)		190 grams

Name of Mfr.: Fortune Protection Safety Ltd.

Flashlight Bulbs

Bombillas de Linternas　フラッシュライト球　手电筒电灯泡

Furnishable flange base and screw base. When ordering, specify the base type and voltage.



How to order: CODE
Flashlight bulb, TYPE of BASE, VOLTAGE, AMPERE

Unit Per Pc.

CODE	Volts	Amp	Base	CODE	Volts	Amp	Base
79 22 51	2.5	0.5		**79 22 55**	2.5	0.3	
52	3.8	0.5		**56**	2.5	0.5	
53	4.8	0.5	P-13.5S	**57**	3.8	0.3	E-9
50	6.0	0.55		**58**	3.8	0.5	
54	7.2	0.55		**59**	6.0	0.5	

Safety Torches

Compliant with ATEX Directive, Zone 1, 2

Normativa ATEX para lámparas de seguridad
ATEX 規則適合安全灯　符合 ATEX 标准的安全灯

The ATEX safety torch is a reliable, simple and cost-effective portable torch. Available with a straight or right-angle body, and Vacuum or Xenon bulbs, it's CE marked to the ATEX directive and IECEx certified for safe use.



The Wolf ATEX torch range is sealed dust tight and protected from water immersion, with a certified IP67 enclosure.

Unit Per Pc.

CODE	79 22 61	79 22 62	79 22 63	79 22 64
Model	TS-26B	TR-26B	TS-24B	TR-24B
Shape	Straight	Angle	Straight	Angle
Type of Protection	Increased safety, intrinsic safety			
Approval Code:	Ex eb ib IIB T4 Gb IP67 Ex tb IIIC T95°C Db		Ex eb ib IIB T4 Gb IP67 Ex tb IIIC T95°C Db	
Area of Classification (Gas)	Zones 1 & 2 Gas Groups IIA, IIB			
Temperature Class (Gas)	T6		T4	
Ambient Temperature (Gas)	-10°C to +40°C	-20°C to +40°C	-10°C to +40°C / +55°C*	-20°C to +40°C / +55°C*
Area of Classification (Dust)	Zones 21 and 22 Dust Groups IIIA, IIIB, IIIC			
Temperature Class (Dust)	65°C		95°C	
Certificate	BAS02ATEX2220X / IECEx BAS 15.0033X			
Enclosure	Impact Resistant Thermoplastic, Electrostatic Non-hazardous			
Lens	Polycarbonate	Toughened Glass	Polycarbonate	Toughened Glass
Beam Type	Medium spot			
Light Output	11 lumens		16 lumens	
Power Supply Type	R20 primary cells to IEC60086		R20/LR20 primary cells to IEC60086	
Power Supply Volt	2 × 1.5V		2 × 1.5V	
Light Duration	Up to 5 hours		Up to 12 hours	
Ingress Protection	IP 67			
Weight (with cells)	350 g	390 g	450 g	490 g
Name of Mfr.	The Wolf Safety Lamp Company Ltd.			

* dependent on battery selection

Rechargeable Safety Torches

Lámpara de Seguridad Recargable
充電式 ATEX 規制適合安全灯　充電式安全手電筒



An ATEX and IECEx certified rechargeable right angle safety torch, using the latest technology to give excellent performance, robustness and reliability for safe use

Unit Per Pc.

CODE		79 22 67	79 22 68
Product Reference		R-50	R-55
Product Description		Rechargeable Safety Torch, Right-Angle	
		Zone 1 LED	Zone 0 LED
Approval Code		I M2/II 2GD Ex ib I Mb/IIC T4 Gb (-40°C≤ Ta≤+40°C) Ex ib IIIB T200°C Db IP67	I M1/II 1G2D Ex ia I Ma/IIC T4 Ga (-40°C≤ Ta≤40°C) Ex ia IIIB T200°C Db IP67
Type of Protection		'ib' intrinsic safety	'ia' intrinsic safety
Area of Class(Gases)		Zones 1 & 2	Zones 0, 1 & 2
		Gas Groups IIA, IIB and IIC	
Temp. Class(Gases)		T4	
Area of Class (Dust)		Zones 21 and 22	Zones 21 & 22
Max Surface Temp. (Dusts)		T200°C	
Ambient Temperature		-40°C to + 40°C	
Certificate		Baseefa05ATEX0069X / IECExBAS06.0001X	
Enclosure		Impact Resistant Thermoplastic, Chemical Resistant, Static Dissipative	
Lens		Toughened Glass 4mm	
Beam Type		High Output Spot Beam	
Light Source:	Type	High Power LED	
	Watts	3 Watts	
	Output	High Power – Up to 243 lm Low Power – Up to 135 lm	
	Life	25,000 hrs+	
Power Source:	Pt. no.	R-271	
	Type	Rechargeable Battery, Lithium-Ion	
	Volts	7.4 V	
	Capacity/Life	2.4Ah / Up to 500 Recharge Cycles	
Light Duration		High Power – Up to 3.5hrs Low Power – Up to 6.5hrs	
Ingress Protection		IP67	
Weight (Excl. cells)		0.375 kg	
Compatible Chargers		RC-200L 12-24Vdc / RC-200H 100-254Vac	
Name of Mfr.		The Wolf Safety Lamp Company	

Battery Charger

for ATEX Rechargeable Torches

Cargadores de batería para linternas recargables ATEX
ATEX 充電式トーチ用充電器
电池充电器 用于 ATEX 充电式手电筒



For use with all torches in the rechargeable torch range.

Unit Per Pc.

CODE	Model	Voltage	Suitable For
79 22 71	RC-200H	90-264V AC	R-50 & R-55

Note: Recharge time requires 3 hours for full charge, and 1.5 hours for 90% charge.

Personal Issue Safety Torches

Linterna de Seguridad Personal　小型防爆トーチ　小型安全手電筒

Mini and Micro torches are tough, reliable and compact enough to easily store in your pocket. Using the latest LED light source technology, light output is highly impressive, with the new M-70 Mini torch achieving up to 107 lumens (at source) from its 2 X AAA batteries. ATEX and IECEx certified for safe use in potentially explosive gas, vapour, mist or dust atmospheres where a T4 or T5 temperature class permits, all models are approved to Group I for use in mining applications.



Unit Per Pc.

CODE		79 22 76	79 22 78	79 22 79	79 22 77	79 22 80
Product Reference		M-10	M-40	M-60	M-70	M-85
Product Description		ATEX LED Micro Torch	ATEX LED Mini Torch	ATEX LED Mini Torch	ATEX LED Mini Torch	ATEX LED Midi Torch
Approval Code		I M1/II 1G Ex ia I Ma/ IIC T5 Ga (-40°C _<Ta_< +50°C) II 2D Ex ib IIIB T95°C Db IP67	I M1/II 1G Ex ia I Ma/ IIC T4 Ga (-40°C _<Ta_< +50°C) II 2D Ex ib IIIB T125°C Db IP67	I M1/II 1G Ex ia I Ma/ IIC T4 Ga (-40°C _ <Ta_< +50°C) II 2D Ex ib IIIB T130°C Db IP67	I M1/II 1G Ex ia I Ma/ IIC T4 Ga (-20°C _<Ta_< +40°C) II 1D Ex ia IIIC T200 160°C Da IP67	I M1/II 1G Ex ia op is I Ma/IIC T3/T4 Ga (-40°C ≤ Ta ≤ +40°C) II 1D Ex ia op is IIIB T200°C Da IP67
Type of Protection		ia/ib				
Area of Classification (Gases)		Zones 0, 1 & 2				
Temperature class (gas)		T5	T4			T3/T4
Area of Classification (Dust)		Zone 21 & 22			Zone 20, 21 & 22	Zone 20, 21 & 22
Max Surface Temp. (Dust)		95°C	125°C	130°C	160°C	200°C
Certification		Baseefa06ATEX0084X, IECEx BAS 06.0023X				Baseefa11 ATEX0236 XIECE× BAS 11.0116X
Beam Type		Medium Spot				Narrow spot with wide angle fringe light
Light Source:	Type	1×5mm LED White (Nichia)	3×5mm LED White (Nichia)	1 × High Power Cree LED		High power LED
	Output	30 cd	3 × 30 cd	Up to 139 lm	Up to 107 lm	Up to 210 lm
	Life	25,000 hrs +				
Power Source:	Pt. no.	M-102 (4 pack)	M-402 (3 pack)		M-202 (2 pack)	4 × LR6
	Type	LR44 prlimary cells to IEC60086	LR1 primary cells to IEC60086		LR03 prlimary cells to IEC60086	LR6 prlimary cells to IEC60086
	Volts	4 × 1.5V	3 × 1.5V		2 × 1.5V	4 × 1.5V
Light Duration		Up to 2 hrs	Up to 10 hrs	Up to 3 hrs	Up to 7 hrs	Up to 7 hrs
Weight		25 g	60 g		50 g	190 g
Ingress Protection		IP67				

Name of Mfr.: Wolf Safety Lamp Company Ltd.

LED Flashlights

Lámpara de Destello LED　LED ライト　LED 手電筒

An advanced flashlight equipped with LED (Light-emitting Diodes) lightbulb which has better brightness and running time than conventional incandescent lights. Dry batteries are separate order. Casing is made from ABS plastic and drip-proof.





Unit Per Pc.

CODE	Batteries	Weight grm
79 22 81	R6P (UM-3) × 2	80
82	R6P (UM-3) × 3	196
83	R20P (UM-1) × 2	190
84	R20P (UM-1) × 4	455

Safety LED Torches

Linternas LED de seguridad　安全 LED トーチ　安全 LED 手电筒

The ATEX LED safety torch is an ATEX and IECEx certified primary cell LED safety torch which uses the latest technology to give excellent performance, robustness and reliability for safe use in Zones 0, 1 and 2 potentially explosive gas and Zones 20, 21 and 22 dust atmospheres.



Unit Per Pc.

CODE	**79 22 86**	**79 22 88**
Model	TR-30+ Right Angle Primary Cell	TR-35+ Right Angle Primary Cell
Body Colour	Yellow	Yellow
Approval Code	I M2/II 2GD Ex ib op is IMb/IIC T4 GbEx ib op is IIIB T130°C Db	I M1/II 1GD Ex ia op is IMa/IIC T4 GaEx ia op is IIIB T130°C Da
Type of Protection	'ib' intrinsic safety	'ia' intrinsic safety
Area of Classification (gases)	Zones 1 & 2 Gas Groups IIA, IIB, IIC	Zones 0, 1 & 2 Gas Groups IIA, IIB, IIC
Temp Classification (Gases)	T4	
Area of Classification (Dust)	Zones 21 and 22 Dust Groups IIIA and IIIB	Zones 20, 21 & 22 Dust Groups IIIA and IIIB
Certificate	ATEX Baseefa 07ATEX0091X / IECEx BAS 06.0089X	
Light Output ,	Up to 130 lumens	
Power Supply	2 × LR20 Primary Cells	
Ingress Protection	IP67	
Weight (incl. cells)	0.5 kg	

Name of Mfr.: Wolf Safety Lamp Company

LED Safety Lights

Luces LED de seguridad　LED 防爆安全灯　LED 防爆安全灯



PX-2



PX-1

Unit Per Pc.

CODE	**79 22 92**	**79 22 94**
Model	PX 2	PX 1
Light Source	1W CREE LED	3W CREE LED
Output	30 lumens	120 lumens
Area of Classification	ATEX Directive Zone 1 approved	
Body Material	PC (Polycarbonate)	
Protection Class	II 2G Ex ib e IIB T4 Gb	II 2G Ex ib IIB T4 Gb II 2D Ex ib IIIC T105°C Db IP68
Battery	2 x AAA / Micro / 1.5 volt each	4 x AA / Mignon / 1.5 volt each
Size mm	22 dia × 142 length	39 dia × 167 length
Weight grm	20	80

Name of Mfr.: Parat GmbH + Co. KG

Unit Per Pc.

CODE	**79 22 93**	**79 22 95**
Model	DF1013	SF-7
Light Source	Osram 1W LED	Cree XP-E LED
Power Source	4 x AA Alkaline	4 x AA Alkaline
Beam Distance	122m	110 mtr(low) / 231 mtr(high)
Light Output	80 lumens	32 lumens(low) / 133 lumens(high)
Runtime	14 hrs 55 min.	69 hrs 10 min.(low) / 6 hrs(high)
Size	175 × 45 ×45 mm	174 × 47 × 47mm
Weight	105 grm	115 grm
Safety Approval	UL - Class I Div 1&2 Group A,B,C,D, Class II Div 1&2 Group E,F,G, Class III T4. Atex – Ex II 1 G Ex ia IIC T4 IECEx – Ex ia IIC T4 Ga / IECEx UL 11.0042X. CE & ROHS & REACH Approved	UL - Class I Div 1 Group A,B,C,D, Class II D 1 Group E,F,G, Class III T4 Atex – Ex II 1 G Ex ia IIC T4 IECEx – Ex ia IIC T4 Ga / IECEx UL 13.0013X CE & ROHS & REACH Approved

Name of Mfr.: Day Sun Technology Ltd.

Pen Lights

Luces de bolígrafo　ペンライト　钢笔灯

Rugged, compact, 135 lumens which fits comfortably in your pocket with strong light.



Anodized aluminium construction, rear push-button switch with momentary and continually-on modes, engineered to provide high output throughout entre runtime.

Unit Per Pc.

CODE	**79 22 96**
Power Source	2 x AAA Batteries
Beam Distance	32 mtr
Light Output	135 lumens
Runtime	3 hours
Dimensions(mm)	L 130 × W 16
Weight	0.86 kg

Name of Mfr.: KBS Innovations

Personal Safety Beacons

Baliza de seguridad personal　個人用安全ビーコン　个人安全信标



It is suitable for working in low light situations to signal the location of a worker, just attached to the back of a helmet or a harness. There are five colours available, so can be useful to identify teams with each different colour. It has long runtime with three settings, a steady flash mode, random flashing mode and steady mode, and can be seen from over 300 meter away. Three types of clips are available, Metal, plastic and magnet.

How to order: CODE

Personal Safety Beacon, COLOUR OF LIGHT, TYPE OF CLIP

Unit Per Pc.

CODE	79 22 97
Light Colours	Amber, Blue, Green, Red, White
Type of Clips	Metal Clip, Plastic Clip, Magnet
Power Source	2AAA alkaline batteries (included)
Light Visible	304.8 mtr
Safety Approvals	Waterproof IP67, Class 1, Div 1
Dimensions (mm)	L 68.6 × W 66 × H 38
Weight	0.96 kg

Name of Mfr.: KBS Innovations

10. Batteries

Dry Batteries

Pilas Secas　乾電池　干电池

Dependable, long lasting and economical. Leak-proof, used for flashlights, transistor radios, transistor clocks, photo flasher, etc.



R20P (UM-1)　R14P (UM-2)　R6P (UM-3)　R03 (UM-4)　6F22 (S-006P)　FM-3K

Unit Per Pc.

CODE	Type	ANSI	Volt	Size mm Dia × L	Application
79 24 01	R20P(UM-1)	D	1.5	34.2 × 61.5	Flashlight
02	R14P(UM-2)	C	1.5	26.2 × 50.0	Penlight
03	R6P(UM-3)	AA	1.5	14.5 × 50.5	Meter
10	R03(UM-4)	AAA	1.5	10.5 × 44.5	Remote Controller
04	R1(UM-5)	N	1.5	12.0 × 30.2	TR. Radio
79 24 05	6F22(S-006P)	-	9.0	26.5×17.5×48.5	Radio
06	FM-3K		1.5	89×47.5×135	Instrument

Coin or Button Type Batteries

Batería Tipo Botón　コイン・ボタン型電池　硬币或纽扣型电池

Small light weight batteries for wide range of applications; such as flashlights, digital cameras, watches.



Lithium Manganese Dioxide Battery　Silver Oxide Battery　Micro Alkaline Battery

CR Coin Type
Lithium Manganese Dioxide Batteries

Pila Tipo modeda de Litio Dióxido de Manganeso
リチウムコイン電池　紐扣式鋰電池

Unit Per Pc.

CODE	JIS Type	Size Diam x H mm	Volt	Applications
79 24 15	CR 1216	12.5 x 1.6	3.0	Camera/ Keylight
12	CR 1220	12.5 x 2.0		
16	CR 1616	16.0 x 1.6		
17	CR 1620	16.0 x 2.0		
18	CR 2012	20.0 x 1.2		
79 24 19	CR 2016	20.0 x 1.6		
20	CR 2025	20.0 x 2.5		
13	CR 2032	20.0 x 3.2		
27	CR 2320	23.0 x 2.0		

Button Type
Silver Oxide Batteries

Pila Tipo Botón de Óxido de Plata　酸化銀電池　氧化銀电池

Unit Per Pc.

CODE	IEC Type	Size Diam x H mm	Volt	Applications
79 24 28	SR41	7.9 x 3.6	1.55	Watches
29	SR43	11.6 x 4.2		
11	SR44 (G-13)	11.6 x 5.4		
30	SR48	7.9 x 5.4		
31	SR55 (SR1120)	11.6 x 2.05		
79 24 32	SR54 (SR1130)	11.6 x 3.05		
33	SR57	9.5 x 2.7		
79 24 34	4SR44	13.0 x 25.1	6.2	

Micro Alkaline Batteries

Micropila Alcalina　アルカリボタン電池　微型碱性电池

Unit Per Pc.

CODE	IEC Type	Size Diam x H mm	Volt	Applications
79 24 36	LR41	7.9 x 3.6	1.5	Flashlights/ Cameras/ CD, MD Players
37	LR43	11.6 x 4.2		
14	LR44	11.6 x 5.4		
38	LR54 (LR1130)	11.6 x 3.05		
39	LR55 (LR1120)	11.6 x 2.05		
79 24 40	4LR44	13.0 x 25.1	6.0	

Alkaline Batteries

Pilas Alkalinas　アルカリバッテリー　碱性电池

Designed for applications where high-drainage occurs when using tape recorders, motor-drive appliances and photo flash, etc. Alkaline batteries are not rechargeable.



LR20 (AM-1)　LR14 (AM-2)　LR6 (AM-3)　LR03 (AM-4)

CODE	TYPE	Nominal Voltage	Size mm	
			Diam.	Length
79 24 21	LR20 (AM-1)	1.5	34.2	61.5
22	LR14 (AM-2)		26.2	50.0
23	LR 6 (AM-3)		14.5	50.5
24	LR03 (AM-4)		10.5	44.5
25	LR 1 (AM-5)		12.0	30.2
79 24 26	6LR61 (006P)	9	26.5 × 17.5 × 48.5	

Lantern Batteries

Pilas para Linterna
ランタンバッテリー　提灯电池



Weatherproof heavy duty 6 volt lantern battery. For use in lanterns, flashers and alarms.

Size: 67 × 67 × 100 mm

79 24 35	Battery lantern 6V	Pc.

Special Dry Batteries

Pilas Secas Especiales 特殊乾電池 特殊干电池

The undermentioned batteries are for use with special instruments such as a Servomex Oxygen Analyser, T.D.S. Meter, and potentio meter, etc.



PP-7 PP-0 HP-1

Unit Per Pc.

CODE	Name	Voltage	Size mm		
			L	W	H
79 24 41	Dry Battery PP-7	9V	46.0	46.0	62.2
42	Dry Battery PP-9	9V	66.0	52.0	81.0
43	Dry Battery HP-1	12V	133.5	68.3	136.5

Battery Conversion Table

IEC	Volt	ANSI/NEDA (U.S.A.)	EVEREADY	DURACELL	VERTA (German)	JIS (Japan)
Manganese Dry Batteries						
R20P	1.5	13C	1050	M13F	2020	R20P (UM-2)
M14P		14C	1035	M14F	2014	R14P (UM-2)
R 6P		15C	1015	M15F	2006	R 6P (UM-3)
R03		24F	912	M24F	239	R03 (UM-4)
R 1		910F	904	M910	245	R 1 (UM-5)
6F22	9	1604D	1222	M9VSHD	3022	6F22 (S-006P)
Alkaline Primary Batteries						
LR20	1.5	13A	E95	MN1300	4020	LR20 (AM-1)
LR14		14A	E93	MN1400	4014	LR14 (AM-2)
L4 6		15A	E91	MN1500	4006	LR 6 (AM-3)
LR03		24A	E92	MN2400	4003	LR03 (AM-4)
LR1		910A	E90	MN9100	4001	LR 1 (AM-5)

Rechargeable Batteries

Pilas Recargables 充電式乾電池 充电式干电池



Rechargeable batteries can be brought back to life hundreds of times and are completely sealed and free from leakage. They have good temperature characteristics and superior voltage regulation at either high or low discharge currents. They are the same size as ordinary dry cells but can be employed at a minimum cost and maximum convenience for a wide variety of uses. Necessary recharging time is 14 – 16 hours.

How to order: CODE

Rechargeable battery, IEC SIZE NO., VOLTAGE, UNIT

Unit Per Pc.

CODE	IEC Size No.	Nominal Voltage	Size mm		Nominal Capacity at 5 Hrs.	Unit
			Diam	L		
79 24 51	R20	1.2V	34.0	61.5	4,000mAH	Pc.
52	R14		26.0	50.0	1,800	Pc.
53	R 6		14.5	50.5	500	Pc.
79 24 54	R20		34.0	61.5	1,200mAH	2's/Pkt
55	R14		26.0	50.0	1,200	2's/Pkt
56	R 6		14.5	50.5	500	4's/Pkt
79 24 57	6F22	9V	49×26×17.5		75	Pc.

Battery Chargers

for Rechargeable Battery

Cargadores de Pila para Pila Recargable 乾電池充電器 充电式干电池

For rechargeable cadnica batteries of IEC size No. R20P (UM-1), R14P (UM-2), R6P (UM-3) and 6F22 (S-006P).



Unit Per Set

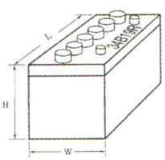
CODE	Input Voltage	Size mm	Weight grm
79 24 71	117	73 × 193.5 × 58	390
79 24 72	220		

Wet Cell Batteries

Baterías (Acumuladores) 蓄電池 蓄电池

(Ref. JIS D5301-91)

Wet cell batteries for high or low capacity. Specially designed for marine use. 24 hours required for battery charging prior to delivery because the batteries are kept uncharged in stock.



12-Volt

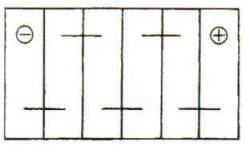
How to order: CODE

Battery, wet cell, 12 volt, TYPE, SIZE, AMPERE/5 Hours

Unit Per Set

CODE	Type	Size mm L x W x H	Capacity Amp./ 5Hr	Weight kg	Equivalent Old Type No.
79 25 22	26A 19R	187 x 127 x 162	21	7.5	12N24-3
11	30A 19R	187 x 127 x 162	21	7.0	-
24	34B 19R	187 x 127 x 203	27	9.5	NS 40ZA
25	36B 20R	197 x 129 x 203	28	10.5	NS 40Z
28	32C 24R	238 x 135 x 207	32	11.5	N 40
79 25 12	40B 19R	187 x 127 x 202	28	9.0	-
13	46B 19R	187 x 127 x 227	36	9.5	-
31	46B 24R	238 x 128 x 202	36	11.5	NS 60
32	48D 26R	260 x 173 x 204	40	15.5	N 50
14	55B 24R	238 x 128 x 202	36	12.5	NX100-S6G
79 25 15	55D 23R	232 x 173 x 202	48	15.0	-
35	55D 26R	260 x 173 x 202	48	16.5	N 50Z
37	65D 26R	260 x 173 x 204	52	17.0	NS 70
38	65D 31R	306 x 173 x 204	56	19.5	N 70
16	70B 24R	238 x 128 x 227	46	12.0	-
79 25 17	75D 23R	232 x 173 x 202	52	16.0	-
18	75D 26R	260 x 173 x 201	52	17.0	F100-5
19	80D 26R	260 x 173 x 201	55	18.5	NX110-5
20	85D 23R	232 x 173 x 225	58	15.5	-
85	95D 31R	305 x 173 x 202	64	20.5	NX120-7
79 25 40	95E 41R	410 x 176 x 213	80	25.5	N 100
86	100E 41R	409 x 175 x 211	80	25.0	-
87	110D 26R	260 x 173 x 225	64	18.5	-
88	110E 41R	409 x 175 x 211	83	26.0	-
41	115E 41R	410 x 176 x 213	88	29.0	NS 120
79 25 42	115F 51	505 x 182 x 213	96	32.0	N 120
89	130F 51	504 x 182 x 212	96	29.5	F160-12
44	145F 51	505 x 182 x 213	112	36.0	NS 150
45	145G 51	508 x 222 x 213	120	40.0	N 150
90	155G 51	507 x 222 x 212	120	35.0	-
79 25 50	190H 52	521 x 278 x 220	160	58.0	N 200
91	210H 52	520 x 278 x 218	160	60.0	-

Note: Suffix R denotes the position of the + & - of the battery terminal as shown below.



Maintenance-free Sealed Wet Cell Batteries

Baterías (Acumuladores Sellados) de Mantenimiento Libre
メンテナンスフリー蓄電池　不需维护的密封蓄电池

Needs no maintenance through its life. Each cell is sealed and filled with gelled electrolyte. 24 hours required for battery charging prior to delivery because the batteries are kept uncharged in stock.

How to order: CODE

Battery, maintenance-free, wet cell, 12 volt, AMPERE/5 hours, SIZE

Unit Per Set

CODE	Capacity Amp./5hr	Size mm L x W x H	Weight kg	Model (JIS)
79 25 51	28	197 x 127 x 203	10.0	B20
52	30	197 x 129 x 202	9.5	-
53	36	238 x 129 x 203	12.5	B24
54	55	232 x 173 x 202	17.6	D23
55	58	260 x 173 x 202	18.6	D26
79 25 56	72	303 x 173 x 202	23.2	D31
57	80	410 x 176 x 213	28.1	E41
58	112	505 x 182 x 213	35.7	F51
59	140	508 x 222 x 213	43.0	G51
60	176	521 x 278 x 220	56.7	H52

Lead-Acid Marine Batteries

Baterías Marina de Ácido-Plomo　船用鉛蓄電池　船用铅蓄电池

Used on board as an electric source for communication, illumination, emergency equipment, automation, etc.



It is constructed so that it will function even when tilted at a 40° incline because the electrolytes will not spill out.

Unit Per Pc.

CODE	Type	Voltage	Capacity Ampere Ah/20 hrs	Max. Size mm L	W	H	Weight kg
79 26 31	SS400	2	400	285	170	400	30
32	SS300	2	300	195	170	400	25
33	SS200	4	200	270	170	400	30
34	PS9-6S	6	108	472	133	226	28
35	PS7-6S	6	84	472	133	226	25
79 26 36	PS5-6S	6	60	303	132	226	17

Maintenance-Free Lead-Acid Marine Batteries

Pilas navales de ácido plúmbico que no necesitan mantenimiento
メインテナンスフリー鉛蓄電池　免维护铅酸蓄电池

Maintenance free type Lead-Acid Battery where no topping up is required throughout the battery life. Used on board as an electric source for communication, illumination, emergency equipment, automation, etc.



Require 24 hours for recharging the battery. Recommended operating temperature is 5-30°C

Unit Per Pc.

CODE	Type	Voltage	Capacity Ampere Ah/10 hrs	Max. Size mm L	W	H	Weight kg
79 25 92	MSE-150	2	150	106	170	354	12.5
93	MSE-200	2	200	106	170	354	15
94	MSE-300	2	300	150	170	354	21.5

Battery Chargers

Cargadores para Batería　バッテリーチャージャー　充电器

From among various types of battery chargers, the most common type is listed below. Larger or smaller sizes are also available on request.



Unit Per Pc.

CODE		79 26 51	79 26 53	79 26 52	79 26 54
Output AC Power	Voltage	6 - 75 V	6 - 35 V	6 - 75 V	6 - 35 V
	Ampere	15 A	20 A	15 A	20 A
Input DC Power	Voltage	100 V		200 V	
	Ampere	15.0 A	12.0 A	7.5 A	6.0 A
Battery	Ah Capacity	10-176 Ah			
	Voltage & Numbers	6V : 1-9 12V : 1-4	6V : 1-6 12V : 1-3	6V : 1-9 12V : 1-4	6V : 1-6 12V : 1-3
Size mm		310 x 400 x 300			
Weight		29 kg	26 kg	29 kg	26 kg

Battery Hydrometers

Densímetro para Batería　バッテリー比重計　电池液体比重计

Graduated instrument for monitoring the acid content of batteries.



79 26 61	Hydrometer battery length 250 mm	Pc.
62	Hydrometer battery length 380 mm	Pc.

Battery Syringes

Jeringas para Batería　バッテリースポイド　电池注射器

P.V.C. tube with rubber bulb.
Used for refilling battery solution.



79 26 66	Rubber battery syringe 380 mm	Pc.

Battery Terminals

Terminales de batería　バッテリーターミナル　电池端子

Electrical contacts used to connect a load or charger to a single cell or multiple cell battery. Ensure the correct electrical polarity as the diameters are slightly different.



CODE	Battery Type	Electrode	Type	Unit
79 26 71	B	+	Wing Nut & Bolt Type	Pc.
72	B	-		
79 26 73	C - H	+		
74	C - H	-		

11. Plugs & Receptacles

Watertight Plugs & Receptacles

Conformed to IEC 309-1 and 309-2

Enchufe y Caja de Contacto (Conforme a IEC 309-1 y 309-2)
IEC 基準適合型防水プラグ・レセプタクル
IEC 标准防水电源插头

Designed to meet IEC (International Electrotechnical Commission) standards and colour coding system. The configurations for plugs and receptacles are single-rated which assures proper mating of devices with the same voltage and amperage. So it is impossible to couple a plug and receptacle of different voltage and/or amperage ratings to avoid causing damage to the equipment or even personal injury. The receptacles with Interlock device eliminate the possibility of making or breaking the circuit under load or making a haphazard connection.

Rated Voltage : 500V
Rated Current : 16/20A
Protection Degree : IP56

Position of Ground Contact

Type	Frequency	Rated Operating Voltage	Position of Ground Contact	Colour
(2P+Earth)	50 and 60 Hz	100 to 130V 200 to 250V	Clock face position 4 6	Yellow Blue
(3P+Earth)	50 and 60 Hz	200 to 250V 380 to 415V	9 6	Blue Red
	60 Hz	440 to 460V	11	Red

Plug (Offset Angle) 500V 16/20A

PI2-2B (2P+Earth)



AC 100-130V AC 200-250V

PI2-3B (3P+Earth)



AC 200-250V AC380-415V/ AC440-460V

Plug (Right Angle) 500V 16/20A

PI2-2B1 (2P+Earth)



AC 100-130V AC 200-250V

Receptacle 500V 16A

PI2-2 (2P+Earth)



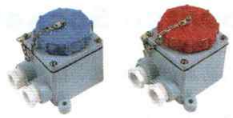
AC 100-130V AC 200-250V

PI2-2-2 (2P+Earth)



AC 100-130V AC200-250V

RI2-3 (3P+Earth)



AC 200-250V AC 380-415V AC 440-460V

Receptacle with Interlock Switch 500V 16/20A

RSIL2-2 (2P+Earth)



AC 100-130V AC 200-250V

RSIL2-3 (3P+Earth)



AC 200-250V AC380-415V/ AC440-460V

Receptacle with Switch 250V 16A

RSIL2-22 (2P+Earth)



AC 100-130V AC 200-250V

Unit Per Pc.

CODE	No of Pole	Input Voltage	Model	Colour	Rated Capacity
Plug – Offset Angle					
79 27 51	2+Earth	AC100 - 130V	PI2-2B	Yellow	AC 500V 16/20A
79 27 52		AC200 - 250V		Blue	
79 27 53	3+Earth	AC200 - 250V	PI2-3B	Blue	
79 27 54		AC380 - 415V/ AC440 - 460V		Red	
Plug – Right Angle					
79 27 55	2+Earth	AC100 - 130V	PI2-2B1	Yellow	AC 500V 16/20A
79 27 56		AC200 - 250V		Blue	
Receptacle					
79 27 61	2+Earth	AC100 - 130V	RI2-2	Yellow	AC 500V 16A
79 27 62		AC200 - 250V		Blue	
79 27 65	2+Earth x 2	AC100 - 130V	RI2-2-2	Yellow	
79 27 66		AC200 - 250V		Blue	
79 27 63	3+Earth	AC200 - 250V	RI2-3	Blue	
79 27 64		AC380 - 415V/ AC440 - 460V		Red	
Receptacle with Interlock Switch					
79 27 71	2+Earth	AC100 - 130V	RSIL2-2	Yellow	AC 500V 16/20A
79 27 72		AC200 - 250V		Blue	
79 27 73	3+Earth	AC200 - 250V	RSIL2-3	Blue	
79 27 74		AC380 - 415V/ AC440 - 460V		Red	
Receptacle with Switch					
79 27 75	2+Earth	AC100 - 130V	RSI2-22	Yellow	AC 250V 16A
79 27 76		AC200 - 250V		Blue	

Watertight CEE-Form Plugs and Receptacles and Switch Socket

Tapones y recipientes estancos con forma CEE

防水 CEE 型プラグ・レセプタクル　防水 CEE 型插头、插座

CEE Male Plugs – AC110V, Yellow Colour

Unit Per Pc.

CODE	Pole	Amp	H	IP
79 27 59	3	16	4	44
79 27 60		32		
79 27 67		16	6	67



CEE Female Plugs – AC110V, Yellow Colour

Unit Per Pc.

CODE	Pole	Amp	H	IP
79 27 68	3	16	4	44
79 27 69		32		
79 27 70		16	4	67



CEE Male Plugs – AC220V Blue Colour

Unit Per Pc.

CODE	Pole	Amp	H	IP
79 27 01	3	16	6	44
79 27 02		32		
79 27 03		16	6	67
79 27 04		32		
79 27 05		63		
79 27 06	4	16	9	44
79 27 07		32		



CEE Female Plugs – AC230V, Blue Colour

Unit Per Pc.

CODE	Pole	Amp	H	IP
79 27 77	3	16	6	44
79 27 78		32		
79 27 79		16	6	67
79 27 80		32		
79 27 81		63		
79 27 82	4	16	9	44
79 27 83		32		



CEE Male Plugs – AC380V, Red Colour

Unit Per Pc.

CODE	Pole	Amp	H	IP
79 27 08	4	16	6	44
79 27 09		32		
79 27 10		16	6	67
79 27 11		32		
79 27 12		63		
79 27 13		125		
79 27 14	5	16	6	44
79 27 15		32		
79 27 16		16	6	67
79 27 17		32		
79 27 18		63		
79 27 19		125		



CEE Female Plugs – AC380V/400V, Red Colour

Unit Per Pc.

CODE	Votage	Pole	Amp	H	IP
79 27 20	380	4	16	6	44
79 27 21			32		
79 27 22			16	6	67
79 27 23			32		
79 27 24			63		
79 27 25			125		
79 27 26		5	16	6	44
79 27 27			32		
79 27 28			16	6	67
79 27 29			32		
79 27 30			63		
79 27 31			125		
79 27 84	400	4	16	6	67



380V



400V

CEE Receptacles – AC110V, Red Colour

Unit Per Pc.

CODE	Pole	Amp	H	IP
79 27 85	3	16	6	44
79 27 86		32		
79 27 87		16	6	67
79 27 88		32		



CEE Receptacles – AC220V, Blue Colour

Unit Per Pc.

CODE	Pole	Amp	H	IP
79 27 32	3	16	6	44
79 27 33		32		
79 27 34		16	6	67
79 27 35		32		
79 27 36		63		
79 27 37	4	16	9	44
79 27 38	5	32		



CEE Receptacles – AC380V/400V, Red Colour

Unit Per Pc.

CODE	Votage	Pole	Amp	H	IP
79 27 39	380	4	16	6	44
79 27 40			32		
79 27 41			16	6	67
79 27 42			32		
79 27 43			63		
79 27 44			125		
79 27 45		5	16	6	44
79 27 46			32		
79 27 47			16	6	67
79 27 48			32		
79 27 49			63		
79 27 50			125		
79 27 89	400	4	32	3	67



380V



400V

Switch Sockets – AC110V - 400V, Red Colour

Unit Per Pc.

CODE	Votage	Pole	Amp	IP
79 27 90	110	3	16	44
79 27 91	230		16	
79 27 92			32	
79 27 93	400	4	16	
79 27 94			32	
79 27 95	110	3	16	67
79 27 96	230		16	
79 27 97			32	
79 27 98	400	4	16	
79 27 99			32	



Watertight Plugs & Receptacles

Synthetic Resin

Clavijas y Base Estanca/Resina Sintética

船用防水型プラグ・レセプタクル　水密电池及插座

(Ref. JIS F 8832, 8833)

Watertight type plug and receptacle with earthing contact for use on the circuits of lights and small electric appliances rated 250V or less. Synthetic resin made body will be furnished unless otherwise specified for materials such as cast iron or brass.

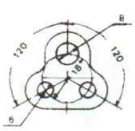
F8832-Plugs



1MA
(79 28 01)



1MB
(79 28 02)



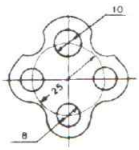
Size



2MA
(79 28 03)



2MB
(79 28 04)



Size

How to order: CODE

Plug, watertight, JIS F-8832, TYPES, STRAIGHT or ANGLE, NUMBER of PINS

Unit Per Pc.

CODE	Type		Body Material	No. of Pin	Rated Capacity
79 28 01	1MA	Straight	Synthetic Resin	3	250V 20 Amp
02	1MB	Angle			
79 28 03	2MA	Straight	Synthetic Resin	4	250V 20 Amp
04	2MB	Angle			

Note: M denotes that the body is made of synthetic resin.
A denotes straight plug.
B denotes angle plug.

F8833-Receptacles



1M
(79 28 06)



2M
(79 28 07)



S1MR
(79 28 08)

How to order: CODE

Receptacle, watertight, JIS F 8833, TYPE, NUMBER of PINS, WITHOUT or WITH SWITCH

Unit Per Pc.

CODE	Type	Body Material	Switch	No. of Pin	Rated Capacity
79 28 06	1M	Synthetic Resin	Without	3	250V 15 Amp.
79 28 07	2M		Without	4	
79 28 08	S1MR		With	3	125V-DC 5 Amp. 125V-AC 10 Amp. 250V-DC 2 Amp. 250V-AC 5 Amp.

Note: M denotes that the body is made of synthetic resin.
S denotes the receptacle with a switch.
R denotes with the internal switch of rotary type..

Plug & Receptacle Sets

Regarding aforementioned plug & receptacle, the following combinations are most commonly available.

How to order: CODE

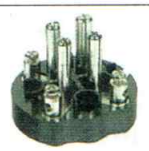
Plug & receptacle set, watertight, TYPE of PLUG & RECEPTACLE, NUMBER of PINS

Unit Per Set

CODE	Combination of		No. of Pin
	F8832 Plug Type No.	F8833 Receptacle Type No.	
79 28 11	1MA (Straight)	1M (w/o Switch)	3
12	1MA (Straight)	S1MR (w Switch)	3
13	1MB (Angle)	1M (w/o Switch)	3
14	1MB (Angle)	S1MR (w Switch)	3
79 28 15	2MA (Straight)	2M (w/o Switch)	4
16	2MB (Angle)	2M (w/o Switch)	4

Spare Interiors for Plug & Receptacle

Unit Per Pc.

CODE	Interior	For	Pin No.	Applicable Type No.
79 28 21		Plug F8832	3	1MA Straight (79 28 01) 1MB Angle (79 28 02)
79 28 22		"	4	2MA Straight (79 28 03) 2MB Angle (79 28 04)
79 28 23		Receptacle F8833	3	1M without Switch (79 28 06) S1MR with Switch (79 28 08)
79 28 24		Receptacle F8833	4	2M without Switch (79 28 07)
79 28 25		Switch F8833	3	S1MR with Switch (79 28 08)

Watertight 3-pin Twin Receptacles

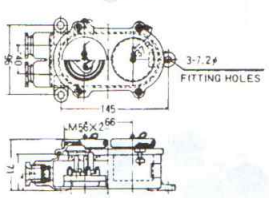
Synthetic Resin

Bases Dobles Estanca de 3-Pin / Resina Sintética
防水３Ｐ連結型レセプタクル　防水三销插座

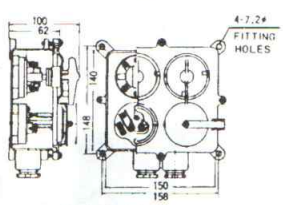
Double receptacles to be used with watertight JIS 3 pin plugs. Main bodies are synthetic resin.







Without Switch
(79 28 31)



With Switch
(79 28 32)

Unit Per Pc.

CODE	Type	Pins	Rated Capacity
79 28 31	Without Switch	3	250V 15A
79 28 32	With Switch	3	250V AC5A DC2A or 125V AC10A DC5A

Note: Spare interiors of the above are exactly the same as formerly coded items of F8832, F8833.

Watertight Plug & Twin Receptacle Sets

Synthetic Resin

Clavija con 3-pin y Base Estanca
防水プラグ & ツインレセプタクルセット　防水三栓插头及插座

Combination of above twin receptacle with aforementioned F8832 plugs are as follows.

How to order: CODE

Plug & twin receptacle set, watertight, TYPE of PLUG & RECEPTACLE, NUMBER of PINS

Unit Per Set

CODE	Combination of		No.of Pin
	Plug	Receptacle	
79 28 36	Straight Plug F8832-1MA (79 28 01)	Twin Receptacle without Switch (79 28 31)	3
79 28 37	"	Twin Receptacle with Switch (79 28 32)	3
79 28 38	Angle Plug F8832-1MB (79 28 02)	Twin Receptacle without Switch (79 28 31)	3
79 28 39	"	Twin Receptacle with Switch (79 28 32)	3

Watertight 3-pin Plugs & Receptacles

Cast Iron

U.S.C.G. R & S Type

Clavija con 3-Pin y Base Estanca/Hierro fundido
Tipo U.S.C.G.R. ys
米国式防水 3P プラグレセプタクル
美式防水 3P 插头插座

Cast iron receptacle box sealed with synthetic rubber packing and brass plug. Rated capacity is 250V, 10 amp. One 6.8 mm and two 5.3 mm diameter pins on the plug.

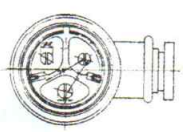
Plugs



Straight



Angle



How to order: CODE

Plug, watertight, U.S.C.G. 3-pin, STRAIGHT or ANGLE

Unit Per Pc.

CODE	**79 28 51**	CODE	**79 28 52**
Type	Straight	Type	Angle

Receptacles



Without Switch



With Switch

How to order: CODE

Receptacle, watertight, U.S.C.G. 3-pin, WITHOUT or WITH SWITCH

Unit Per Pc.

CODE	**79 28 56**	CODE	**79 28 57**
Type	Without Switch	Type	With Switch

Plug & Receptacle Sets

Above plug & receptacle combination.

How to order: CODE

Plug & receptacle, watertight, 3-pin, U,S,C,G, R & S type, TYPE of PLUG and RECEPTACLE

Unit Per Set

CODE	Combination of		
	Plug		Receptacle
79 28 61	Straight	(79 28 51)	W/o Switch (79 28 56)
79 28 62	Angle	(79 28 52)	"
79 28 63	Straight	(79 28 51)	W/Switch (79 28 57)
79 28 64	Angle	(79 28 52)	"

Spare Interiors for 3-pin Plug & Receptacle U.S.C.G. R & S Type

Unit Per Pc.

CODE	Interior	For	Pin	Remark
79 28 66		Plug	3	U.S.C.G. Straight or Angle Type (79 28 51 or 79 28 52)
79 28 67		Receptacle	3	U.S.C.G. with or without Switch (79 28 56 or 79 28 57)
79 28 68		Switch	3	U.S.C.G. Type (79 28 57)

Watertight 3-pin Plugs & Receptacles

with Switch, Type HNA

Clavija con 3-Pin y Base Estanca con Interruptor, Tip HNA
HNA 式防水 3P プラグレセプタクル
HNA 型防水 3P 插头插座

Watertight marine use plug & receptacle with switch. Rated capacity is 250V, 10 amp. Available in cast brass or synthetic resin main body.





Plug



Receptacle with Swittch

CODE	Type	Description	Unit
		Synthetic Resin	
79 28 81	HNA	Plug 3 Pin	Pc.
84	"	Plug 3 Pin with Self-locking	"
82	"	Receptacle with Switch 3 Pin	"
83	"	Plug & Receptacle with Switch 3 Pin	Set
		Cast Brass	
79 28 86	HNA	Plug 3 Pin	Pc.
85	"	Plug 3 Pin with Self-locking	"
87	"	Receptacle with Switch 3 Pin	"
89	"	Receptacle with Self-locking Switch 3 Pin	"
88	"	Plug & Receptacle with Switch 3 Pin	Set

Spare Interiors for 3-pin Plug & Receptacle HNA Type

Unit Per Pc.

CODE	Interior	For	Pin	Remark
79 28 91		Plug	3	HNA Type (79 28 81 or 79 28 86)
79 28 92		Receptacle	3	HNA Type with Switch (79 28 82 or 79 28 87)
79 28 93		Switch	3	HNA Type (79 28 82 or 79 28 87)

Explosion Proof Plugs, Sockets and Switches

Enchufes, tomas e interruptores antideflagrantes
防爆形プラグ、ソケット、スイッチ　防爆插头、插座和开关

Brass made, designed to prevent sparks in hazardous environments, ensure safety during electrical connections in potentially explosive atmospheres.



Plug　D socket　L Socket　Switch

Specifications

Explosion Protection	Plug/Socket: Zone 1, II2G EEx ed IIC T6/T5 Switch: Zone 21,1, II2G EEx ed IIC T6/T5Gb, II2D Ex tb IIIC T80° Db
IP	Plug/Socket: 56 Switch: 66
Ambient Temperature	Plug/Socket: -40°C up to +40°C: T6/ -40°C up to +55°C: T7 Switch: -40°C up to +55°C
Voltage	Plug/Socket: max 415V, 50/60Hz Switch: max 690V
Rated Current	16A
Switching Capacity	250V/16A: AC 3

Unit per Pc.

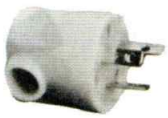
CODE	Description	Voltage	Pole	H
79 28 94	Plug	220 - 250V	3	6
79 28 95	D Socket			
79 28 96	L Socket			
79 28 97	On-Off Switch	690V (max)	-	-

Non-Watertight Type Plugs & Receptacles

Clavija y Base Tipo No Estanca
船用非防水プラグ及びレセプタクル　船用无防水插头及插座

(Ref. JIS F 8831, 8835)

Non-watertight double pole plug & receptacle with a grounding contact for marine use. Used for lighting fittings and small electric apparatus. Made of phenol resin.



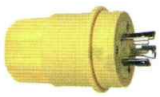
UB (79 29 01)



U (79 29 02)



Size U



IB (79 29 04)



I (79 29 05)



Size I

Specifications

Class	Type	No. of Pin	Rated Capacity	Applicable Plug Receptacle
Plug (Ref. JIS F8831)				
U	B	3	250 V 15 Amp.	Class U
I				Class I
Plug (Ref. JIS F8835)				
U	-	3	250 V 15 Amp.	Class U
I				Class I

Remark: 1. Class U indicates that grounding blades are U shape and class I, I shape.
2. Type B indicates that the directions of the cord entry and plugging are at a right angle.

CODE	Description		Unit
79 29 01	Plug, Phenol Resin	3 Pin, Type UB	Pc.
02	Receptacle Phenol Resin	3 Pin, Type U	Pc.
03	Plug-B & Receptacle, Phenol Resin	3 Pin-U	Set
79 29 04	Plug, Phenol Resin,	3 Pin, Type IB	Pc.
05	Receptacle Phenol Resin,	3 Pin, Type I	Pc.
06	Plug-B & Receptacle, Phenol Resin	3 Pin-I	Set

Non-Watertight "Siemens" Cable Plugs & Receptacles

with Earthing Contact

Clavija para Cable y Base No Estanca "Siemens" con Toma-Tierra
シーメンズ型プラグ・レセプタクル
不防水"Siemens"电缆插塞及插座

Phenol resin round 2 pin plug with grounding and side entry for cabling. The pin diameter is 4.8 mm and the distance between pin center is 19.5 mm. Able to connect 250V, 10 amp. DC and 250V, 16 amp. AC.



Plug (79 29 21)



Single Receptacle (79 29 22)



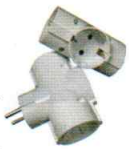
Double Receptacle (79 29 23)

CODE	Description	Unit
79 29 21	Plug, 2 round pin "Siemens"	Pc.
79 29 22	Receptacle single, 2 round pin "Siemens"	Pc.
23	Receptacle double, 2 round pin "	"
79 29 24	Plug & single receptacle, 2 round pin "Siemens"	Set
25	Plug & double receptacle, 2 round pin "	"

Non-Watertight "Siemens" Distribution Plugs

Clavija Distribución No Estanca "Siemens", 3 Tomas
シーメンズ型三方レセプタクル　不防水"Siemens"分配插塞

Combination of 2 round pin plugs with 3 way receptacles. Rated capacity 250V, 10 amp. Made of phenol resin.



79 29 30	Distribution plug "Siemens" phenol resin, 2 round pin	Pc.

Non-Watertight "Siemens" Cable Connectors

Clavija y Base Aérea, No Estanco "Siemens"
シーメンズ型電線コネクター "Siemens" 无防水电线接头

Rubber coated phenol resin 2 round pin plug and receptacle. Rated capacity 250V, 10 amp.



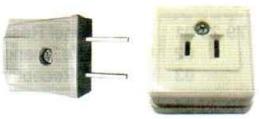
79 29 35	Cable connector "Siemens" phenol resin, 2 round pin	Pr.

Non-Watertight 2-Flat Pin Cabin Plugs & Receptacles

Phenol Resin

Calvija Macho 2 Pin Americana y Base Americana 2 Pin, No Estanca
非防水２フラットピンプラグ 无防水室内二平栓插头及插座

Phenol resin 2-flat pin for cabin use plug & receptacle.



Plug Receptacle

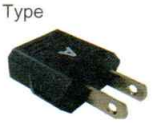
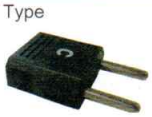
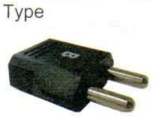
CODE	Item	Rating	Unit
79 29 51	Plug,2 flat pin	125V 15A	Pc.
52	Receptacle	250V 15A	"
53	Plug & receptacle	-	Pr.

Plug & Receptacle Adaptors

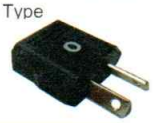
Adaptadores Clavija y Base Europea/Americana
プラグアダプター 插头及插座承接器

Non-watertight plug & receptacle adapters for cabin use. Available various types of adaptors to convert power outlet to other countries when traveling, as shown below.

Unit Per Pc.

CODE	External Appearance	Conversion	Rating
79 29 61	A Type 	B/C/SE → A	10A, 250V
79 29 62	C Type 	A/B/SE → C	10A, 250V
79 29 54	B Type 	A/C/SE → B	10A, 250V

Unit Per Pc.

CODE	External Appearance	Conversion	Rating
79 29 55	O Type 	A/B/C/SE → O	10A, 250V
79 29 56	SE Type 	A/B/C → SE	10A, 250V
79 29 57	BF Type 	A/B/C/ O/SE/ B3/O2 → BF	13A, 250V
79 29 58	B3 Type 	A/B/C/ O/SE/ BF/O2 → B3	10A, 250V
79 29 59	O2 Type 	A/B/C/ O/SE/ BF/B3 → O2	10A, 250V
79 29 60	A Type 	B/C/O/ SE/BF B3/O2 → A	10A, 250V

Multiway Receptacles with Cord and Plug

Receptáculo de Multientrada con Cable y Tapón
電源タップ 多孔插座延長線

Electric receptacles with extension cord for all portable equipments to help you place them in the best indoor locations. Please specify the type of plugs and length of extension cable when ordering.



2 Round Pins



3 Flat Pins



2 Flat Pin



Multi Plug

Unit Per Pc.

CODE	Number of Receptacles	Length of Cord	CODE	Number of Receptacles	Length of Cord
European Plug (2 Round Pins)					
79 29 63	2 ways	3 mtr	79 29 67	4 ways	3 mtr
64		5 "	68		5 "
79 29 65	3 ways	3 mtr	69		7 "
66		5 "	70		10 "
British Plug (3 Flat Pins)					
79 29 82	2 ways	3 mtr	79 29 88	4 ways	3 mtr
83		5 "	89		5 "
79 29 84	3 ways	3 mtr	90		7 "
85		5 "	91		10 "

Unit Per Pc.

CODE	Number of Receptacles	Length of Cord	CODE	Number of Receptacles	Length of Cord
U.S.A./ Japanese (2 Flat Pins)					
79 29 92	2 ways	3 mtr	**79 29 96**	4 ways	3 mtr
93		5 "	**97**		5 "
79 29 94	3 ways	3 mtr	**98**		7 "
95		5 "	**99**		10 "
Multi Plug (2 Round/3 Flat/2 Flat Pins)					
79 29 45	3 ways	3 mtr	**79 29 49**	5 ways	3 mtr
46		5 "	**50**		5 "
79 29 47	4 ways	3 mtr			
48		5 "			

Cabin Flush Receptacles

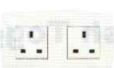
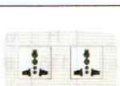
Receptáculos empotrados en cabina
埋込コンセント　机舱内的冲洗式插座

Cabin flush receptacles for vaious pin plugs with U type grounding outlet. Finished with a plastic ivory coloured plate. Able to connect up to 125V, 15 amp.

How to order: CODE

Receptacle, cabin flush, PIN TYPE, NOS OF GANG, AMPERE VOLTAGE

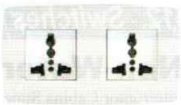
Unit Per Pc.

CODE	Series	Pin Type	Ratng
79 29 73	1 Gang, 2P + E	JIS 	15A. 125V
79 29 07		BS 	13A, 240VAC
79 29 08		Schuko 	16A, 250VAC
79 29 09		Universal 	13A, 250VAC
79 29 74	1 Gang, 2P + E	JIS 	15A, 125V
79 29 10		BS 	13A, 240VAC
79 29 11		Schuko 	16A, 250VAC
79 29 12		Universal 	13A, 250VAC

Cabin Surface Receptacles

Receptáculos de superficie de cabina　露出コンセント　船舱表面垃圾箱

Plastic & bakelite surface receptacle for various pin plug. Can be used as a temporary extension receptacle from the flush receptacle by connecting a cord.



Unit Per Pc.

CODE	Series	Pin Type	Ratng
79 29 76	1 Gang, 2P + E	JIS	125V, 15A
77	2 Gang, 2P + E		
78	3 Gang, 2P + E		
79	4 Gang, 2P + E		
79 29 13	1 Gang, 2P + E	BS	13A, 240VAC
14	2 Gang, 2P + E		
79 29 15	1 Gang, 2P + E	Schuko	16A, 250VAC
16	2 Gang, 2P + E		
79 29 17	1 Gang, 2P + E	Universal	13A, 250VAC
18	2 Gang, 2P + E		

2-Flat Pin 3 Way Receptacles

Clavija Americana Ladrón 3 Tomas
三方レセプタクル　2 平销 3 向插座



2 flat pin 3 way receptacle with a one way plug. Rated capacity is 125V, 10 amp.

79 29 81	2 flat pin 3 way receptacle with one way plug	Pc.

Data Sockets

Salida para cables de comunicación
通信ケーブル用コンセント　通信电缆插座

CAT 6. Data Sockets for Lan Cable

Flush type CAT 6. Data socket for LAN cables. Available in single or double socket.



Single



Double

Unit Per Pc.

CODE	Type	Socket No.	Size mm	
			H	W
79 29 26	Flush Socket	Single	89.9	89.9
27		Double		

USB Outlet Sockets

Flush type double USB outlet socket. 110-240 VAC, 5 VDC, 2.1A.



79 29 28	USB double outlet socket, 110-240 VAC	Pc.

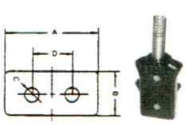
Iron Plugs

Clavijas para Plancha　アイロン用プラグ　电熨斗插头

Heat resistant synthetic resin plugs. Furnished in a round pin type.

How to order : CODE

Iron plug, VOLTAGE, AMPERE



Unit Per Pc.

CODE	Rating		Size mm			
	Voltage	Ampere	A	B	C	D
79 29 86	250	6	30	15	6	15
87	250	15	40	20	7	20

12. Switches

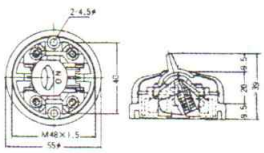
Non-Watertight Snap Switches

Interruptor Cabina Superficie Redondo, No Estanco
船用非防水型小型スイッチ　不防水快动开关

(Ref. JIS F 8840)

Non-watertight type snap switches with toggle type knob used for circuits, light fittings and small electric fittings. The rated voltage is 250V or less, DC10A and AC20A or less. Made of phenol resin. T denotes Toggle Knob type.





How to order: CODE

Snap switch, non-watertight ,TYPE, NUMBER of POLES, SIZE, RATED CAPACITY

Unit Per Pc.

CODE	Type	No. of Pole	Size mm		Rate Capacity		
						Ampere	
			D	H	V	DC	AC
79 30 01	1T	2	56	30	125	5	10
					250	2	5
79 30 02	2T	2	64	40	125	10	20
					250	5	10

Small Snap Switches

Interruptores de Bola
小型トグルスイッチ　小型快动开关



Mainly for use on radio or wireless operations.

How to order: CODE

Snap switch, TYPE of CIRCUIT, RATED CAPACITY

Unit Per Pc.

CODE	Circuit		Rated Capacity	Action	Case Size mm		
	Pole	Throw			L	W	D
79 30 06	2	1	AC125V, 5A	ON-OFF	27.8	17.6	22.9
07	2	2	AC125V, 5A	ON-OFF	27.8	17.6	22.9
08	1	1	AC125V, 3A	ON-OFF	25.5	13.2	15
09	2	1	AC125V, 25A	ON-OFF	33.2	19	25.1

Marine Watertight Type Small Rotary Switches

Interruptores Estanco Polia-Mida
船用防水小型スイッチ　船用防水小型转动式开关

(Ref. JIS F 8841)



Watertight small switch used on board for lighting and small electric fittings of a rated voltage 250V or less.

Made of synthetic resin and cast iron. Single switch with one inlet and outlet gland.

How to order: CODE

Rotary switch, watertight, TYPE, NUMBER of POLES, SIZE, RATED CAPACITY

Unit Per Pc.

CODE	Type	No. of Pole	Size mm			Rated Capacity		
			D	P	H	V	Ampere	
							DC	AC
79 30 14	1R	2	74	110	68	125	5	10
						250	2	5
70 30 15	1MR					125	5	10
						250	2	5
70 30 16	2R		84	120	78	125	10	20
						250	5	10
70 30 17	2MR					125	10	20
						250	5	10

Remark: Symbol R indicates Cast Iron Rotary Switch.
Symbol M indicates that the body cover and handle are synthetic resin.

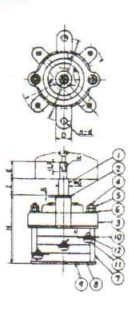
Rotary Switches

Commutadores　回転スイッチ　船用转动式开关

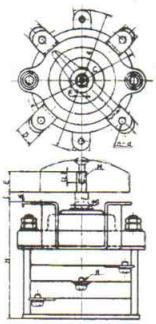
(Ref. JIS F8845-1996)

Marine rotary switches used to change over the resistance circuit, lamp circuit and indication circuit (excluding electric motors) in electric apparatus.





R1, R2



R3, R4

How to order: CODE

Rotary switch, TYPE, NUMBER of POLES, SIZE, RATED CAPACITY

Unit Per Pc.

CODE	Type	Switch Rotating Angle	Circuit	No. of Pole	Voltage	Amp
79 30 28	R1	90° 60°	Off On	1 - 8	AC, DC 250	6
					AC, DC 125	12
79 30 38	R2			1 - 8	AC, DC 250	10
					AC, DC 125	20
79 30 46	R3			1 - 6	AC, DC 250	30
					AC, DC 125	45
79 30 54	R4			1 - 4	AC, DC 250	60

Remarks: The symbol of Type R denotes the rotary switch, and classified into R1, R2, R3, and R4 according to the rated capacity of the switch.

Cabin Flush Toggle Switches



Interruptores Empotrar de Cabina
埋込トグルスイッチ　室内埋式纽扣开关

Available in single and double type with phenol resin plate.

Unit Per Pc.

CODE	Switch No.	Size mm			Rated Capacity
		H	W	D	
79 30 61	Single	115	82	48	125V DC5A AC 10A or 250V DC2A AC5A
62	Double	115	144	48	

Cabin Switches

Interruptores de cabina　キャビンスイッチ　机舱开关

Available in single and double type with phenol resin plate.


Single


Double

Unit Per Pc.

CODE	Type	Switch No.	Size mm H	Size mm W	Rated Capacity
79 30 63 64	Flush Switch	Single Double	89.9	89.9	250V, 16A 2 Poles
79 30 65 70	Surface Switch	Single Double	89.9	89.9	

Push Button Switches

Non-Watertight

Pulsadores de Pared Marcha /Paro
船用押ボタン　用于船舶的按钮

(Ref. JIS F 8503)

Used for intercommunication and alarm systems on board. Made of phenol resin.

Rating capacity: 125V, 1 amp.
250V, 0.5 amp.


1S


1FA·1FB


2S

Unit Per Pc.

CODE	Type	Size mm Flush Depth	Size mm Φ	Size mm L	Size mm W	Remark
79 30 66	1S		56			Non Watertight
67	1FA	36		115	72	
68	1FB	43				
79 30 69	2S		70			Watertight

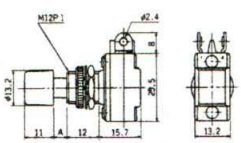
Remark: Type 1 denotes non-watertight type.
Type 2 denotes watertight type.
S denotes surface type, Type FA flush type of 36 mm in depth, Type FB flush type of 43 mm in depth.

Small Push Button Switches

Pulsadores Bola　小型押ボタンスイッチ　小型按扭开关

Push button switches for cabin use. Non-watertight. Rating capacity AC 125V 3 amp. or AC 250V 1.5 amp.





79 30 74	Switch, push button, non watertight on-off, case size 13.2 × 25.5 × 15.7 mm	Pc.

Push Button Switches

Pulsadores　プッシュスイッチ　按钮开关



ABS resin outer casing surface switch for use as an on-off switch for motors, etc.

How to order: CODE

Push button switch, TYPE of FITTING, RATING

Unit Per Pc.

CODE	Rating	Applicable Motor Capacity Phase	V	KW	Outer Size mm L × W × D
Surface Type					
79 30 76	2P 15A	1Φ	110	0.4	80 × 38 × 40
79 30 77	3P 15A	3Φ	220	2.2	80 × 38 × 40
79 30 78	2P 30A	1Φ	110	0.75	90 × 45 × 44
79 30 79	3P 30A	3Φ	220	3.7	90 × 45 × 44
Weather Proof Type					
79 30 81	2P 15A	1Φ	110	0.4	162 × 66 × 74
79 30 82	3P 15A	3Φ	220	2.2	162 × 66 × 74
79 30 83	3P 30A	3Φ	220	3.7	186 × 80 × 74

Push Button Switches for Hoist

Botonera para Polea
ホイスト用プッシュスイッチ　吊车用按扭开关



Weather proofed suspension type switch made of ABS resin. Motor direct control and indirect control with AC starter types are available.

How to order: CODE

Push button switch for hoist, TYPE of CONTROL, BUTTON NUMBERS

Unit Per Pc.

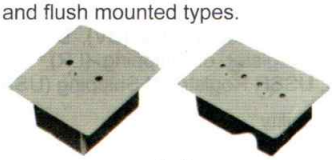
Type	Direct Control		Indirect Control	
CODE	79 30 85	79 30 86	79 30 87	79 30 88
Button Nos.	2	6	2	6
Operation	Up Down	Up Down 4 Quarters	Up Down	Up Down Quarters
Rating	3Φ200/220V 400/440V 2.2KW		250V 5A 500V 2A	
Applicable Cable Size mm	15.4 - 16.6	14.3 - 15.5	11.4 - 12.6	17.2 - 18.4

Non-Watertight Seesaw Switches

Interruptores de Vaivén Antiherméticos
シーソースイッチ　无防水跷板式开关

Synthetic resin cabin seesaw switches. Non-watertight. Available in surface and flush mounted types.


Surface


Flush

Unit Per Pc.

CODE	Type	Rating	Size mm
79 30 91	Single Surface	250V 10A	65 × 52 × 39
92	Single Flush		89 × 82 × 53
93	Double Flush		132 × 39 × 51

Dimmer Switches

Regulador Luz o Filtro Amortiguador
ディマースイッチ　减光器开关

For adjusting the lights of the incandescent lamp from bright to candle glow without flickering or steps.

When ordering, please specify the power source voltage and wattage of the applicable lamp.

How to order: 79 - 30 - 96

Dimmer switch, power source voltage, wattage of the lamp (Pc.)

Knife Switches

Interruptores de Cuchilla ナイフスイッチ

Porcelain and synthetic resin rating 30 to 100 amperes, AC 250 volts. Used for switchboards, testing equipment, battery insulation, welders, etc., where no heavy duty service is required.



On-Off On-Off-On

How to order: CODE

Knife switch, NUMBER of POLES, TYPE, AMPERE

Unit Per Pc.

2-Pole				3-Pole			
CODE	Type	Amp	Fuse	CODE	Type	Amp	Fuse
79 31 01	On-Off-On	30	No Fuse	**79 31 06**	On-Off-On	30	No Fuse
02	"	60	"	**07**	"	60	"
03	On-Off	30	Fusible	**08**	On-Off	30	Fusible
04	"	60	"	**09**	"	60	"
05	"	100	"	**10**	"	100	"

79 Electrical Equipment

Pressure Switches

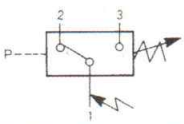
Presostatos 圧力スイッチ 压力开关



For opening or closing circuit at a set point within the adjusting range, operated by increasing or decreasing pressure. There are models actuated by diaphragm, piston, etc. The most common models are described below for your reference. Please ask for further information and brochures of various manufacturers and models available from local suppliers when required.

Diaphragm Actuated

For neutral gaseous and liquid fluids. Switching pressure range 0.02 ... 30 bar.



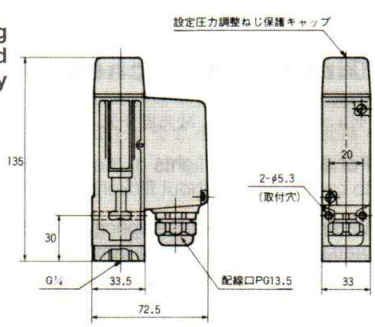
Switching function:
Microswitch SPDT
Terminals 1-3: Contacts close on rising pressure
Terminals 1-2: Contacts open on rising pressure

- Pressure switches for air, gas, water, hydraulic oil, lubricating oil, light fuel oil.
- Working viscosity up to 1,000 mm^2/s.

Small size and preferred for pressure monitoring. Sealed design permits setting of differential switching points during operation without tools. Approved by shipping authorities, including, Bureau Veritas (BV), Det Norske Veritas (DNV), Lloyd's Register of Shipping (LR), Polski Rejestr Statkow (PRS), USSR Register of Shipping (USSR), etc..

Repeatability	±2%
Switch Element	Microswitch
Protection Class	IP64
Ambient Temperature	-10 to + 80°C
Fluid Temperature	0 to +80°C
Max. Temperature at Switching Element	+80°C
Mounting Position	Optional

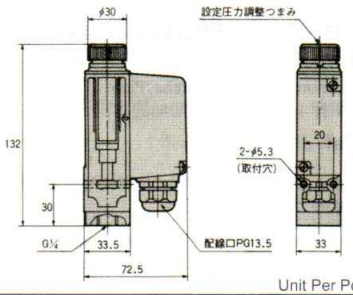
Setting of switching point by allen head screw protected by plastic cover



Unit Per Pc.

CODE		79 31 51	79 31 52
Type No.		0820150	0820750
Adjustable Range (bar)		0.2 to 12	0.5 to 30
Switching Pressure Difference (bar)	Lower Range	0.9	1
	Upper Range	1.4	2
Max. Allowable Pressure (bar)		50	
Switching Cycles/Minutes		Max. 60	
Pressure Sensor Materials	Housing	Aluminium	
	Seal	NBR (Perbunan)	
Type of Connection		Internal thread	
Connection		G 1/4	
Total Weight (kg)		0.4	
Name of Mfr.		Herion-Werke KG	

Setting of switching point by scaled rotary button

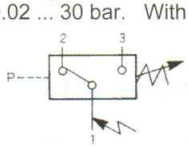


Unit Per Pc.

CODE		79 31 53	79 31 54
Type No.		0820160	0820760
Adjustable Range (bar)		0.2 to 12	0.5 to 30
Switching Pressure Difference (bar)	Lower Range	0.9	1
	Upper Range	1.4	2
Max. Allowable Pressure (bar)		50	
Switching Cycles/Minutes		Max. 60	
Pressure Sensor Materials	Housing	Aluminium	
	Seal	NBR (Perbunan)	
Type of Connection		Internal thread	
Connection		G 1/4	
Total Weight (kg)		0.4	
Name of Mfr.		Herion-Werke KG	

Piston Actuated

For neutral gaseous and liquid fluids. Switching pressure range 0.02 ... 30 bar. With soft seal, no leakage.



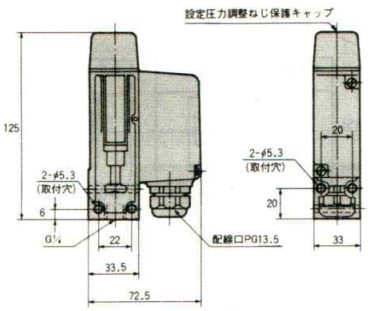
Switching function:
Microswitch SPDT
Terminals 1-3: Contacts close on rising pressure
Terminals 1-2: Contacts open on rising pressure

- For oil-treated compressed air, hydraulic oil and other fluids with good antifriction properties (state kind of fluid).
- Working viscosity up to 1,000 mm^2/s.

Small design and provided with scale for easy adjustment of switching points even during operation. Design with glydring seal for application in temperatures below 0 °C. Approved by shipping authorities, including Bureau Veritas (BV), Det Norske Veritas (DNV), Lloyd's Register of Shipping (LR), Polski Rejestr Statkow (PRS), USSR Register of Shipping (USSR), etc..

Repeatability	±2%
Switching Element	Microswitch
Protection Class	IP 54
Ambient Temperature	0 to +80°C (Grooved ring seal) -20 to 80°C (Glydring seal)
Fluid Temperature	0 to 80°C
Max. Temperature at Switching Element	+80°C
Mounting Position	Urgent

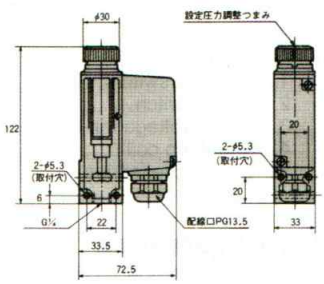
Switching pressure difference not adjustable. Setting of switching point by screw with hex. recessed hole protected by plastic cover.



Unit Per Pc.

CODE		79 31 56	79 31 57
Type No.		0821051	0821050
Adjustable Range (bar)		5 to 70	10 to 160
Switching Pressure Difference (bar)	Lower Range	7	9
	Upper Range	12	18
Max. Allowable Pressure (bar)		250	
Switching Cycles/Minutes		Max. 20	
Pressure Sensor Materials	Housing	Aluminium	
	Seal	NBR (Perbunan)	
	Piston	Stainless Steel	
Type of Connection		Inteerrnal thread	
Connection		G 1/4	
Total Weight (kg)		0.4	
Name of Mfr.		Herion-Werke KG	

Setting of switching point by scaled rotary button



Unit Per Pc.

CODE		79 31 58	79 31 59
Type No.		0821061	0821060
Adjustable Range (bar)		5 to 70	10 to 160
Switching Pressure Difference (bar)	Lower Range	7	9
	Upper Range	12	18
Max. Allowable Pressure (bar)		250	
Switching Cycles/Minutes		Max. 20	
Pressure Sensor Materials	Housing	Aluminium	
	Seal	NBR (Perbunan)	
	Piston	Stainless Steel	
Type of Connection		Interrnal thread	
Connection		G 1/4	
Total Weight (kg)		0.4	
Name of Mfr.		Herion-Werke KG	

13. Circuit Breakers & Transformers

Switching Power Supplies

Interruptores de Suministro de Energía　パワーソース　圧力开关

For supplying a stabilized power source converting from AC100 volt or AC200 volt to weak DC voltage, and suitable for use as power sources in the control panel for valve operation, etc. Available output power ranges from 10 watt to 600 watt.



Unit Per Pc.

CODE	Model	Output Volt & Amp	Input Voltage	Size mm W × L × H	Weight grm
Power 15 watt					
79 32 11	HWS15A-5/A	DC 5V, 3A	AC85-265V	26.5×82×80	160
12	HWS15A-12/A	DC12V, 1.3A	AC85-265V	26.5×82×80	160
13	HWS15A-15/A	DC15V, 1A	AC85-265V	26.5×82×80	160
14	HWS15A-24/A	DC24V, 0.65 A	AC85-265V	26.5×82×80	160
Power 50 watt					
79 32 31	HWS50A-5/A	DC 5V, 10A	AC85-265V	26.5x82x120	260
32	HWS50A-12/A	DC 12V, 4.3A	AC85-265V	26.5x82x120	260
33	HWS50A-15/A	DC 15V, 3.5A	AC85-265V	26.5x82x120	260
34	HWS50A-24/A	DC 24V, 2.2A	AC85-265V	26.5x82x120	260
35	HWS50A-48/A	DC 48V, 1.1A	AC85-265V	26.5x82x120	260
Power 75 watt					
79 32 41	HWS80A-5/A	DC 5V, 16A	AC85-265V	28x82x160	420
42	HWS80A-12/A	DC 12V, 6.7A	AC85-265V	28x82x160	420
43	HWS80A-15/A	DC 15V, 5.4A	AC85-265V	28x82x160	420
44	HWS80A-24/A	DC 24V, 3.4A	AC85-265V	28x82x160	420
45	HWS80A-48/A	DC 48V, 1.7A	AC85-265V	28x82x160	420
Power 100 watt					
79 32 51	HWS100A-5/A	DC 5V, 20A	AC85-265V	28x82x160	420
52	HWS100A-12/A	DC 12V, 8.5A	AC85-265V	28x82x160	420
53	HWS100A-15/A	DC 15V, 7A	AC85-265V	28x82x160	420
54	HWS100A-24/A	DC 24V, 4.5A	AC85-265V	28x82x160	420
55	HWS100A-48/A	DC 48V, 2.1A	AC85-265V	28x82x160	420
Power 150 watt					
79 32 62	HWS150A-5/A	DC 5V, 30A	AC85-265V	37x82x160	470
63	HWS150A-12/A	DC 12V, 13A	AC85-265V	37x82x160	470
64	HWS150A-15/A	DC 15V, 10A	AC85-265V	37x82x160	470
65	HWS150A-24/A	DC 24V, 6.5A	AC85-265V	37x82x160	470
Power 300 watt					
79 32 82	HWS300-5	DC 5V, 60A	AC85-265V	61x82x165	1,000
83	HWS300-12	DC 12V, 27A	AC85-265V	61x82x165	1,000
84	HWS300-15	DC 15V, 22A	AC85-265V	61x82x165	1,000
85	HWS300-24	DC 24V, 14A	AC85-265V	61x82x165	1,000
86	HWS300-48	DC 48V, 7A	AC85-265V	61x82x165	1,000
Power 600 watt					
79 32 92	HWS600-5	DC 5V, 120A	AC85-265V	100x82x165	1,600
93	HWS600-12	DC 12V, 53A	AC85-265V	100x82x165	1,600
94	HWS600-15	DC 15V, 43A	AC85-265V	100x82x165	1,600
95	HWS600-24	DC 24V, 24A	AC85-265V	100x82x165	1,600
96	HWS600-48	DC 48V, 13A	AC85-265V	100x82x165	1,600

Circuit Breakers

Interruptores automáticos　サーキットブレーカー　断路器

Used for the protection of circuits and electrical equipment. Capable of starting or halting current automatically to avoid damage to equipment due to circuit overload or short circuits.
Circuit breakers are mainly classified and selected according to rated current and rated breaking capacity of the circuit and where it is used.
The following matters should be specified when ordering circuit breakers.

1. **Manufacturer name and model number.**
   With this information the rated breaking capacity of the circuit can be found.
2. **No. of poles:**
   a) 2 pole (Usually used with branched circuits)
   b) 3 pole (Usually used for marine circuits)
   c) 4 pole (Usually used in industrial plants)
3. **Frame size:**
   ex. 30A, 50A, 100A, 225A, 400A, 600A.
   If the type or model number is understood, this information will not be necessary.
4. **Rated current (Trip current)**
   This current value is usually smaller than the frame size.

ex. Frame size	Rated current
30A	10A, 15A, 20A, 30A
50A	10A ~ 50A
60A	10A ~ 60A
100A	10A ~ 100A

If the breaker is only instantaneous trip type, the value of the instantaneous trip current should be specified.

5. Method of mounting

a) Front connected type (FC)
- Cable or busbars are connected directly to the terminal or breaker from the front side and the breaker is fitted directly to the rear iron frame.
- This type is seldom used for marine use. This type may only be used with a branch circuit and is not usually used in Main Switchboards.
- Normally used for industrial purposes.

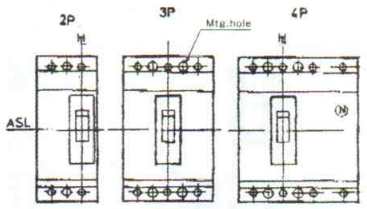
b) Rear-connected type (RC)
- Cable or busbars are connected directly to the rear terminal or the breaker on the rear side. This type cannot be fitted directly to the front side because the breaker is fitted directly to the rear iron frame.
- This type is seldom used for marine use but is still used more often than the Front - connected type.

c) Plug in type (PM)
Cable or busbars are connected to the mounting base of the breaker, not directly to the breaker. In this way, the breaker itself can be removed from the mounting base without disconnecting the cable or busbars. This type is therefore most used for marine purposes.

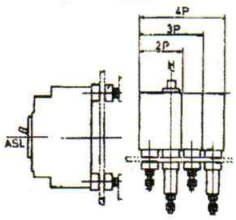
6. Accessories

Accessories are sometime fitted to the breaker depending on the systems and functions of the equipment they are used in.

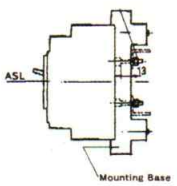
1. Auxiliary switch (Ax. Sw.)
Auxiliary switch opens or closes corresponding to the opening or closing of the circuit breaker. If the auxiliary switch is fitted in the breaker, the following information is required when ordering.
   a. One normal open contact
   b. One normal closed contact
   c. One normal and closed common contact
   d. Two normal open contacts
   e. Two normal closed contacts
   f. Two normal and closed common contacts
2. Alarm switch (Al, Sw.)
Alarm switch opens or closes when the breaker trips.
If the alarm switch is fitted to the breaker, the following-information is required when ordering.
   a. one normal open contact
   b. one normal closed contact
   c. others (Please specify how many open or closed contacts there are)
3. Under voltage trip coil
When the circuit voltage to the breaker is insufficient, the breaker trips automatically.
If the under voltage trip coil is fitted to the breaker, information about the voltage and frequency to the coil itself is needed:
AC or DC_____V, _____ Hz.
4. Shunt trip coil
The breaker trips by means of energizing the voltage to the shunt coil.
If the shunt coil is fitted to the breaker, information about the voltage and frequency to the coil itself is needed:
AC or DC_____V, _____ Hz.
5. Other accessories
Accessories other than those listed above in lines 1~4 are sometimes fitted to the breaker. In such cases information about the name and type/model no. of the accessories is required when ordering.



Front-connected



Rear-connected



Plug-in

How to order: 79 - 31 - 61

Circuit Breaker with the following information:

1) Type of model number TO-100BA
2) No. of poles ..... 3 pole
3) Frame size 100A
4) Rated current 75A
5) Method of mounting ..... plug in type
Please specify whether the mounting base is necessary, or not.
6) Accessories
   1. Auxiliary switch .....one normal open
   2. Alarm switch ..... NIL
   3. Under voltage trip coil .....necessary AC440V, 60Hz
   4. Shunt trip coil..... NIL
   5. Other accessories ..... NIL

Transformers

Transformadores 変圧器 变压器

Two Way

Transformadores de dos vías 両用型変圧器 双向变压器

A compact, high efficiency 2-way volt converter. Appropriate for use with electrical house appliances.



How to order: CODE

Transformer, PRIMARY VOLTAGE and SECONDARY VOLTAGE, AMPERE

Unit Per Pc.

CODE	Input-Output	Capacity	Ampere	
			Up	Down
79 33 01		100VA	0.5	1
02	110V-220V	200VA	1.0	2
03	or	300VA	1.5	3
04	220V-100V	500VA	2.5	5
05		1KVA	5.0	10

Step Down for Travel use

Step Down para viajes

旅行用ステップダウントランスフォーマー 旅行用降压型

A voltage converter designed for use of 100 volt appliances in countries with 220-240 volt current. The converter has A type 2-flat pins for inlet plug and outlet receptacle. Please mention if other types of plug or receptacle are necessary depends on your plug type of the apparatus and your receptacle type where it is used.



Unit Per Pc.

CODE	Model	Max. Output Wattage for Primary AC Voltage		Size mm W x H x D	Weight grm
		110V-130V	220V-240V		
79 33 21	WT-71M	75W	30W	54 × 82 × 55	380
22	WT-72M	120W	75W	65 × 110 × 62	700
23	WT-73M	240W	100W	65 × 110 × 62	770
24	WT-74M	300W	200W	80 × 120 × 68	1,250
79 33 25	WT-75M	50W	35W	58 × 92 × 30	285
26	WT-77M	140W	110W	95 × 142 × 30	750

Name of Mfr. : Kashimura Co., Ltd.

Step Up/Down Transformers for Home Appliances

Transformadores Evadores/Reductores para Electrodomésticos
家電用アップダウントランスフォーマー
升压 / 降压变压器 家用电器



A voltage converter designed for use of 100 volt appliances in countries with 220-240 volt current, or 220-240 volt appliances in countries with 100 volt. The converter has A type 2-flat pins single inlet plug and 2 pairs of multi type (for A type 2-flat pins and C type round pins) outlet receptacles. Please mention if other types of plug or receptacle are necessary depends on your plug type of the apparatus and your receptacle type where it is used.

Unit Per Pc.

CODE	Model	Max. Output Wattage for Primary AC Voltage		Size mm W × H × D	Weight kg
		110V	220V-240V		
79 33 31	WT-11EJ	550W	550W	125 × 100 × 165	3.6
32	WT-12EJ	1,000W	1,000W	125 × 100 × 165	4.5
33	WT-13EJ	1,500W	1,500W	134 × 110 × 175	6.0
34	WT-14EJ	1,500W	2,000W	145 × 110 × 200	7.1
35	WT-15EJ	1,500W	3,000W	182 × 134 × 240	11.0

Name of Mfr. : Kashimura Co., Ltd.

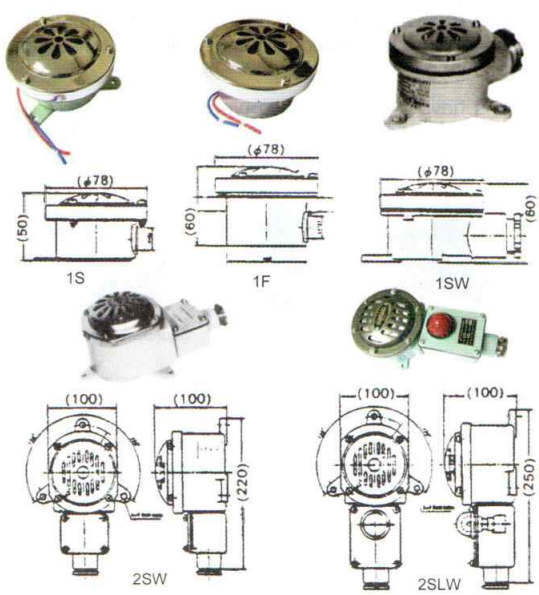
14. Buzzers & Bells

Marine Electric Alarm Buzzers

Sirenas Eléctrica Marina 船用ブザー 船用报警器

(Ref. JIS F 8502)

For emergency or engineer alarm signalling. Used where noise levels or acoustic properties can not be covered with ordinary signals. The mechanism is enclosed inside the housing. Available for DC or AC.



How to order: CODE

Alarm buzzer, CURRENT, TYPE, RATED VOLTAGE, REMARK

Unit Per Pc.

CODE	Type	Rated Voltage	Sound level dB	Remark
For DC Current				
79 34 01	1S	22	80	Surface Mounting
79 34 02	1F			Flush Mounting
79 34 03	1SW			Surface Mounting and Waterproof
79 34 04	2SW		90	
79 34 05	2SLW			Surface Mounting and with Pilot Lamp
For AC Current				
79 34 11	1S	110	80	Surface Mounting
79 34 12		220		
79 34 13	1F	110		Flush Mounting
79 34 14		220		
79 34 15	1SW	110		Surface Mounting Waterproof
79 34 16		220		
79 34 17	2SW	110	90	
79 34 18		220		
79 34 19	2SLW	110		Surface Mounting Waterproof with Pilot Lamp
79 34 20		220		

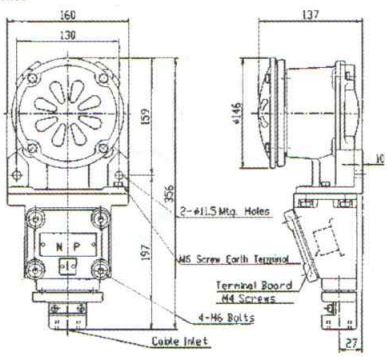
Remark: 1. The type is classified in to 1 and 2 in accordance with sound level.
2. Type symbol S denotes surface mounting type, F, flush mounting type, L, buzzers with lamp, W, waterproof construction.

Alarm Buzzers

Explosion-proof Type

Sirenas/Tipo Antideflagrante
防爆型船用ブザー
警报蜂鸣器

Alarm buzzers suitable for use in hazardous areas, such as confined spaces and where explosive gas is a potential danger. Type of explosion-proof enclosure conforms to JIS C-0903 d2G4.



Unit Per Pc.

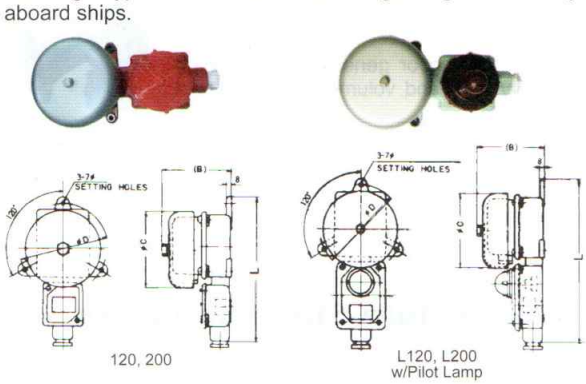
CODE	Model	Voltage	Capacity	Loudness	Weight
79 34 27 28	BXS-50-C	AC 100V AC 200V	50 VA	95 dB	11.5 kg

Marine Electric Alarm Bells

Alarmas de Campana Eléctricas 船用ベル 船用防水警铃

(Ref. JIS F8501-1983)

Watertight type electric bells used for signalling and warning aboard ships.



How to order: CODE

Alarm bell, TYPE, RATED VOLTAGE, WITHOUT or WITH PILOT LAMP

Unit Per Pc.

CODE	Type	Rated Voltage	Sound level dB	Size mm	
				Bell Φ	Overall L
Without Pilot Lamp					
79 34 31	120	DC-22	85	120	230
79 34 32	200		95	200	
79 34 33	120	AC-110	85	120	
79 34 34		AC-220			
79 34 35	200	AC-110	95	200	
79 34 36		AC-220			
With Pilot Lamp					
79 34 41	L120	DC-22	85	120	265
79 34 42	L200		95	200	
79 34 43	L120	AC-110	85	120	
79 34 44		AC-220			
79 34 45	L200	AC-110	95	200	
79 34 46		AC-220			

Remark: Type symbol L denotes with pilot lamp.

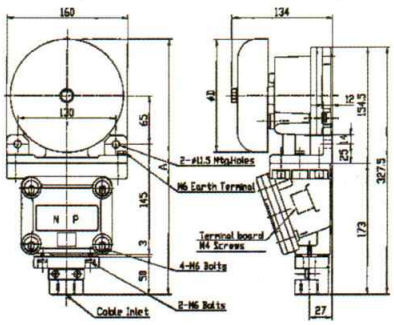
Alarm Bells

Explosion-proof Type

Alarma de Campana/Tipo Antideflagrante

防爆型ベル　警鈴

Alarm bells suitable for use in hazardous areas, such as confined spaces and where explosive gas is a potential danger. Type of explosion-proof enclosure conforms to JIS C-0903 d2G4.



Unit Per Pc.

CODE	Model	Voltage	Capacity	Loudness	Weight
79 34 51	BX-10C	AC 100V	22 VA	80 dB	5 kg
52		AC 200V			
79 34 53		DC 24V	8 VA		
79 34 54	BX-15C	AC 100V	22 VA	85 dB	5.5 kg
55		AC 200V			
79 34 56		DC 24V	8 VA		
79 34 57	BX-20C	AC 100V	22 VA	87 dB	6 lg
58		AC 200V			
79 34 59		DC 24V	8 VA		

Watertight Electric Horns

Conectores para Cable de Soldadura

防水電動ホーン　焊接电缆接头

For fast coding or general alarms. High intensity tone and volume. Made of cast aluminium.



Unit Per Pc.

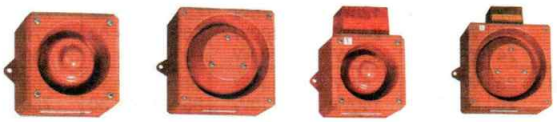
CODE	Voltage	Size mm		Weight kg
		Trumpet Φ	Overall L	
79 34 61	DC- 22V	100	420	1.6
62	AC-110V			
63	AC-220V			

Marine Multi-Stage Sounders

Sondas marinas multietapa

船用多段階式サウンダー　船用多级测深仪

Industrial multi-stage alarms in several sound level, each stage is determined by a 5-way DIL switch. Signaling 32 selectable tones which is meeting international regulations. Made of flame-retardant ABS plastic enclosure. Can be used in conjunction with beacons to form a combination Sounder/ Strobe. IP 65.



Y05　Y08　YL5　YL8

Standard　With Beacon

How to order: CODE

Multi-stage sounder, CURRENT, TYPE, RATED VOLTAGE, REMARK

Unit Per Pc.

CODE	Type	Rated Voltage	Sound level dB	Remark
32 Tone Sounder				
79 34 64	Y05	DC 24V	110	Up to 8 individually selectable stages. IP65
79 34 65		AC115V		
79 34 66		AC230V		
79 34 67	Y08	DC 24V	116	
79 34 68		AC115V		
79 34 69		AC230V		
Beacon 6 32 Tone Sounder				
79 34 70	YL5	DC 24V	110	2 stage alarms with high sound output. 6 lens colours are available. (amber, red, green, opal, blue and clear)
79 34 71		AC115V		
79 34 72		AC230V		
79 34 73	YL8	DC 24V	116	
79 34 74		AC115V		
79 34 75		AC230V		

Explosion Proof Sounders & Beacons

Sirenas y balizas antideflagrantes

防爆型サウンダー＆ビーコン　船用多级测深仪

Sounders and beacons for use in potentially explosive atmospheres and very harsh environmental conditions. Typical applications are Oil and Gas, On-shore and Offshore, Chemical, Petrochemical, Refineries & Marine locations etc. The unit incorporates a 3 or 4 stage alarm option with 60 tones to choose from which includes four tones that can be recorded or customized by the installer. All tones can be pre-set during installation.

Beacons have a choice of two types of light source: either Xenon (strobe) with multiple flash rate and power ratings or an LED array with three status type indication options and two power ratings.



Sounder　Beacon　Sounder & Beacon

Specifications

Explosion Protection	ATEX: Ex d IIC T4~ T6 Gb, Ex tb IIIC T135°C~T85°C, Zone 1, 2, 21 & 22
IECEx	EN 60079-0:2012 (IEC 60079-0:2011), EN-60079-1:2007 (IEC 60079-1:2007) EN 60079-31:2009 (IEC 60079-31:2008)
Ambient Temperature	-40°C up to +70°C
Humidity	≤ 95% RH

Unit Per Pc.

CODE	Type	Rated Voltage	Sound level dB	Remark
		Sounder		
79 34 76	SD150	DC12-48V	115	-
79 34 77		AC100-120V		
		Beacon		
79 34 78	BC150	DC12-48V	-	Available in amber, red, blue colours
79 34 79		AC100-240V		
79 34 80	BC150 (with lens guard)	DC12-48V		
79 34 81		AC100-240V		
		Sounder & Beacon		
79 34 82	SB150	DC12-48V	115	-
79 34 83		AC100-240V		
79 34 84	BC150 (with lens guard)	DC12-48V		
79 34 85		AC100-240V		

15. Lamp Holders

Lamp Holders

Portalámparas JIS 型ソケット 灯支架

(Ref. JIS F 8401)

Marine lamp holders of the rated voltage 250 V or less mainly used for light fittings on board.

Flanged Type



FE-12 (79 35 01)



FB-15 (79 35 02)



FE-14 (79 35 03)



FE-26 (79 35 04)



FB-22 (79 35 05)



FE-39 (79 35 06)

Tubular Type



TE-26 (79 35 07)



TB-22 (79 35 08)



TE-39 (79 35 09)

With Brim



GE-26 (79 35 10)

Unit Per Pc.

CODE	Type	Shape	Rating		Main Body Material
			Volt	Amp.	
79 35 01	FE-12	Flanged	125	1	Synthetic Resin
02	FB-15			1	Synthetic Resin
03	FE-14			1	Synthetic Resin
04	FE-26		250	6	Porcelain
05	FB-22			3	Porcelain
06	FE-39			5	Brass
79 35 07	TE-26	Tubular		6	Porcelain
08	TB-22			3	Porcelain
09	TE-39			15	Porcelain
79 35 10	GE-26	With Brim		6	Synthetic Resin

European Type Lamp Holders

Portalámparas Tipo Europeo ヨーロッパ型ソケット 欧式灯坐

Various types of brass made lamp holders such as with threaded bushing, back plate or mounting lug and they are all easily connected to the lighting fixture.

Lamp Base	BA-15D	B-22
Thread	M10	3/8", 1/2", 5/8"
Bayonet Type with Threaded Bushing		

Lamp Base	E-27	E-40
Thread	M10	3/8"
Screw Type with Threaded Bushing		

Lamp Base	BA-15D	B-22
Bayonet Type with Back Plate		

Lamp Base	BA-15D, B-22, E-14, E-27	B-22, E-27
Nos. of Lug	2	3
Screw of Bayonet Type with Mounting Lug		

How to oder: CODE

Lamp holder, European type, BASE TYPE, THREAD or LUG NUMBER

Unit Per Pc.

CODE	Base Type	Remark	Thread or Lug Number
79 35 16	BA-15D	Bayonet Type with Threaded Bushing	M10
79 35 17	B-22		3/8
79 35 18			1/2
79 35 19			5/8
79 35 20	E-27	Screw Type with Threaded Bushing	M10
79 35 21	E-40		3/8
79 35 22	BA-15D	Bayonet Type with Back Plate	-
79 35 23	B-22		
79 35 24	BA-15D	Screw or Bayonet Type with Mounting Lug	2
79 35 25	B-22		
79 35 26	E-14		
79 35 27	E-27		
79 35 28	B-22		3
79 35 29	E-27		

Lamp Holders

for Cap Base Halogen Lamp R7S

Portalámparas para lámpara halógena R7S de la base de la tapa

ハロゲンランプ R7S 用ランプホルダー 卤素灯 R7S 用灯座


for Max. 500W


for Max. 1,000W


for Max. 2,000W

CODE	Descriptions	Unit
79 35 30	For max. 500W R7S halogen lamp	Pc.
79 35 31	For max. 1,000W R7S halogen lamp, with side connection with heat resistant cable	Pc.
79 35 32	For max. 2,000W R7S halogen lamp, with back connection and heat resistant cable	Pc.

Socket Reducing Adapters

Casquillo Reducción　ソケットアダプター　灯座容納器

Available for mogul to medium (E-39 to E-26) screw base. Made of porcelain.



79 35 40	Socket adapter, porcelain mogul to medium base(E-39 to E-26)	Pc.

79 Electrical Equipment

16. Fuses & Carbon Brushes

Glass Tube Fuses

Fusibles de Cristal　ガラス管ヒューズ　玻璃管保险丝

Designed mainly for use with electronic communication apparatus.


Size: φ5.2 x L20mm


Size: φ6.35 x L30mm

How to order: CODE

Glass tube fuse, SIZE, RATED VOLTAGE, AMPERE

Unit Per Pc.

CODE	Amp.	CODE	Amp.	CODE	Amp.
5.2 x L20 mm Rated Voltage 125V					
79 36 01	0.1	**79 36 07**	0.8	**79 36 13**	5
02	0.2	**08**	1	**14**	6
03	0.3	**09**	1.5	**15**	8
04	0.4	**10**	2	**16**	10
05	0.5	**11**	3		
06	0.6	**12**	4		
6.35 x L30 mm Rated Voltage 125V					
79 36 21	0.1	**79 36 27**	0.8	**79 36 33**	5
22	0.2	**28**	1	**34**	6
23	0.3	**29**	1.5	**35**	8
24	0.4	**30**	2	**36**	10
25	0.5	**31**	3	**37**	15
26	0.6	**32**	4	**38**	20
6.35 x L30 mm Rated Voltage 250V					
79 36 41	0.1	**79 36 47**	0.8	**79 36 53**	5
42	0.2	**48**	1	**54**	6
43	0.3	**49**	1.5	**55**	8
44	0.4	**50**	2	**56**	10
45	0.5	**51**	3	**57**	15
46	0.6	**52**	4	**58**	20

Cello-Lite Cartridge Fuses

Type NC & Type NB

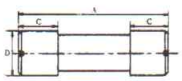
Fusibles de Cartucho Cello-Lite - Tipo NC y Tipo NB

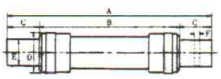
NC.NB 型セロライトヒューズ　密闭型保险丝

Totally enclosed cartridge type fuse with a large breaking capacity. Excellent current limiting characteristics with no danger of explosion or flaming at breaking. Economical because the fusing element unit is replaceable. These types are approved by N.K., Lloyd, BV, ABS, and G. Lloyd.


NC


NB


Cylindrical Contact


Knife Blade Contact

Specifications

Feature	Totally enclosed Cartridge Type Fuse
Rated Capacity	AC 500/DC 250V, 1A-200A
Rated Breaking Capacity	20,000A
Fusing Factor	135

Dimensions mm

Type	A	B	C	D	E	Contact
NC-1	50		13.2	15		Cylindrical
NC-2	75		16.2	20		Cylindrical
NB-3	150	100		29	20	Knife Blade
NB-4	180	110		40	30	Knife Blade

How to order: CODE

Cello-lite fuse, TYPE, AMPERE

How to order: CODE

Fuse element for TYPE, AMPERE

Unit Per Set　　Unit Per Pc.

Case & Element Complete CODE	Type	Ampere	Rated Voltage	Element Only CODE
79 36 61	NC-1	1	AC 500V DC 250V	**79 36 91**
62		3		**92**
63		5		**93**
64		10		**94**
65		15		**95**
66		20		**96**
67		25		**97**
68		30		**98**
79 36 71	NC-2	40		**79 37 01**
72		50		**02**
73		60		**03**
79 36 76	NB-3	75		**79 37 06**
77		100		**07**
79 36 81	NB-4	125		**79 37 11**
82		150		**12**
83		175		**13**
84		200		**14**

Fuse Wire

Alambre para Fusible　糸ヒューズ　保险丝



Unit Per Pc.

CODE	Ampere	Weight Grm./Spol	CODE	Ampere	Weight Grm./Spol
79 37 21	1	225	**79 37 26**	20	450
22	3	225	**27**	30	450
23	5	450	**28**	40	450
24	10	450	**29**	50	450
25	15	450	**30**	60	450

Fuse Pullers

Extractores para Fusible Tipos Tijera - Tipo Mariposa
ヒューズ抜き　保険丝钳

Eliminates the danger of shock when removing cartridge fuses by hand and the problem of bending fuse clips due to the wrong removal.

Unit Per Pr.

CODE	79 37 36	79 37 37
Type	 Scissor Type	 Butterfly Type
Size mm	W40 × L180	W80 × L110
Capacity	30 - 60A	30 - 60A
Material	Nylon Resin	Phenol Resin

Cello-Lite Cartridge Fuses

Type UC & Type UB

Fusibles de Cartucho Cello-Lite - Tipo UC y Tipo UB
UC・UB 型セロライトヒューズ　UC 及 UB 型匣式保险丝

Cartridge type non-renewable fuse with high breaking capacity and current-limiting.

Complies with the specification of JIS C 8314 for particular requirements for low-voltage cartridge fuses, and duly approved by Nippon Kaiji Kyokai (NK), The Lloyd's Register (LR), American Bureau of Shipping (ABS), and Bureau Veritas (BV). Due to totally enclosed non-renewable construction, it insures safe operation, not allowing any flame or gas to burst at the moment of interruption.



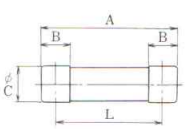


Diagram A

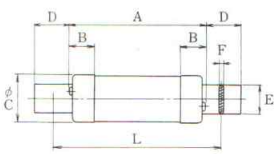


Diagram B

Standard Rating

Type	Rated Voltage	Rated Current amp.	Fusing Factor	Rated Breaking Capacity kA
UC-1	AC 500 DC 250	1, 3, 5, 10, 15, 20, 25, 30	1.35	AC 50 (ACL 50)
UC-2		40, 50, 60		
UB-3		75, 100		DC 20 (DCL 20)
UB-4		125, 150, 175, 200		

Dimensions

Type Number	Rated Current Amp	Dimensions mm							Dia-gram	Weight
		A	B	C	D	E	F	L		
UC-1	1,3,5,10, 15,20,25,30	50	13.0	15	-	-	-	38	A	20
UC-2	40,50,60	75	16.0	20	-	-	-	60	A	51
UB-3	75,100	95	17.5	30	25	20	3.2	120	B	160
UB-4	125,150, 175,200	110	20.5	42	35	30	4.5	145	B	395

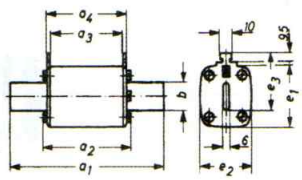
Unit Per Pc.

CODE	Type	Ampere	CODE	Type	Ampere
79 37 41	UC-1	1	79 37 52	UB-3	75
42		3	53		100
43		5	79 37 54	UB-4	125
44		10	55		150
45		15	56		175
46		20	57		200
47		25			
48		30			
79 37 49	UC-2	40			
50		50			
51		60			

NH (HRC) Cartridge Fuses

Fusibles de Cuchilla　HRC カートリッジヒューズ　HRC 匣式保险丝

Low voltage high breaking capacity fuses. LV, HRC fuse links 500V AC for line protection, low-loss. Size 00 - 3 in accordance with DIN 57636 Part 2/VDE 0636 Part 2, class of operation gL IEC 269-2, class of operation gl. Knife contacts, ceramic insulating body, and indicator on the front plate.

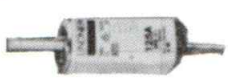


General Size Table

Type	Rating Amp.	Size mm							
		a_1	a_2	a_3	a_4	b	e_1	e_2	e_3
00	6-100	79	54	46	49	15	35	20.5	44.5
	125-160	79	54	46	49	15	44	30	44.5
0	6-160	125	68	63	66	15	44	30	44.5
1	35-160	135	70	63	67	20	44	30	50
	200-250	135	70	63	67	20	47	39	50
2	35-160	150	72	63	67	26	44	30	57.5
	200-250	150	72	63	67	26	47	39	57.5
	315-400	150	72	63	67	26	52	44	57.5
3	315-400	150	72	63	67	33	58	52	69
	500-630	150	72	63	67	33	70	64	69

NH (HRC) Cartridge Fuse Links

500V AC/6 – 160A Size "00"



Unit Per Pc.

CODE	Rating Amp.	CODE	Rating Amp.	CODE	Rating Amp.
79 38 01	6A	79 38 05	25A	79 38 09	80A
02	10A	06	35A	10	100A
03	16A	07	50A	11	125A
04	20A	08	63A	12	160A

500V AC/6 – 160A Size "0"



Unit Per Pc.

CODE	Rating Amp.	CODE	Rating Amp.	CODE	Rating Amp.
79 38 16	6A	79 38 20	25A	79 38 24	80A
17	10A	21	35A	25	100A
18	16A	22	50A	26	125A
19	20A	23	63A	27	160A

500V AC/35 – 250A Size "1"



Unit Per Pc.

CODE	Rating Amp.	CODE	Rating Amp.	CODE	Rating Amp.
79 38 31	35A	**79 38 34**	80A	**79 38 37**	160A
32	50A	**35**	100A	**38**	200A
33	63A	**36**	125A	**39**	250A

500V AC/35 – 400A Size "2"



Unit Per Pc.

CODE	Rating Amp.	CODE	Rating Amp.	CODE	Rating Amp.
79 38 41	35A	**79 38 45**	100A	**79 38 49**	250A
42	50A	**46**	125A	**50**	315A
43	63A	**47**	160A	**51**	400A
44	80A	**48**	200A		

500V AC/315-630A Size "3"

Unit Per Pc.

CODE	Rating Amp.	CODE	Rating Amp.
79 38 55	315A	**79 38 57**	500A
56	400A	**58**	630A



NH (HRC) Single Pole Fuse Bases

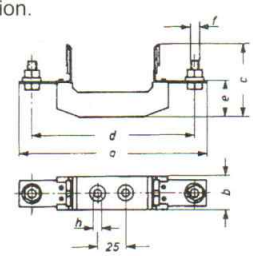
500/660V AC Size – "00" – "3"

Bases portafusibles unipolares NH (HRC)

NH (HRC) 単極ヒューズベース　NH (HRC) 单极保险丝底座

All ceramic base plate with surface contact formed from one piece, galvanic surface protection.





Type	Rating Amp.	Size mm							
		a	b	c	d	e	f	g	h
00	100A	120	33	58	100	24	M 6	-	7.5
	160A	120	33	58	100	24	M 8	-	7.5
0	160A	170	30	65	148	31	M 8	-	7.5
1	250A	196	45	79	173	35	M10	30	10.5
2	400A	225	52	88	200	35	M10	30	10.5
3	630A	250	52	90	210	38	M12	30	10.5

Unit Per Pc.

CODE	Type	Amp.	CODE	Type	Amp.
79 38 61	00	100A	**79 38 64**	1	250A
62	00	160A	**65**	2	400A
63	0	160A	**66**	3	630A

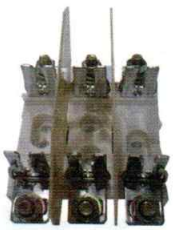
NH (HRC) Triple Pole Fuse Bases

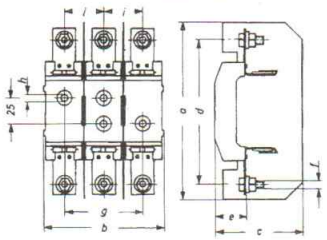
500/660V AC Size – "00" – "2"

Bases portafusibles tripolares NH (HRC)

NH (HRC) 三極ヒューズベース　NH (HRC) 三极保险丝底座

Sheet steel base plate steatite insulators with surface contact formed from one piece, galvanic surface protection.





Type	Rating Amp.	Size mm								
		a	b	c	d	e	f	g	h	i
00	100A	138	96	85	100	24	M 6	66	7.5	33
	160A	138	96	85	100	24	M 8	66	7.5	33
0	160A	180	131	88	148	31	M 8	87	7.5	44
1	250A	214	168	108	173	35	M10	108	10.5	54
2	400A	260	188	115	200	35	M10	125	10.5	62

Unit Per Pc.

CODE	Type	Amp.	CODE	Type	Amp.
79 38 71	00	100A	**79 38 74**	1	250A
72	00	160A	**75**	2	400A
73	0	160A			

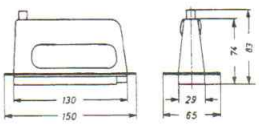
NH (HRC) Fuse Link Universal Handles

Maneta Extracción Fusibles de Cuchilla

HRC ナイフヒューズハンドル　HRC 匣式保险丝万能手把

For H.R.C. or European standard fuse links. Made from bakelite with solid metal parts, zinc plated for all size knife fuses "00" to "4".





79 38 80	Handle, universal for NH (HRC) fuse link	Pc.

DIN Style Diazed Fuses

Fusibles de Botella D　D カートリッジヒューズ　D 型保险丝

Fuse links are made from ceramic material of high compression strength to withstand high mechanical and thermal stresses. Copper alloy made top and bottom contact discs. A coloured indicator disc is fixed to the front contact plate, giving a clear indication of the state of the fuses in use. Please specify the required type of action "Time Lag" (Delayed action) or "Quick Acting" (Quick response) when ordering.



"D" Screw Cap



"D" Cartridge Fuse



"D" Gauge Piece



Contact Protecting Cover



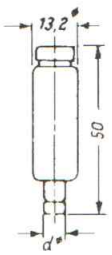
"D" Fuse Base

Diazed Fuses

500V/2 – 25A Type E-16

Unit Per Pc.

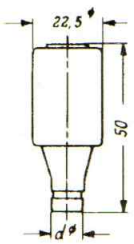
Time Lag (Delayed Action)			Quick Acting (Quick Response)		
CODE	Rating Amp.	Diam. "d" mm	CODE	Rating Amp.	Diam. "d" mm
79 39 01	2A	6	**79 39 51**	2A	6
02	4A	6	**52**	4A	6
03	6A	6	**53**	6A	6
04	10A	8	**54**	10A	8
05	16A	10	**55**	16A	10
79 39 06	20A	12	**79 39 56**	20A	12
07	25A	14	**57**	25A	14



500V/2 – 25A Type E-27

Unit Per Pc.

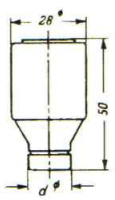
Time Lag (Delayed Action)			Quick Acting (Quick Response)		
CODE	Rating Amp.	Diam. "d" mm	CODE	Rating Amp.	Diam. "d" mm
79 39 11	2A	6	**79 39 61**	2A	6
12	4A	6	**62**	4A	6
13	6A	6	**63**	6A	6
14	10A	8	**64**	10A	8
15	16A	10	**65**	16A	10
79 39 16	20A	12	**79 39 66**	20A	12
17	25A	14	**67**	25A	14



500V/35 – 63A Type E-33

Unit Per Pc.

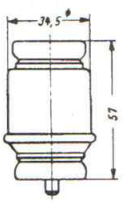
Time Lag (Delayed Action)			Quick Acting (Quick Response)		
CODE	Rating Amp.	Diam. "d" mm	CODE	Rating Amp.	Diam. "d" mm
79 39 21	35A	16	**79 39 71**	35A	16
22	50A	18	**72**	50A	18
23	63A	20	**73**	63A	20



500V/80 – 100A Type R-1-1/4"

Unit Per Pc.

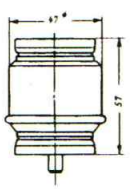
Time Lag (Delayed Action)			Quick Acting (Quick Response)		
CODE	Rating Amp.	kg per pc.	CODE	Rating Amp.	kg per pc.
79 39 26	80A	0.107	**79 39 76**	80A	0.107
27	100A	0.11	**77**	100A	0.11



500V/125 – 200A Type R-2"

Unit Per Pc.

Time Lag (Delayed Action)			Quick Acting (Quick Response)		
CODE	Rating Amp.	kg per pc.	CODE	Rating Amp.	kg per pc.
79 39 31	125A	0.207	**79 39 81**	125A	0.207
32	160A	0.21	**82**	160A	0.21
33	200A	0.22	**83**	200A	0.22



"D" Fuse Caps

Tapones para Fusible "D"

ヨーロッパ形ヒューズキャップ　D 保険丝盖

For D-type cartridge fuses up to 200 amperes and 500 volts. Porcelain made body with a nickel-plated brass screw.



Unit Per Pc

CODE	Type	Amp up to	Size mm a	Size mm b	CODE	Type	Amp up to	Size mm a	Size mm b
79 39 41	E-16	25	34	27	**79 39 44**	R-1-1/4"	100	52	60
42	E-27	25	42	38	**45**	R-2"	200	52	80
43	E-33	63	43	48					

DIN Style D0 (Neozed) Fuses

Fusible de Tipo D0 (Neozed) DIN

ネオゼットヒューズ　DIN型 D0 (Neozed) 保険絲

Do fuse links are manufactured in three sizes in rating from 2 to 100 amps. Please specify the required type of action "Time Lag" (Delayed action) or "Quick Acting" (Quick response) when ordering.



500V/2-16A Type E-14

Unit Per Pc.

Time Lag (Delayed Action)			Quick Acting (Quick Response)		
CODE	Rating Amp.	Diam x L mm	CODE	Rating Amp.	Diam x L mm
79 40 01	2A		**79 40 06**	2A	
02	4A		**07**	4A	
03	6A	11 x 36	**08**	6A	11 x 36
04	10A		**09**	10A	
05	16A		**10**	16A	

500V/20-63A Type E-18

Unit Per Pc.

Time Lag (Delayed Action)			Quick Acting (Quick Response)		
CODE	Rating Amp.	Diam x L mm	CODE	Rating Amp.	Diam x L mm
79 40 11	20A		**79 40 16**	20A	
12	25A		**17**	25A	
13	35A	15 x 36	**18**	35A	15 x 36
14	50A		**19**	50A	
15	63A		**20**	63A	

500V/80-100A Type M30X2

Unit Per Pc.

Time Lag (Delayed Action)					
CODE	Rating Amp.	Diam x L mm	CODE	Rating Amp.	Diam x L mm
79 40 21	80A	22.5 x 43	**79 40 22**	100A	22.5 x 43

IEC Industrial Cylindrical Fuses

Fusible Cilíndrico Industrial IEC

IEC 型セラミックヒューズ　IEC 工業用圓筒保險絲

Made from Ceramic bodies and silver plated copper end caps. gG/gL indicates Full range breaking capacity for General Industrial applications, and aM indicates Partial range breaking capability for Motor protection.



Class gG/gL (Quick Acting)

8 × 32mm

Unit Per Pc.

CODE	Rated Current	Voltage AC	Breaking Capacity
79 40 31	0.5A	400V	20kA
32	1A		
33	2A		
34	4A		
35	6A		
79 40 36	8A		
37	10A		
38	12A		
39	16A		
40	20A		
79 40 41	25A		

10 × 38mm

Unit Per Pc.

CODE	Rated Current	Voltage AC	Breaking Capacity
79 40 46	0.5A	500V	120kA
47	1A		
48	2A		
49	4A		
50	6A		
79 40 51	8A		
52	10A		
53	12A		
54	16A		
55	20A		
79 40 56	25A		
79 40 57	32A	400V	

14 × 51mm

Unit Per Pc.

CODE	Rated Current	Voltage AC	Breaking Capacity
79 40 61	1A	690V	80kA
62	2A		
63	4A		
64	6A		
65	8A		
79 40 66	10A		
67	12A		
68	16A		
69	20A		
70	25A		
79 40 71	32A	500V	120kA
79 40 72	40A		
79 40 73	50A	400V	

22 × 58mm

Unit Per Pc.

CODE	Rated Current	Voltage AC	Breaking Capacity
79 40 76	2A	690V	80kA
77	4A		
78	6A		
79	8A		
80	10A		
79 40 81	12A		
82	16A		
83	20A		
84	25A		
85	32A		
79 40 86	40A		
87	50A		
88	63A		
89	80A		
79 40 90	100A	500V	120kA
79 40 91	125A	400V	

Class aM (Slow Acting)

8 × 32mm

Unit Per Pc.

CODE	Rated Current	Voltage AC	Breaking Capacity
79 61 01	1A	400V	20kA
02	2A		
03	4A		
04	6A		
05	8A		
79 61 06	10A		
07	12A		
08	16A		
09	20A		
10	25A		

10 × 38mm

Unit Per Pc.

CODE	Rated Current	Voltage AC	Breaking Capacity
79 61 11	0.16A	500V	120kA
12	0.25A		
13	0.5A		
14	1A		
15	2A		
79 61 16	4A		
17	6A		
18	8A		
19	10A		
20	12A		
79 61 21	16A		
22	20A		
79 61 23	25A	400V	
24	32A		

14 × 51mm

Unit Per Pc.

CODE	Rated Current	Voltage AC	Breaking Capacity
79 61 26	0.25A	690V	80kA
27	0.5A		
28	1A		
29	2A		
30	4A		
79 61 31	6A		
32	8A		
33	10A		
34	12A		
35	16A		
79 61 36	20A		
37	25A		
79 61 38	32A	500V	120kA
39	40A		
79 61 40	50A	400V	

22 × 58mm

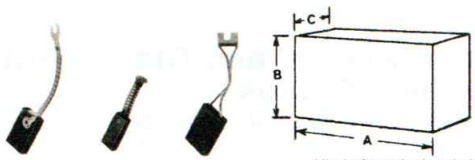
Unit Per Pc.

CODE	Rated Current	Voltage AC	Breaking Capacity
79 61 41	2A	690V	80kA
42	4A		
43	6A		
44	8A		
45	10A		
79 61 46	12A		
47	16A		
48	20A		
49	25A		
50	32A		
79 61 51	40A		
52	50A		
53	63A		
54	80A		
79 61 55	100A	500V	120kA
79 61 56	125A	400V	

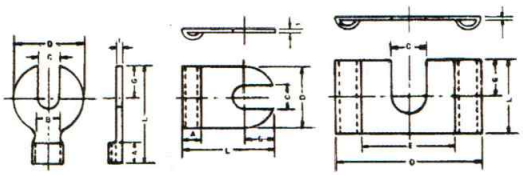
Carbon Brushes

Escobillas de Carbón　カーボンブラシ　碳刷

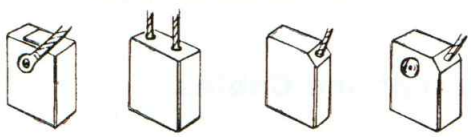
When ordering, Carbon Brushes be sure to give the style as shown with the following information. Length, width, and thickness are shown as A, B, C in the illustration.



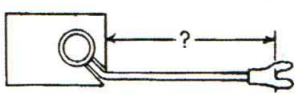
Kind of terminal and size



Kind of wire material and how it is fixed.



Length of shunt



How to order: 79 - 40 - 96

Carbon brush, size, kind of terminal, wire material, how it is fixed, shunt length (pc.)

17. Cables

Welding Cables

Butyle Rubber Sheathed

1,000V or less – single conductor

Cables para Soldadura　溶接用電線　电焊电缆



Welding cable for general use. Cloth or paper wrapped wire sealed in rubber sheath.

Unit Per Mtr.

CODE	mm²	Strand O.D. mm	Cable O.D. mm	Cable Construction mm	Kg Per mtr
79 41 01	22	7.0	11.8	0.45 x 20 x 7	0.31
02	38	9.1	14.5	0.45 x 34 x 7	0.50
03	60	11.7	17.5	0.45 x 20 x 19	0.75
04	100	15.2	21.8	0.45 x 34 x 19	1.23
05	150	18.7	25.9	0.45 x 34 x 27	1.71
79 41 06	200	21.2	29.0	0.45 x 34 x 37	2.30

Rubber Cabtyre Cables

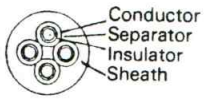
Natural Rubber Sheathed

600V or less – 1 to 4 conductors

Cables Eléctrico Bupreno　ゴムキャブタイヤケーブル　橡胶电缆

Designed for electric tools and lighting fixtures. Natural rubber sheath encloses each conductor. Conductors completed with natural rubber sheath as a final seal. Fixed length is 200 mtrs/coil.





How to order: CODE

Cable, rubber cabtyre, rubber sheathed, NUMBER of CONDUCTORS, NOMINAL mm²

Unit Per Mtr.

CODE	Nominal mm²	Conductor Construction mm	Conductor O.D. mm	Cable Out Diam. mm	Kg Per Mtr
		1-Conductor			
79 41 11	0.75	0.18 x 30	1.1	6.4	0.06
12	1.25	0.18 x 50	1.5	7.0	0.08
13	2.0	0.26 x 37	1.8	7.3	0.09
14	3.5	0.32 x 45	2.5	8.0	0.11
15	5.5	0.32 x 70	3.1	8.8	0.15
16	8.0	0.45 x 50	3.7	9.4	0.18
17	14.0	0.45 x 88	4.9	11.5	0.27
		2-Conductor			
79 41 21	0.75	0.18 x 30	1.1	10.5	0.16
22	1.25	0.18 x 50	1.5	11.5	0.19
23	2.0	0.26 x 37	1.8	12.0	0.22
24	3.5	0.32 x 45	2.5	13.5	0.30
25	5.5	0.32 x 70	3.1	15.0	0.38
26	8.0	0.45 x 50	3.7	16.5	0.47
27	14.0	0.45 x 88	4.9	21.0	0.73
		3-Conductor			
79 41 31	0.75	0.18 x 30	1.1	11.0	0.18
32	1.25	0.18 x 50	1.5	12.0	0.23
33	2.0	0.26 x 37	1.8	13.0	0.27
34	3.5	0.32 x 45	2.5	14.5	0.35
35	5.5	0.32 x 70	3.1	16.0	0.46
36	8.0	0.45 x 50	3.7	17.5	0.57
37	14.0	0.45 x 88	4.9	22.0	0.91
		4-Conductor			
79 41 41	0.75	0.18 x 30	1.1	12.0	0.21
42	1.25	0.18 x 50	1.5	13.0	0.27
43	2.0	0.26 x 37	1.8	14.0	0.32
44	3.5	0.32 x 45	2.5	16.0	0.44
45	5.5	0.32 x 70	3.1	17.5	0.57
46	8.0	0.45 x 50	3.7	19.5	0.72
47	14.0	0.45 x 88	4.9	24.0	1.16

P.V.C. Cabtyre Cables

Portable Power Polyvinylchloride Sheathed

600V or less – 1 to 4 conductors

Cables Eléctrico P.V.C.　ビニールキャブタイヤケーブル　PVC 电线



For portable electric tools or wiring work. Each wire is covered with vinyl and an exterior vinyl sheath. Fixed length is 200 mtr/coil.

How to order: CODE

Cable, P.V.C. cabtyre, NUMBER of CONDUCTORS, NOMINAL mm²

Unit Per Mtr.

CODE	Nominal mm²	Conductor Construction mm	Conductor O.D. mm	Cable Out Diam. mm	Kg Per Mtr
		1-Conductor			
79 41 51	0.75	0.18 x 30	1.1	5.7	0.04
52	1.25	0.18 x 50	1.5	6.1	0.05
53	2.0	0.26 x 37	1.8	6.4	0.06
54	3.5	0.32 x 45	2.5	7.3	0.09
55	5.5	0.32 x 70	3.1	8.3	0.12
56	8.0	0.45 x 50	3.7	9.5	0.16
57	14.0	0.45 x 88	4.9	11.5	0.24
58	22.0	0.45x20x 7	7.0	14.5	0.38
59	38.0	0.45x34x 7	9.1	17.0	0.58
60	60.0	0.45x20x19	11.6	20.0	0.85
61	100.0	0.45x34x19	15.2	25.0	1.37

Unit Per Mtr.

CODE	Nominal mm²	Conductor Construction mm	Conductor O.D. mm	Cable Out Diam. mm	Kg Per Mtr
		2-Conductor			
79 41 66	0.75	0.18 x 30	1.1	8.8	0.1
67	1.25	0.18 x 50	1.5	9.6	0.12
68	2.0	0.26 x 37	1.8	10.5	0.15
69	3.5	0.32 x 45	2.5	12.0	0.2
70	5.5	0.32 x 70	3.1	14.5	0.3
71	8.0	0.45 x 50	3.7	16.5	0.41
72	14.0	0.45 x 88	4.9	20.0	0.64
		3-Conductor			
79 41 76	0.75	0.18 x 30	1.1	9.2	0.11
77	1.25	0.18 x 50	1.5	10.5	0.14
78	2.0	0.26 x 37	1.8	11.0	0.18
79	3.5	0.32 x 45	2.5	13.0	0.26
80	5.5	0.32 x 70	3.1	15.0	0.37
81	8.0	0.45 x 50	3.7	17.5	0.51
82	14.0	0.45 x 88	4.9	22.0	0.81
		4-Conductor			
79 41 86	0.75	0.18 x 30	1.1	9.9	0.14
87	1.25	0.18 x 50	1.5	11.5	0.18
88	2.0	0.26 x 37	1.8	12.0	0.21
89	3.5	0.32 x 45	2.5	14.0	0.32
90	5.5	0.32 x 70	3.1	16.5	0.46
91	8.0	0.45 x 50	3.7	19.5	0.64
92	14.0	0.45 x 88	4.9	24.0	1.02

Parallel P.V.C. Cables

Polyvinylchloride Sheathed 300V or less

Cables Paralelos de P.V.C. ビニール平行ケーブル 双股 PVC 电线

Designed as lighting cord and for indoor wiring. Fixed length is 100 mtr/coil.



Unit Per Mtr.

CODE	mm²	Cable Construction mm	CODE	mm²	Cable Construction mm
79 42 01	0.5	0.18 x 20	**79 42 03**	1.25	0.18 x 50
02	0.75	0.18 x 30	**04**	2.00	0.26 x 37

Cotton Covered Lamp Cables

Rubber and Cotton Sheathed
660V or less – 2 conductors

Cable Eléctrico Forrado en Algodón (para Cafeteras y Planchas)
綿打コード 橡皮及棉线包扎电线

For percolators or pressing irons. Rubber covered wire, cloth taped and cotton sheathed. Fixed length is 100 or 200 mtrs/coil.



Unit Per Mtr.

CODE	mm²	Cable Construction mm	CODE	mm²	Cable Construction mm
79 42 06	0.75	0.18 x 30	**79 42 08**	2.00	0.26 x 37
07	1.25	0.18 x 50			

Flexible Single Cables

P.V.C. Sheathed
300V or less – single conductor

Cables Simple Flexibles
一般機器配線用ケーブル 普通机器配线用 PVC 电线

Single cable with P.V.C. sheath for lighting or wiring indoor or outdoor appliances. Fixed length is 100 mtrs/coil.



Unit Per Mtr.

CODE	mm²	Cable Construction mm	CODE	mm²	Cable Construction mm
79 42 11	0.5	0.18 x 20	**79 42 13**	1.25	0.18 x 50
12	0.75	0.18 x 30	**14**	2.0	0.26 x 37

Silicon Rubber and Glass Cloth Sheathed Cables

600V or less, Temperature 180°C or less

Cable Eléctrico Silicona
シリコンゴム絶縁ガラス編組ケーブル 硅胶与绝缘玻璃编织电线

Tin coated annealed copper wire enclosed by silicon rubber and exterior glass cloth sheathing. For generators, electrical tools and various electrical equipment.

Unit Per Mtr.

CODE	mm²	O.D. mm	Construction mm	CODE	mm²	O.D. mm	Construction mm
79 42 26	1.25	1.5	0.18 x 30	**79 42 28**	3.5	2.5	0.18 x 50
27	2.0	1.8	0.26 x 37	**29**	5.5	3.1	0.26 x 37

Microphone Cables

Cables para Micrófono マイク・電話線 扩音器及电话用电线

Vinyl covered single wire entirely wrapped by a polyester tape-braided copper armour and an exterior vinyl sheath. Specially used for communication wiring. Fixed length is 100 mtrs/coil.



How to order: CODE

Microphone cable, NUMBER of CONDUCTORS, mm²

Unit Per Mtr.

CODE	mm²	Out Diam. mm	Cable Construction mm
	1-Conductor		
79 42 31	0.3	3.7	0.18 × 12
32	0.5	4.6	0.18 × 20
33	0.75	5.0	0.18 × 30
34	1.25	5.3	0.18 × 50
	2-Conductor		
79 42 36	0.3	5.2	0.18 × 12
37	0.5	6.6	0.18 × 20
38	0.75	7.4	0.18 × 30
39	1.25	8.0	0.18 × 50
	3-Conductor		
79 42 41	0.3	5.5	0.18 × 12
42	0.5	7.0	0.18 × 20
43	0.75	7.8	0.18 × 30
44	1.25	8.4	0.18 × 50
	4-Conductor		
79 42 46	0.3	5.9	0.18 × 12
47	0.5	7.4	0.18 × 20
48	0.75	8.4	0.18 × 30
49	1.25	9.1	0.18 × 50

Radio-Frequency Coaxial Cables

Cables Antena Coaxial 高周波同軸ケーブル 高频同轴电缆

For cabling jobs of high frequency equipment. Polyethylene covered wire enclosed by braided copper armour and exterior plastic sheathing. When ordering, specify the code, size of cable and the number of ohms required.



How to order: CODE

Coaxial cable, radio frequency, Ohms, SIZE of CABLE

Unit Per Mtr.

CODE	Size	Cable mm		O.D. mm	Test Voltage
		Construction	Diam.		
		75 ohm (Ω)			
79 42 61	1.5C-2V	0.26 x 1	0.26	2.9	1,000
62	2.5C-2V	0.4 x 1	0.4	4.0	1,000
63	3 C-2V	0 5 x 1	0.5	5.4	1,000
64	5 C-2V	0.8 x 1	0.8	7.4	1,000
65	7 C-2V	0.4 x 7	1.2	10.4	1,000
66	10 C-2V	0.5 x 7	1.5	13.0	1,000
		50 ohm (Ω)			
79 42 71	1.5C-2V	0.18 x 7	0.54	2.9	300
72	2.5C-2V	0.8 x 1	0.8	4.3	1,000
73	3 C-2V	0 32 x 7	0.96	5.3	1,000
74	5 C-2V	1.4 x 1	1.4	7.3	1,000

RG Type

Used for transmitting signals for various applications such as digital TV, CCTV, videos, internet radio equipment with higher frequency.



RG-6/U, RG-11A/U



RG-59/U



RG12/U, RG-58/U



RG-213/U



RG-214/U

Unit Per Mtr.

CODE	Type	Dimension mm		O.D. mm
		Conductor	Insulation	
		75 ohm (Ω)		
79 42 54	RG-6/U	18AWG (1/1.02mm)	4.57	6.93
55	RG-11/A	14AWG (1/1.63mm)	7.11	10.20
56	RG-59/U	23AWG (1/0.584mm)	3.7	6.10
		50 ohm (Ω)		
79 42 57	RG12/U	18AWG (7/0.404mm)	7.26	13.30
58	RG-58/U	20AWG (19/0.18mm)	2.95	4.95
59	RG-213/U	13AWG (7/0.75mm)	7.25	10.30
60	RG-214/U	13AWG (7/0.75mm)	7.25	10.80

Armoured Cables

EP Rubber Insulated, P.V.C. Sheathed & Steel Wire Braided

600 V or less – 1 to 12 conductors

Cable Eléctrico Armado Apantallado Sintético

ＥＰゴム絶縁ビニールシースあじろがい装ケーブル

橡胶绝缘 PVC 电线



For heavy duty wiring on board. Rubber covered wires are entirely wrapped with hemp tape and then enclosed by plastic sheathing and braided metal armour.

How to orde: CODE

Armoured cable, EP rubber insulated, P.V.C. sheathed & steel wire braided, NUMBER of CONDUCTORS, mm²

Unit Per Mtr.

CODE	mm²	Cable Strand mm		O.D. mm	Kg Per Mtr
		Construction	Diam.		
		1-Conductor			
79 43 01	1.5	0.52 × 7	1.56	7.2	0.1
02	2.5	0.67 × 7	2.01	7.6	0.12
03	4.0	0.85 × 7	2.55	8.2	0.14
04	6.0	1.04 × 7	3.12	8.7	0.17
05	10.0	1.35 × 7	4.05	9.9	0.225

(to be continued)

Unit Per Mtr.

CODE	mm²	Cable Strand mm		O.D. mm	Kg Per Mtr
		Construction	Diam.		
		2-Conductor			
79 43 08	1.5	0.52 × 7	1.56	11.7	0.205
09	2.5	0.67 × 7	2.01	12.8	0.250
10	4.0	0.85 × 7	2.55	13.9	0.3
11	6.0	1.04 × 7	3.12	15.2	0.37
12	10.0	1.35 × 7	4.05	17.1	0.49
		3-Conductor			
79 43 15	1.5	0.52 × 7	1.56	12.5	0.245
16	2.5	0.67 × 7	2.01	13.5	0.295
17	4.0	0.85 × 7	2.55	14.7	0.365
18	6.0	1.04 × 7	3.12	16.1	0.455
19	10.0	1.35 × 7	4.05	18.3	0.625
		4-Conductor			
79 43 26	1.0	0.43 × 7	1.29	11.2	0.205
		7-Conductor			
79 43 27	1.0	0.43 × 7	1.29	13.2	0.29
		12-Conductor			
79 43 28	1.0	0.43 × 7	1.29	19.0	0.445
		19-Conductor			
79 43 29	1.0	0.43 × 7	1.29	22.0	0.615

Enamelled Copper Wire

Hilo de Cobre Esmaltado　エナメル銅線

漆包铜线



For rewinding electric motors, instrument wiring, etc.

Unit Per Kgs.

CODE	Diam. mm	Max. Ω/Km at 20°C	App. Kg Spool	CODE	Diam. mm	Max. Ω/Km at 20°C	App. Kg Spool
79 43 51	0.29	266.4		**79 43 60**	0.70	44.81	
52	0.32	215.9	10	**61**	0.80	34.30	10
53	0.35	180.5	~	**62**	0.90	27.10	~
54	0.40	138.1	15	**63**	1.0	21.95	15
55	0.45	109.2		**64**	1.2	15.24	
79 43 56	0.50	87.79	10	**79 43 65**	1.4	11.20	30
57	0.55	72.56	~	**66**	1.6	8.574	30
58	0.60	60.99	15	**67**	1.8	6.775	30
59	0.65	51.96		**68**	2.0	5.487	30

Antenna Copper Wire

Cable de Cobre para Antena　アンテナケーブル　天线铜丝



Specially designed for antenna systems on board vessels.

Unit Per Mtr.

CODE	Construction Wire Diam x Strand	O.D. mm	CODE	Construction Wire Diam x Strand	O.D. mm
79 43 76	1.6 × 19	8.0	**79 43 78**	1.6 × 7	4.0
77	1.2 × 19	6.0			

Halogen-free Covered Cables

Cable Libre de Halógeno　ハロゲンフリーケーブル　無卤電缆

The remarkably improved fire safety and environmental friendly cables for the ship, not emitting toxic burning fumes or thick smoke owing to Halogen-free insulation cover. Halogen-free refrers to the absence of Halogens, such as Chlorine and Fluorine, and they don't emit any harmful Hydraulic Chloride

gas while existing PVC (Polyvinyl Chlorine) dose. In addition to above attractive features, the Halogen-free covered cable reduces cable weight and size to a minimum and still maintain quality, enabling easy installation. The Halogen-free range of cables are frame-retardant (IEC 60332-3).

The following designations are used for insulation materials and sheathing materials, and all materials are halogen-free; Insulation: XLPE stands for Cross-linked Polyethylene compound, and it has excellent mechanical and electrical characteristics. Sheathing: The designation SHF1 stands for Thermoplastic compound, and this material is Halogen-free, highly flame-retardant and has low smoke emission.

The listed cables are for fixed installation on all areas and on open deck in ships. However, if the cable is exposed to direct sun light protective covering or cable with black outer sheath is recommended.

Unarmoured Power and Control Cable 0.6/1 kV HF-CXO



Design	IEC 60092-353, design
1. Conductor - Standard copper conductor	IEC 60228. class 2
2.Insulation - XLPE plastic	IEC 60092-351
3.Bedding - Separator tape	-
4.Sheath - Polyolefine plastic, SHF1 - Standard colour Black	IEC 60092-359

Main Characteristics

Rated Voltage	0.6/1 kV (1.2 kV)
Max. Conductor Temperature	+90°C
Flame-retardant	IEC 60332-1-22 Category A
Halogen-free	IEC 60754 series
Smoke Emission	IEC 61034 series
Min. Recommended Installation Temperature	-15°C
Lowest Operation Temperature	-40°C
Approvals	ABS / BV / CCS / DNV / KRS / LRS / NK / RINA

Unit Per Mtr.

CODE	mm²	Current Rating Amp	Nom. Outer Diam. mm	Approx. Weight grm/mtr
		1 - Conductor		
79 42 95	1.5	23	5.5	40
96	2.0	40	6.0	52
97	4.0	51	6.6	70
75	6.0	52	7.2	90
76	10.0	72	8.2	135
77	16.0	96	9.4	205
		2 - Conductor		
79 42 78	1.5	20	9.0	75
79	2.5	26	10.0	110
80	4.0	34	11.2	145
81	6.0	44	12.5	195
82	10.0	61	14.5	315
		3 - Conductor		
79 42 83	1.5	16	9.6	95
84	2.5	21	10.7	140
85	4.0	28	11.9	190
86	6.0	36	13.3	265
87	10.0	50	15.5	400
88	16.0	67	18.0	635
		4 - Conductor		
79 42 89	1.5	16	10.5	125
90	2.5	21	11.7	170
91	4.0	28	13.4	245
92	6.0	36	14.6	335
93	10.0	50	17.1	515
94	16.0	67	19.9	820

(to be continued)

Armoured Power and Control Cable 0.6/1 kV HF-CXOSA



Design	IEC 60092-353, design
1. Conductor - Standard copper conductor	IEC 60228. class 2, class 5
2. Insulation - XLPE plastic	IEC 60092-351
3. Bedding - Separator Filler tape	-
4. Armour - Copper wire braid, - coverage > 90%	IEC 60092-350
5. Sheath - Polyolefine plastic, SHF1 - Standard colour Black	IEC 60092-359

Main Characteristics

Rated Voltage	0.6/1 kV (1.2 kV)
Max. Conductor Temperature	+90°C
Flame-retardant	IEC 60332-3-22
Halogen-free	IEC 60754 series
Smoke Emission	IEC 61034 series
Min. Recommended Installation Temperature	-15°C
Lowest Operation Temperature	-40°C
Approvals	ABS / BV / CCS / DNV / KRS / LRS / NK / RINA

Unit Per Mtr.

CODE	mm²	Cross-section of Armour mm²	Current Rating Amp	Nom. Outer Diam. mm	Approx. Weight grm/mtr
		1 - Conductor			
79 43 31	6.0	3.1	52	8.5	130
32	10.0	3.2	71	9.6	175
33	16.0	4.1	96	10.7	270
		2 - Conductor			
79 43 34	1.5	3.5	20	10.4	135
35	2.5	4.1	26	11.3	170
36	4.0	4.5	34	12.6	200
37	6.0	5.1	44	14.3	260
38	10.0	8.6	61	16.2	400
		3 - Conductor			
79 43 39	1.5	3.8	16	10.9	160
40	2.5	4.3	21	12.1	200
41	4.0	4.9	28	13.2	260
42	6.0	5.5	36	15.0	335
43	10.0	8.8	50	17.2	510
44	16.0	10.3	67	19.7	800

(to be continued)

Unit Per Mtr.

CODE	mm²	Cross-section of Armour mm²	Current Rating Amp	Nom. Outer Diam. mm	Approx. Weight grm/mtr
		4 - Conductor			
79 43 45	1.5	4.2	16	11.9	185
46	2.5	4.7	21	13.0	245
47	4.0	5.4	28	14.9	315
48	6.0	8.6	36	16.3	435
49	10.0	9.8	50	18.7	635
50	16.0	11.8	67	21.5	1,000

Unarmoured Switchboard Wire Cable 0.6/1 kV HFF-CXP



Design	IEC 60092-353, design
6. Conductor - Standard copper conductor	IEC 60228. class 2
7. Insulation - XLPE plastic	IEC 60092-351
8. Bedding - Filler tape	-
9. Armour - Copper wire braid, - coverage > 90%	IEC 60092-350
10. Sheath - Polyolefine plastic, SHF1 - Standard colour Black	IEC 60092-359

Main Characteristics

Rated Voltage	0.6/1 kV (1.2 kV)
Max. Conductor Temperature	+90°C
Flame-retardant	IEC 60332-1-2
Halogen-free	IEC 60754 series
Smoke Emission	IEC 61034 series
Min. Recommended Installation Temperature	-15°C
Lowest Operation Temperature	-40°C
Approvals	ABS / BV / CCS / DNV / KRS / LRS / NK / RINA

Unit Per Mtr.

CODE	mm²	Current Rating Amp	Nom. Outer Diam. mm	Approx. Weight grm/mtr
		Black - 1 Conductor		
79 43 06	1.5	23	3.1	21
07	2.0	40	3.6	31
14	4.0	51	4.2	47
20	6.0	52	4.9	70
21	10.0	72	5.8	105
30	16.0	96	7.3	161
		Blue - 1 Conductor		
79 43 69	1.5	23	3.1	21
70	2.5	40	3.6	31
71	4.0	51	4.2	47
72	6.0	52	4.9	70
		Red - 1 Conductor		
79 43 73	1.5	23	3.1	21
74	2.5	40	3.6	31
75	4.0	51	4.2	47
79	6.0	52	4.9	70
		Yellow - 1 Conductor		
79 42 09	1.5	23	3.1	21
10	2.5	40	3.6	31
15	4.0	51	4.2	47
16	6.0	52	4.9	70

(to be continued)

		Green/Yellow - 1 Conductor		
79 42 17	1.5	23	3.1	21
18	2.0	40	3.6	31
19	4.0	51	4.2	47
20	6.0	52	4.9	70
30	10.0	72	5.8	105
40	16.0	96	7.3	161
		Grey - 1 Conductor		
79 42 50	1.5	23	3.1	21
51	2.5	40	3.6	31
52	4.0	51	4.2	47
53	6.0	52	4.9	70
		Brown - 1 Conductor		
79 42 67	1.5	23	3.1	21
68	2.5	40	3.6	31
69	4.0	51	4.2	47
70	6.0	52	4.9	70

Armoured Telecommunication Cable 150/250V (300V) HF-IXOSA



Design	IEC 60092-353, design
11. Conductor - Standard copper conductor	IEC 60228. class 2
12. Insulation - XLPE plastic	IEC 60092-351
13. Bedding - Filler tape	-
14. Armour - Copper wire braid, coverage > 90%	IEC 60092-350
15. Sheath - Polyolefine plastic, SHF1	IEC 60092-359

Main Characteristics

Rated Voltage	150/250V (300V)
Max. Conductor Temperature	+90°C
Flame-retardant	IEC 60332-3-22
Halogen-free	IEC 60754 series
Smoke Emission	IEC 61034 series
Min. Recommended Installation Temperature	-15°C
Lowest Operation Temperature	-40°C
Approvals	ABS / BV / CCS / DNV / KRS / LRS / NK

Unit Per Mtr.

CODE	mm²	Current Rating Amp	Nom. Outer Diam. mm	Approx. Weight grm/mtr
		0.75 mm²		
79 41 07	1 × 2	11	8.0	100
08	2 × 2	11	11.1	150
09	4 × 2	11	12.7	245
10	7 × 2	11	15.5	372
		1.5 mm²		
79 41 62	1 × 2	20	9.5	110
63	2 × 2	20	13.5	200
64	4 × 2	20	16.1	325
65	7 × 2	20	19.1	470

Heavy Electric Cables

for Crane/Hoist Use

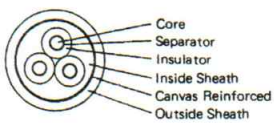
Cables Eléctricos para Grúa/Elevación Gruesos/Pesados
クレーン用一般電線　吊车 / 起重机用电缆

A wide range of models are available. The most common models of standard sizes are described below.

1. Name and Capacity

600V (Test V 3,000V/M)
EP Rubber Insulated and Polychloroprene Sheathed Flexible Power Cable Class – 3

2. Construction



3. Type

1. 600V 3PNCT　General Type
2. 600V 3PNCT-B　Bendable Type
3. 600V 3PNCT-T　Twist Cable Type

4. Specifications

Size: mm

Binubak Sectional Area mm²		80	100	125	150	200	250
Conductor	Number & Dia of Wire	19/27/ 0.45	19/34/ 0.45	19/42/ 0.45	27/34/ 0.45	37/34/ 0.45	37/42/ 0.45
	O.D.	13.5	15.2	16.8	18.7	21.2	23.6
Insulation Thick		2.1	2.1	2.7	2.7	3.3	3.3
Canvas Tape Thick		0.5	0.5	1.0	1.0	1.0	1.0
Single Core	Sheath Thick	3.4	3.5	3.7	3.8	4.1	4.2
	Cable O.D.	25.7	27.6	31.8	33.9	38.2	40.8
Double Core	Sheath Thick	4.6	4.8	5.2	5.4	5.9	6.3
	Cable O.D.	47.0	50.8	57.2	61.4	69.8	75.4
Triple Core	Sheath Thick	4.8	5.0	5.4	5.7	6.2	6.6
	Cable O.D.	50.3	54.3	61.2	65.9	74.9	80.9
Q'dple Core	Sheath Thick	5.1	5.4	5.8	6.1	6.7	7.1
	Cable O.D.	55.7	60.4	68.0	73.2	83.4	90.0
Approx. Weight	Single Core	1,270	1,520	1,940	2,200	2,910	3,480
	Double Core	3,490	4,190	5,280	6,030	7,980	9,590
	Triple Core	4,520	5,440	6,810	7,570	10,500	12,500
	Quadruple Core	5,660	6,840	8,560	9,840	13,200	15,700

When ordering, please specify the name, capacity, type, number of the core and size of the nominal sectional area.

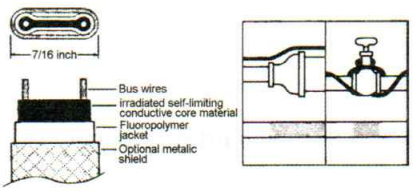
How to order: 79 - 43 - 80
Polychloroprene sheathed EP rubber insulated flexible power cable, type x core x sectional area

Self Limiting Parallel Circuit Heaters Auto-Trace

Calentadores Circuitos Paralelos con Limitación Propia Auto-Trace
自己制御型ヒーター　自控式加热器

Auto-Trace is the electrical parallel circuit heat-tracing system. This unique technology enables the heater to vary its power output in response to sensed temperature at every point along its entire circuit. As the temperature increases, Auto-Trace automatically decreases its heat output, and vice versa. In this way, the heater continually compensates for temperature fluctuations that can lead to system failure with conventional heat tracing methods.





Has the following system features:

1. Full range of heaters for a variety of applications.
2. Complete selection of component and control system.
3. Parallel circuitry for cut-to-length convenience at the jobsite.
4. Flexibility for easy field installation.
5. Self-regulation protects against over-heating at any wattage, even when the heater is overlapped.

From among various types, the most common circuit heaters are listed below.

BTV	Electrical heat-tracing for frost protection without steam cleaning. Used for frost protection of pipes and vessels. Also, used for process temperature maintenance up to 65°C.
QTVR	Electrical heat-tracing for process temperature maintenance applications up to 110°C which are not subject to steam cleaning. Used for process temperature maintenance of pipes and vessels. Also, used for frost protection of large pipes and for applications requiring medium temperature exposure capability.
KTV	Electrical heat-tracing for process temperature maintenance applications up to 150°C which may be subject to steam cleaning. Used for process temperature maintenance of pipes and vessels. Also, used for frost protection of large pipes and for applications requiring high temperature exposure capability.

These circuit heaters are sold by meter, various spare parts are available as extra accessories. For further information, please write for or ask your supplier for catalogues.

How to order: CODE
Parallel circuit heater, self limiting, VOLTAGE, TYPE

Unit Per Mtr.

110V			220V		
CODE	Type	Watt/ Feet	CODE	Type	W/m at 10°C
BTV Series					
79 43 85	3BTV1-CR	3	**79 43 98**	3BTV2-CR	9
81	3BTV1-CT	3	**86**	3BTV2-CT	9
90	5BTV1-CR	3	**99**	5BTV2-CR	16
82	5BTV1-CT	3	**87**	5BTV2-CT	16
79 44 01	8BTV1-CR	8	**79 44 05**	8BTV2-CR	25
02	8BTV1-CT	8	**06**	8BTV2-CT	25
03	10BTV1-CR	10	**07**	10BTV2-CR	29
04	10BTV1-CT	10	**08**	10BTV2-CT	29

(to be continued)

Unit Per Mtr.

110V			220V		
CODE	Type	Watt/ Feet	CODE	Type	W/m at 10°C
QTVR Series					
79 44 09	10QTVR1-CT	10	**79 44 12**	10QTVR2-CT	38
10	15QTVR1-CT	15	**13**	15QTVR2-CT	51
11	20QTVR1-CT	20	**14**	20QTVR2-CT	64
KTV Series					
79 44 15	5KTV1-CT	5	**79 44 19**	5KTV2-CT	16
16	8KTV1-CT	8	**20**	8KTV2-CT	25
17	15KTV1-CT	15	**21**	15KTV2-CT	47
18	20KTV1-CT	20	**22**	20KTV2-CT	65

Remark: "Watt/Ft" and "W/m at 10°C" is nominal power output.
CT denotes Fluoropolymer outer jacket.
CR denotes Modified polyolefin outer jacket.

Extension Cord Reels

Prolongadores de Cables　延長コードリール　延长线轮



Portable reels which are suitable for use in a work place which is separated from an electrical power source. Available for use with cord lengths from 20 mtrs to 50 mtrs. Contains built in outlets that provide power connections for tools and equipment.

When ordering, please specify the required cord length, voltage, ampere, type of plug and receptacle currently in use so that reel can be used properly with your equipment.

How to order: CODE

Extension cord reel, VOLTAGE, AMPERE, CORD LENGTH, TYPE of PLUG & RECEPTACLE

Unit Per Set

CODE	Cord Length	CODE	Cord Length
AC 110 Volt		**AC 220 Volt**	
79 43 91	20 mtr	**79 43 95**	20 mtr
92	30 mtr	**96**	30 mtr
93	50 mtr	**97**	50 mtr

18. Cable Accessories

Cable Terminal Lugs

Terminales Eléctricos de Zapata　ターミナルラグ　无绝缘圆头端子

Made of tin-plated copper for conductivity and corrosion resistance. For connecting and terminating wire and easy to install with a crimping tool. Please specify type no. of terminal lugs with cable size to be applied.

Non-Insulated Round Head

Equivalent to Type "R"
(See 79 46 51 to 79 46 66).



Unit Per Pc.

CODE	CableSize mm^2	Hole Dia mm	Overall Size mm	
			Width	Length
79 45 01	5.5	8	16	28
79 45 02	8	6	12	24
03		8	15	30
04		10	15	30
79 45 05	10	6	12	29
79 45 06	14	8	16	33
07		10	16	36
79 45 08	16	10	18	46

(to be continued)

Unit Per Pc.

CODE	CableSize mm^2	Hole Dia mm	Overall Size mm	
			Width	Length
75 45 09	22	6	11.5	35
10		7	16	35
11		8	17	35
12		10	17	37
79 45 13	25	6	14	31
79 45 14	38	8	16	38

Insulated Eyelet

Equivalent to Type "R-TG"
(See 79 47 01 to 79 47 12).

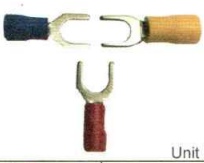


Unit Per Pc.

CODE	CableSize mm^2	Hole Dia mm	Overall Size mm		Colour of PVC Sleeve
			Width	Length	
79 45 21	1.25	4	8	20	Red
79 45 22	2	3	6	17	Blue
23		4	8	21	Blue
24		5	9	21	Blue
25		6	12	26	Blue
26		8	12	25	Blue
79 45 27	5.5	4	9	28	Yellow
28		6	12	32	Yellow
29		10	15	35	Yellow

Insulated Spade

Equivalent to Type "Y-TG"
(See 79 47 16 to 79 47 23).



Unit Per Pc.

CODE	CableSize mm^2	Hole Dia mm	Overall Size mm		Colour of PVC Sleeve
			Width	Length	
79 45 31	1.25	3	7	20	Red
32		3.5	7	20	Red
79 45 33	2	4	8	20	Blue
34		4	9	22	Yellow
35		5	9	21	Blue
79 45 36	5.5	4.5	8	20	Blue

Insulated Spanner Head

Equivalent to Type "Y-TG"
(See 79 47 16 to 79 47 23).



Unit Per Pc.

CODE	CableSize mm^2	Hole Dia mm	Overall Size mm		Colour of PVC Sleeve
			Width	Length	
79 45 41	1.25	4	8	20	Red

Insulated Receptacles



Unit Per Pc.

CODE	CableSize mm^2	ILug Width mm	Overall Length mm	Colour of PVC Sleeve
79 45 45	1.25	3	23	Red
46		4	23	Red
47		6	23	Red
79 45 48	2	5	23	Blue
79 45 50	5.5	6	25	Yellow

Insulated Flat Pins



Unit Per Pc.

CODE	CableSize mm²	lLug Width mm	Overall Length mm	Colour of PVC Sleeve
79 45 61	1.25	2	20	Red
62	1.25	3	20	Red
63	2	4	23	Blue
64	5.5	4	25	Yellow

Insulated Extension Connectors, Transparent



Unit Per Pc.

CODE	CableSize mm²	Overall Length mm	Colour of PVC Sleeve
79 45 71	1.25	25	Transparent

Insulated Butt



Unit Per Pc.

CODE	CableSize mm²	Overall Length mm	Colour of PVC Sleeve
79 45 75	1.25	23	Red
76	5.5	27	Yellow

Insulated Cable Tip



Unit Per Pc.

CODE	CableSize mm²	lLug Width mm	Overall Length mm	Colour of PVC Sleeve
79 45 81	1.25	2	21	Red
82	2	2	21	Blue
83	5.5	2.5	28	Yellow

Terminal Boards for Marine Use

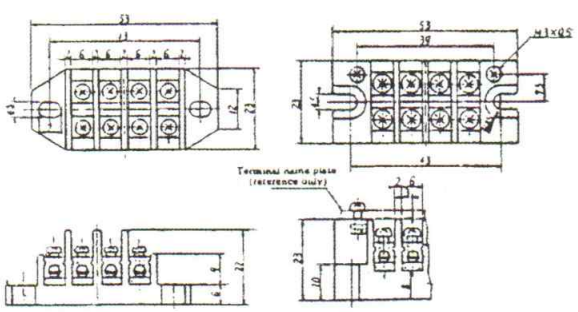
Electric Solderless Connecting Terminals

Cuadro (Placa) de Bornes　船用端子盤　船用接线端板

(Ref. JIS F 8812)

For connecting cables of electric appliances of a rated voltage of 250 V or less. Made of phenol resin. Available in O and S type boards. The O type denotes terminal boards without name plates and the S type denotes terminals with name plates.





Type O　　Type S

How to order: CODE

Terminal board, TYPE, AMPERE, NUMBERS of TERMINAL

"O" Type Terminals

Unit Per Pc.

10 Ampere			20 Ampere		
CODE	Number of Termial	Size mm	CODE	Number of Terminal	Size mm
79 46 01	2	23 × 37	**79 46 06**	2	26 × 42
02	3	23 × 45	**07**	3	26 × 52
03	4	23 × 53	**08**	4	26 × 62

"S" Type Terminals

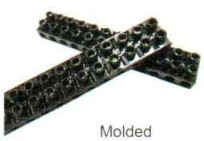
Unit Per Pc.

10 Ampere			20 Ampere		
CODE	Number of Termial	Size mm	CODE	Number of Terminal	Size mm
79 46 11	2	23 × 37	**79 46 21**	2	26 × 40
12	3	23 × 45	**22**	3	26 × 50
13	4	23 × 53	**23**	4	26 × 60
14	5	23 × 61	**24**	5	26 × 74
15	7	23 × 77	**25**	7	26 × 94
16	10	23 ×101	**26**	10	26 ×137
17	12	23 ×107	**27**	12	26 ×157

Separable Terminal Strips

Regletas Cable Eléctrico　電線端子　电线端子

Solderless, easy handling 12 pole terminals, length can be cut as desired.



Molded



P.V.C. Flexible

How to order: CODE

Terminal strip, separated, TYPE, NOMINAL AMPERE

Molded Strip

Unit Per Pc.

CODE	Nominal Ampere	Nominal Area mm²	Capacity Voltage
79 46 31	10	2.5	380
32	25	10	380
33	35	16	380

P.V.C. Flexible Strip

Unit Per Pc.

CODE	Nominal Ampere	Nominal Area mm²	Capacity Voltage
79 46 36	10	2.5	380
37	20	6	380
38	25	10	380
39	35	16	380
40	50	25	380

Cable Shoes

Terminales Eléctricos Prensado　ケーブルシュー　电线端头

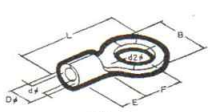
Galvanized copper made shoes for connecting cable wires with clamping tools.

How to order: CODE

Cable shoe, TYPE, NOMINAL SIZE

Type "R"





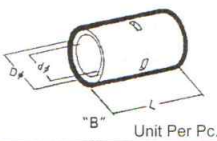
Unit Per Pc.

CODE	Nominal Size	Size mm d2φ	B	L	Dφ	dφ	Applicable Twisted Wire mm²
79 46 51	1.25- 3	3.2	5.5	12.0	3.4	1.7	0.25～ 1.65
52	1.25- 4	4.3	8.0	15.6			
53	1.25- 5	5.3					
79 46 54	2.0- 4	4.3	8.5	16.5	4.2	2.3	1.04～ 2.63
55	2.0- 5	5.3	9.5	17.0			
56	2.0- 6	6.4	12.0	21.5			
57	2.0- 8	8.4					
79 46 58	5.5- 4	4.3	9.5	19.5	5.6	3.4	2.63～ 6.64
59	5.5- 5	5.3					
60	5.5- 6	6.4	12.0	23.0			
61	5.5- 8	8.4	15.0	28.0			
62	5.5-10	10.5					
79 46 63	8.0- 5	5.3	12.0	23.5	7.1	4.5	6.64～ 10.52
64	8.0- 6	6.4					
65	8.0- 8	8.4	15.0	29.5			
66	8.0-10	10.5					

Equivalent to Type "Non-Insulated Round Head".
(See 79 45 01 to 79 45 14)

Type "B"



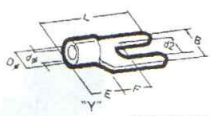


Unit Per Pc.

CODE	Nominal Size	L	Dφ	dφ	Applicable Twisted Wire mm²
79 46 71	1.25	15.0	3.3	1.7	0.25 ~ 1.65
79 46 72	2.0		4.1	2.3	1.04 ~ 2.63
79 46 73	5.5		5.4	3.4	2.63 ~ 6.64
79 46 74	8.0	21.0	7.0	4.5	6.64 ~ 10.52

Type "Y"



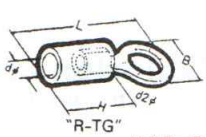


Unit Per Pc.

CODE	Nominal Size	Size mm d2φ	B	L	Dφ	dφ	Applicable Twisted Wire mm²
79 46 81	1.25 - 3L	3.7	6.2	16.0	3.4	1.7	0.25 ~ 1.65
79 46 82	1.25 - 4M	4.3	8.1	16.4			
79 46 83	1.25 - 5	5.3	9.6	17.5			
79 46 84	2.0 - 4	4.3	8.0	16.0	4.2	2.3	1.04 ~ 2.63
79 46 85	2.0 - 5	5.3					
79 46 86	5.5 - 4	4.3	9.0	18.2	5.6	3.4	2.63 ~ 6.64
79 46 87	5.5 - 5	5.3					
79 46 88	5.5 - 6	6.4	12.5	25.2			
79 46 89	8.0 - 5	5.3	12.0	21.0	7.1	4.5	6.64 ~ 10.52
79 46 90	8.0 - 6	6.7					

Type "R-TG"





Unit Per Pc.

CODE	Nominal Size	Size mm d2φ	B	L	dφ	Applicable Twisted Wire mm²
79 47 01	1.25 - 3	3.2	5.5	17.4	3.2	0.5 ~ 1.65
79 47 02	1.25 - 4	4.3	8.0	21.0		
79 47 03	1.25 - 5	5.3				
79 47 04	2.0 - 4	4.3	8.5	21.9	3.9	1.04 ~ 2.63
79 47 05	2.0 - 5	5.3	9.5	22.4		
79 47 06	2.0 - 6	6.4	12.0	26.9		
79 47 07	2.0 - 8	8.4				

(to be continued)

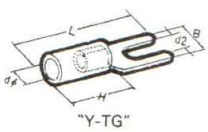
Unit Per Pc.

CODE	Nominal Size	Size mm d2φ	B	L	dφ	Applicable Twisted Wire mm²
79 47 08	5.5 - 4	4.3	9.5	27.0	5.4	2.63 ~ 6.64
79 47 09	5.5 - 5	5.3				
79 47 10	5.5 - 6	6.4	12.0	30.5		
79 47 11	5.5 - 8	8.4	15.0	35.5		
79 47 12	5.5 - 10	10.5				

Equivalent to Type "Insulated Eyelet" (See 79 45 21 to 79 45 29).

Type "Y-TG"





Unit Per Pc.

CODE	Nominal Size	Size mm d2φ	B	L	dφ	Applicable Twisted Wire mm²
79 47 16	1.25 - 3L	3.7	7.7	19.4	3.2	0.5 ~ 1.65
79 47 17	1.25 - 4M	4.3	8.1	21.9		
79 47 18	1.25 - 5	5.3	9.6	23.0		
79 47 19	2.0 - 4	4.3	8.0	21.5	3.9	1.04 ~ 2.63
79 47 20	2.0 - 5	5.3		21.4		
79 47 21	5.5 - 4	4.3	9.0	25.7	5.4	2.63 ~ 6.64
79 47 22	5.5 - 5	5.3				
79 47 23	5.5 - 6	6.4	12.5	32.7		

Equivalent to Type "Insulated Spade" (See 79 45 31 to 79 45 36), and "Insulated Spanner Head" (See 79 45 41).

Cable Shoe Pliers

Alicates para Terminales　圧着ペンチ　电缆终端套管钳子

A tool for pressing cable shoes on electric cables for sizes of 1.25, 2.0, 5.5 and 8 mm/sq. in working capacity. A must tool for radio repairers and electricians. Length: 250 mm.

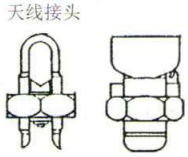


61 17 30	Plier, cable shoe 1.25 mm ~ 8 mm sq.	Pr.

Antenna Connectors

Sujetacable de Antena　アンテナコネクター　天线接头

Brass made antenna connector for ships use.



Unit Per Pc.

CODE	mm²	Applicable Antenna Wire
79 47 41	8	O.D. 2.0 ~ 3.2 mm
42	14	O.D. 2.0 ~ 5.0 mm
43	22	O.D. 2.0 ~ 6.0 mm
44	38	O.D. 2.0 ~ 8.0 mm

Watertight Cable Connectors

Conectores de Cable Estanco　防水電線コネクター　防水电线接头

For connecting cables on deck or any other places where rain, seawater or humidity exists. Interior fixtures are brass sealed inside of a rubber cover.



Unit Per Pc.

CODE	Pole	Ampere	CODE	Pole	Ampere
79 47 51	2	15	**79 47 53**	3	15
52	2	20	**54**	3	20

Welding Cable Connectors

Conectores de cables de soldadura
溶接用ケーブルコネクター
焊接电缆连接器



Brass bar with interior and exterior covered in watertight rubber. Specially designed for welding cable connections.

Unit Per Pc.

CODE	Ampere	Applicable Cable Size mm	Overall Length mm	Weight grm
79 47 61	300A	38 ~ 50	200	300
62	500A	60 ~ 80	295	510
63	750A	100 ~ 125	275	750
64	1,000A	150 ~ 200	300	950

Cable and Pipe Straps

(Saddle)

Grapa Metálica Tipo Puente　サドル　线管夹



Iron made saddle used for electric cable or conduit pipes. Also available in plastic upon request.

Unit Per Box

CODE	Applicable Calbe O.D. mm	Pcs Per Box	CODE	Applicable Calbe O.D. mm	Pcs Per Box
79 47 71	9.8 ~ 12	100	**79 47 76**	30 ~ 33	50
72	12.5 ~ 14	100	**77**	38 ~ 41	50
73	14.5 ~ 17	100	**78**	50 ~ 53	20
74	18 ~ 20	100	**79**	63.5 ~ 67	20
75	25 ~ 26.5	50	**80**	76 ~ 79	10

Cable Staples

Grapas para Cable Tipo U　ステープル
电线 U 形钉



Plastic insulated WEB cable staples for temporarily stapling indoor cables. Supplied 100 pcs per box.

Unit Per Box

CODE	No.	Applicable Cable	CODE	No.	Applicable Cable
79 47 85	1	1.6 mm² x 2C	**79 47 87**	3	2.6 mm² x 2C
86	2	2.0 mm² x 2C	**88**	4	2.6 mm² x 3C

Cable Clips

Grapa para Cable　ケーブルクリップ　电夹



Made of plastic complete with hard plated steel pin, assembled ready for use.

Unit Per Pc.

CODE	Cable O.D.	CODE	Cable O.D.
79 47 91	4 - 7 mm	**79 47 94**	16 mm
92	7 - 11 mm	**95**	18 mm
93	10 - 14 mm	**96**	21 mm

Cable Markers

Marcadores para Cable　マーキングシート　电线记号板



Temporary or permanent marking for identification of cable after termination. Cloth made with glue on the back for easy application. Specify required number marked 0–9 or alphabet marked A–Z for each sheet or in full set.

79 48 01	Marking number, 0 - 9 each respective sheet	Pc.
79 48 02	Marking number, 0 - 9 in full set of 10 sheets	Set
79 48 03	Marking alphabet, A - Z each respective sheet	Pc.
79 48 04	Marking alphabet, A - Z in full set of 26 sheets	Set

Marine Watertight Cable Glands

for Electric Appliance

Prensaestopas estancos marinos para aparatos eléctricos
船用防水ケーブルグランド（箱用）
船用防水电缆贯穿导管



Brass, screw type cable glands for watertight electric appliances to be fixed on an enclosure by nut.

Unit Per Pc.

CODE	Nominal Size mm	Inner Gasket Inside Aiam. mm	Pipe Thread PF
79 48 11	10	7	3/8
12	15	9	1/2
13	20	12	3/4
14	25	16	1
15	30	22	1-1/4
79 48 16	35	28	1-1/2
17	40	32	1-1/2
18	45	36	2
19	50	42	2
20	55	46	2-1/2
79 48 21	60	52	2-1/2

IP 68 Brass and Polyamide Cable Glands

Prensaestopas de latón y poliamida IP 68
IP 68 真鍮およびポリアミド製ケーブルグランド
IP 68 黄铜和聚酰胺电缆接头

Ingress Protection 68, brass and polyamide types are also available for higher watertight protection.



Brass



Polyamide

Unit Per Pc.

CODE	Nominal Size mm	CODE	Nominal Size mm
Brass		Polyamide	
79 47 24	M16 x 1.5	**79 47 31**	M16 x 1.5
25	M20 x 1.5	**32**	M20 x 1.5
26	M25 x 1.5	**33**	M25 x 1.5
27	M32 x 1.5	**34**	M32 x 1.5
28	M40 x 1.5	**35**	M40 x 1.5
79 47 29	M50 x 1.5	**79 47 36**	M50 x 1.5
30	M63 x 1.5	**37**	M63 x 1.5

Explosion Proof Cable Glands

for Electric Appliance

Prensaestopas antideflagrantes para aparatos eléctricos
電気機器用防爆型ケーブルグランド　用于电器的防爆电缆接头

Explosion proof cable gland for use indoors, outdoors and hazardous areas. Available for multi armoured or unarmoured cables.



Multi armoured cables



Unarmoured cables

Specifications	
Explosion Protection	IECEx: Ex d I/IIC MbGb, Ex e I/IIC MbGb, Ex nR IIC Gc, Ex tb IIIC Db(Multi armoured) Ex d IIC Gb, Ex e IIC Gb, Ex nR IIC Gc, Ex tb IIIC Db (Unarmoured) ATEX: II 2G, II 2D, II 3G
Ingress Protection	IP 65
Operating Temperature	-20°C up to +95°C

Unit Per Pc.

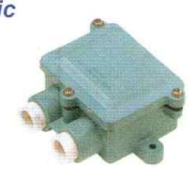
CODE	Nominal Size mm	CODE	Nominal Size mm
For Multi Armoured Cable		For Unarmoured Cable	
79 47 45	M20	**79 47 55**	M20
46	M25	**56**	M25
47	M32	**57**	M32
48	M40		
49	M50		
79 47 50	M63		

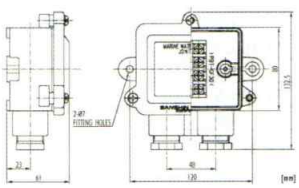
Marine Watertight Joint Boxes

Caja Derivación Estanca　防水接続箱　船用防水接线盒

Marine watertight type joint boxes mainly used for wiring in engine rooms, stores and on decks, etc. Ingress Protection is 56.

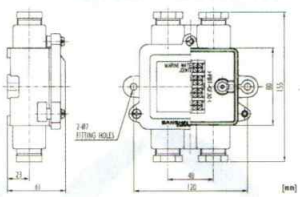
Plastic





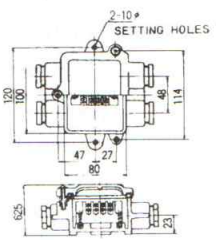
Type 1 (79 48 31)





Type 2 (79 48 32)





Type 2M (79 48 33)

Brass.



1150



1151



1152 (T)



1153 (+)



1154



1155



1156

Unit Per Pc.

CODE	Type	No. of Terminal	Rated V	Rated Amp	No. of Cable Gland	Material	Weight Kg
79 48 31	1	3	500	20	2	Polycarbonate	0.40
32	2	3	500	20	4	Polycarbonate	0.49
33	2M	3	250	20	4	Phenol Resin	0.45
79 52 01	1150	4	500	16	2	Brass	0.7
02	1151	4	500	16	2	Brass	0.6
03	1152 (T)	4	500	16	3	Brass	0.7
04	1153 (+)	4	500	16	4	Brass	0.8
05	1154	4	500	16	3	Brass	0.8
06	1155	4	500	16	4	Brass	0.9
07	1156	4	500	16	3	Brass	0.8

Explosion Proof Watertight Joint Boxes

Cajas de juntas estancas a prueba de explosiones
防爆防水ジョイントボックス　防爆防水接头盒

Marine watertight explosion-proof joint boxes are specialized enclosures designed to prevent explosions from igniting surrounding gases or vapors. Made of brass, keep out water, ensuring electrical safety in hazardous environments by containing potential sparks.

Specifications	
Rated Current	2.5 mm² : max. 22 A 4.0 mm² : max. 30 A 6.0 mm² : max. 39 A
Protection	II 2G EEx e II T6, Zone 1
Temperature	-50°C ~ +100°C
Voltage	Max 690 V
Ignition Protection	67



510/D



520/2



510/3



510/4

Unit Per Pc.

CODE	Type	No. of Terminal	Voltage	No. of Cable Gland	Material	Weight Kg
79 52 11	510/D	2	690	2	Brass	1.2
12	510/2	2	690	2	Brass	1.2
13	510/3	2	690	3	Brass	1.3
14	510/4	2	690	4	Brass	1.4

Electric Cable Enclosures

Fiberglass Reinforced Plastic

Caja Derivación Fibra de Vidrio　プルボックス　船用防水接线盒

FRP (Fiberglass Reinforced Plastic) box for treament of cable end for use indoor and outdoor.

Waterproof and dustproof construction with inner packing.



Unit Per Pc.

CODE	Size mm W × L × D	CODE	Size mm W × L × D
79 48 35	100 × 100 × 100	**79 48 38**	200 × 200 × 100
36	150 × 150 × 100	**39**	200 × 200 × 125
37	150 × 150 × 150		

Cable Guard Channels

(Cable Trays)

Canaleta Galvanizada Ranurada
ケーブルチャンネル　电缆保险盘



Galvanized iron channeling for cable guard. Standard sizes are listed below.

Unit Per Pc.

CODE	Wiidth mm	Length mm	CODE	Wiidth mm	Length mm
79 48 41	50	1,800	**79 48 43**	50	1,800
42	75	1,800	**44**	75	1,800

Self Locking Cable Ties

Ataduras de cables autoblocantes
セルフロックケーブルタイ　自锁式电缆扎带

Plastic

A plastic band designed for bundling wires, hoses, tubing, etc. A stainless steel barb mounted in the head locks the band at any desired diameter.



Unit: Per Piece

Unit Per Pc.

CODE	Length mm	CODE	Length mm
79 48 51	100	**79 48 56**	350
52	150	**45**	450
53	200	**46**	760
54	250	**47**	810
55	300	**48**	920

Unit: 100's/Packet

Unit Per Pkt

CODE	Length mm	CODE	Length mm
79 48 49	100	**79 48 60**	350
50	150	**69**	450
57	200	**70**	760
58	250	**71**	810
59	300	**72**	920

U-V Resistant Type (Per Piece)

Excellent UV (Ultra-Violet) resistant nylon suitable for outdoor use. Temperature range −40° to 180°F.

Unit Per Pc.

CODE	Length mm	CODE	Length mm
79 48 73	100	**79 48 76**	250
74	150	**77**	300
75	200	**78**	350

U-V Resistant Type (100'S/Packet)

Unit Per Pkt

CODE	Length mm	CODE	Length mm
79 48 79	100	**79 48 86**	250
80	150	**87**	300
85	200	**88**	350

Stainless Steel



Unit: Per Piece

Unit Per Pc.

CODE	Length mm	CODE	Length mm
79 48 05	100	**79 48 08**	350
06	150	**09**	400
89	200	**97**	450
07	250	**10**	500
90	300		

Unit: 100's/Packet

Unit Per Pkt

CODE	Length mm	CODE	Length mm
79 48 22	100	**79 48 27**	350
23	150	**28**	400
24	200	**29**	450
25	250	**30**	500
26	300		

Cable Tie Gun for Stainless Steel

Herramienta de instalación de bridas de acero inoxidable
ステンレス結束バンド取り付け工具　不锈钢电缆扎带安装工具

A specialized tool to fasten durable stainless steel ties easily and safely. Designed to provide more efficient way of installing stainless steel cable ties with secure and tight grip than manual methods.



79 48 40	Cable tie gun for stainless steel cable tie	Pc.

Antenna Cable Insulators

Aislador de Cable de Antena　アンテナ碍子　天线绝缘子

Duralex glass or porcelain insulators specially designed for ship antennas.



Type A　Type B　Type C　Type D

How to order: CODE

Antenna cable insulator, TYPE, MATERIAL, SIZE

Unit Per Pc.

CODE	Type	Material	Size mm	
			L	φ
79 48 61	A	Porcelain with Galv. Iron	350	30
62		Duralex Glass with Brass		
79 48 63	B	Porcelain	270	60
64			350	90
79 48 65	C		190	50
66			250	55
79 48 67	D		-	75
68				100

Alligator Clips

Pinza Cocodrilo　ワニ口クリップ　鳄鱼夹

Plastic covered strong spring clips for wires, etc. Specify the overall length and the colour of the plastic cover, black or red.



A-Type　B-Type

How to order: CODE

Alligator clip, TYPE, OVERALL LENGTH mm, COLOUR

Unit Per Pc.

A-Type		B-Type	
CODE	Overall Length mm	CODE	Overall Length mm
79 48 81	34	**79 48 84**	62
82	50	-	-
83	73	-	-

Banana Pin Plugs

Puntas para Multimetro Tipo "Banana"　バナナチップ　栓塞

Coloured plastic with a chromed brass pin. The pin diameter is 4.5 mm. Available in red, black, green, white, yellow and blue, specify when ordering.



Unit Per Pc.

CODE	Colour	CODE	Colour
79 48 91	Red	**79 48 94**	White
92	Black	**95**	Yellow
93	Green	**96**	Blue

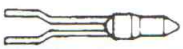
19. Solders

Quick Rechargeable Soldering Irons

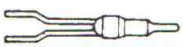
Soldadores Eléctrico Recargables
充電式コードレス半田ゴテ　快充电式电烙铁



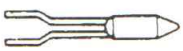
A cordless portable soldering iron heated by a nickel cadmium 2.5V rechargeable battery. About 200 soldering jobs can be performed at one time in one hour of quick charging. Separate battery charger operates charging automatically when the iron is placed on it. The pilot lamp of the iron helps when working in dark places. A set includes a charger and two fine tips (No. 7545, No. 7577). For further information, please write or ask for a catalogue.



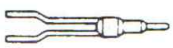
(30W) No. 7535-Regular Tip



(30W) No. 7545-Fine Tip



(60W) No. 7546-Heavy Tip



(20W) No. 7566-Micro Tip

Unit Per Pc.

CODE	Description	Unit
79 50 01	Cordless soldering iron Model No. 7800 with charger AC 110V and 2 spare tips	Set
79 50 02	Spare Tip No. 7535 Regular	Pc.
03	Spare Tip No. 7545 Fine	Pc.
04	Spare Tip No. 7546 Heavy	Pc.
05	Spare Tip No. 7566 Micro	Pc.
79 50 06	Charger Ac 110V	Pc.

Electric Soldering Irons

Soldadores Eléctricos　半田こて　电烙铁

Nickel chromed replaceable elements, insulated with mica and protected by a rugged outer housing. Replaceable tips.



I-Round



J-Round



I-Flat



SG



L-Flat

AC 110V

How to order: CODE

Soldering iron, electric, 110 volt, TYPE, WATTAGE

Unit Per Pc.

CODE	Watts	Top Size mm	Overall Length mm
		110V I-Round	
79 50 11	15	4 × 76	230
12	30	5 × 81	230
13	60	7 × 110	410
14	80	7 × 110	430
15	100	9 × 110	345
16	150	13 × 115	350
17	200	16 × 125	365
18	300	19 × 135	375
		110V I-Flat	
79 50 21	150	8 × 33 × 110	330
22	200	8 × 33 × 110	330
23	300	15 × 35 × 115	350
24	500	18 × 40 × 150	430
		110V J-Round	
79 50 26	100	9 × 125	340
27	150	13 × 130	340
28	200	16 × 145	340
29	300	19 × 150	360
		110V L-Flat	
79 50 31	150	7 × 31 × 70	320
32	200	7 × 31 × 70	320
33	300	15 × 35 × 75	335
34	500	19 × 41 × 90	420
		110V SG	
79 50 36	30	1.0 × 25	200
37	51	1.8 × 37	245

(to be continued)

AC 220V

How to order: CODE

Soldering iron, electric, 220 volt, TYPE, WATTAGE

Unit Per Pc.

CODE	Watts	Top Size mm	Overall Length mm
		220V I-Round	
79 50 51	30	5 × 81	230
52	60	7 × 110	308
53	80	7 × 110	308
54	100	9 × 110	345
55	150	13 × 115	350
56	200	16 × 125	365
57	300	19 × 135	375
		220V I-Flat	
79 50 61	150	8 × 33 × 110	330
62	200	8 × 33 × 110	330
63	300	15 × 35 × 115	350
64	500	18 × 40 × 150	430
		220V J-Round	
79 50 66	100	9 × 125	340
67	150	13 × 130	340
68	200	16 × 145	340
69	300	19 × 150	360
		220V L-Flat	
79 50 71	150	7 × 31 × 70	320
72	200	7 × 31 × 70	320
73	300	15 × 35 × 75	335
74	500	19 × 41 × 90	420
		220V SG	
79 50 76	30	1.0 × 25	200
77	51	1.8 × 37	245

Electric Soldering Iron Elements

Repuestos para Soldador Eléctrico
半田こてヒーター　电烙铁铁芯



Replacement spare heaters for the aforementioned electric soldering irons.

How to order: CODE

Element for electric soldering iron, VOLTAGE, TYPE, WATTAGE

Unit Per Pc.

CODE 110V	Watts	Size mm	CODE 220V
		I-Round	
79 51 01	15	12 × 77	**79 51 31**
02	30	12 × 83	**32**
03	60	16.5 × 70	**33**
04	80	16.5 × 70	**34**
05	100	25.5 × 80	**35**
06	150	25.5 × 80	**36**
07	200	32 × 90	**37**
08	300	32 × 80	**38**
		I-Flat	
79 51 11	150	98 × 29 × 2	**79 51 41**
12	200	68 × 29 × 2	**42**
13	300	75 × 33 × 2.5	**43**
14	500	95 × 38 × 3	**44**
		J-Round	
79 51 16	100	25.5 × 80	**79 51 46**
17	150	25.5 × 80	**47**
18	200	32 × 90	**48**
19	300	35 × 90	**49**
		L-Flat	
79 51 21	150	68 × 29 × 2	**79 51 51**
22	200	68 × 29 × 2	**52**
23	300	75 × 33 × 2.5	**53**
24	500	95 × 38 × 3	**54**

Resin Cored Soldering Wire

Hilo Estaño para Soldar　やに入り糸半田　樹脂心焊丝

Ready for use soldering wire with resin core. 450 grm spooled.



79 51 70	Soldering wire resin coped, 450 grm	Spl.

Soldering Bars

Barras Estaño-Plomo para Soldar　棒半田　焊棒

For general soldering work. Contains 50 percent tin and lead.



79 51 72	Soldering bar	Kgs.

Soldering Paste

Pasta para Soldar　半田ペースト　焊膏

Paste flux for all metals except aluminium. Takes the place of acid in all soldering jobs. Supplied in 50 grm tins.

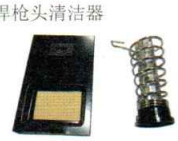


79 51 74	Soldering paste 50 grm	Tin

Soldering Iron Tip Cleaners

Limpiador Portasoldador　こて先クリーナー　焊枪头清洁器

For removing oxide and cleaning soldering iron tips. Size : 110 x 75 x 25 mm.



79 51 76	Tip cleaner for soldering iron	Pc.

Desoldering Guns

(Solder Suckers)

Desoldador con Bomba　半田吸取器　去焊枪

Hand operated high power suction cleaner ideal for electronic printed circuit board repairing. Overall length 215 mm. Inside diameter of the nozzle is 3 mm.



Desoldering Gun



Spare Nozzle

79 51 78	Desoldering gun vacuum suction type	Pc.
79 51 79	Spare nozzle for desoldering gun	Pc.

20. Electrical Insulation Materials

Ebonite Solid Bars

Barras Maciza de Ebonita　エボナイト棒　硬橡胶棒

Standard length is one meter.



Unit Per Mtr.

CODE	Diam. mm	CODE	Diam. mm	CODE	Diam. mm
79 53 01	8	**79 53 09**	22	**79 53 17**	40
02	10	**10**	25	**18**	45
03	12	**11**	26	**19**	50
04	13	**12**	28	**20**	55
05	15	**13**	30	**21**	60
79 53 06	16	**79 53 14**	32	**79 53 22**	65
07	18	**15**	35		
08	20	**16**	38		

Ebonite Sheets

Planchas de Ebonita　エボナイト板　硬橡胶板



Standard size is 600 x 900 mm. Furnished either full sheet or small cut as required.

How to order: CODE

Ebonite sheet, 600 x 900 mm, THICKNESS mm

Unit Per Sht.

CODE	Thick mm	CODE	Thick mm	CODE	Thick mm
		600 × 900 mm			
79 53 31	3	**79 53 36**	11	**79 53 41**	25
32	5	**37**	13	**42**	30
33	6	**38**	15		
34	8	**39**	18		
35	10	**40**	20		

Bakelite Solid Bars

Barras Maciza de Baquelita
ベークライト棒　硬胶木棒

Standard length is one meter.



Unit Per Mtr.

CODE	Diam. mm	CODE	Diam. mm	CODE	Diam. mm
79 53 51	8	**79 53 59**	22	**79 53 67**	40
52	10	**60**	25	**68**	45
53	12	**61**	26	**69**	50
54	13	**62**	28	**70**	55
55	15	**63**	30	**71**	60
79 53 56	16	**79 53 64**	32	**79 53 72**	65
57	18	**65**	35		
58	20	**66**	38		

Bakelite Sheets

Planchas de Baquelita　ベークライト板　胶木板



Standard size is 1,000 x 1,000 mm.

How to order: CODE

Bakelite sheet, 1,000 x 1,000 mm, THICKNESS mm

Unit Per Sht.

CODE	Thick mm	CODE	Thick mm	CODE	Thick mm
79 53 81	0.5	**79 53 87**	6	**79 53 93**	20
82	1	**88**	8	**94**	25
83	2	**89**	10	**95**	30
84	3	**90**	12	**96**	40
85	4	**91**	15	**97**	45
79 53 86	5	**79 53 92**	18	**79 53 98**	50

Insulation Paper

Planchas Cartón Aislante　コイル絶縁紙　绝缘纸

Made from 100 % craft pulp for the insulation of electrical instruments. Available in thicknesses from 0.05 to 0.5 mm. Standard width is 450 mm, supplied in rolls of 20 meters.



Unit Per Mtr.

CODE	Thick mm	Wiidth mm	CODE	Thick mm	Wiidth mm
79 54 01	0.05		**79 54 06**	0.18	
02	0.08		**07**	0.25	
03	0.10	450	**08**	0.38	450
04	0.13		**09**	0.50	
05	0.15				

Artificial Mica Sheets

Planchas de Mica Artificial

人工マイカ板　人工云母片



Size for all sheets is 450 x 900 mm.

Unit Per Sht.

CODE	Thickness mm	CODE	Thickness mm
79 54 11	0.5	**79 54 14**	1.6
12	0.8	**15**	2.0
13	1.0		

Insulating Mats from Rubber

Alfombrillas aislantes de goma　ゴム絶縁マット　橡胶绝缘垫

A rubber insulating mat for added protection when working live or close to live parts. Fully insulating to reduce risk of short circuit up to AC 1,000V and DC 1,500V. Insulation standard: IEC 61112 DIN EN 61112.



Unit Per Sht.

CODE	Size mm	Thick mm	Weight
79 54 16	500 × 500		301 grm
17	1,000 × 1,000	1.0	1.2 kg
18	10,000 × 1,000		12 kg

Ref. Knipex No. 98 67 05 / 98 67 10 / 98 67 15

Insulation Tapes

Cintas Aislantes　絶縁テープ　绝缘胶带

Cotton

Cintas de Algodón Aislantes　綿テープ　棉絶緣帶

For use in general insulation applications. 25 mtr roll.



Unit Per Spl.

CODE	Width mm	Meter Per Spool	CODE	Width mm	Meter Per Spool
79 54 21	13	25	**79 54 23**	25	25
22	19	25	**24**	32	25

Mica

Cintas de Mica Aislantes　マイカテープ　雲母絶縁帶

For electrical and heat insulation. 25 mtr roll, 19 mm width.



79 54 27	Tape, mica, insulation, 19mm × 25mtr	Rls.

PVC

Cintas de PVC Aislantes

ビニールテープ　P. V. C. 絶縁帶

For electrical insulation in domestic and industrial installations, binding, pipe lagging, etc. Available in white, black, blue, red, yellow, green, yellow/green, grey and brown colours. 20 mtr per roll.



Unit Per Spl.

CODE	Width mm	Meter Per Spool (mtr)	CODE	Width mm	Meter Per Spool
		Black			
79 54 33	19	10	**79 54 32**	50	20
79 54 31	19	20			
		White			
79 54 10	19	10	**79 54 20**	50	20
79 54 19	19	20			
		Blue			
79 54 25	19	10	**79 54 28**	50	20
79 54 26	19	20			
		Red			
79 54 29	19	10	**79 54 34**	50	20
79 54 30	19	20			
		Yellow			
79 54 35	19	10	**79 54 38**	50	20
79 54 37	19	20			
		Green			
79 54 39	19	10	**79 54 43**	50	20
79 54 40	19	20			
		Yellow-Green			
79 54 44	19	10	**79 54 46**	50	20
79 54 45	19	20			
		Grey			
79 54 47	19	10	**79 54 49**	50	20
79 54 48	19	20			
		Brown			
79 54 50	19	10	**79 54 60**	50	20
79 54 59	19	20			

Rubber

Cintas de Goma Autosoldable　ゴム絶縁テープ　橡胶絶緣帶

High dielectric strength, moisture proof, water proof, weather resistant, acid and alkali resistant, non corrosive, low temperature resistant, age resistant. For use in the splicing and termination of rubber and plastic insulated cable.



79 54 36	Rubber insulation tape, 20 mm x 10 mtr	Rls.

Empire

Cintas Aislantes de Lino
リノテープ　油布絶縁帯



Varnished empire or lino tapes for insulation. 60 mtr roll, if not specified 19 mm width will be furnished.

Unit Per Spl.

CODE	Width mm	Meter Per Spool	CODE	Width mm	Meter Per Spool
79 54 41	19	60	**79 54 42**	25	60

Electric Teflon Tapes

Cintas Aislantes (Eléctrico) de Teflón
電気用テフロンテープ　电气用特氟隆绝缘带



All purpose insulation tape for electrical installations, i.e. condensers, alternators, etc. Tapes wider and thicker than those listed below are available upon request.

How to order: CODE

Electric teflon tape, WIDTH, THICKNESS mm

Unit Per Rls.

CODE	Thick mm	Meter Per Roll	CODE	Thick mm	Meter Per Roll
79 54 51	0.10		**79 54 61**	0.10	
52	0.13		**62**	0.13	
53	0.18	10	**63**	0.18	10
54	0.20		**64**	0.20	
55	0.25		**65**	0.25	
79 54 56	0.30		**79 54 66**	0.30	
57	0.40	10	**67**	0.40	10
58	0.50		**68**	0.50	

Electric Sleeve Tubes

Tubos Aislante (Empire, P.V.C., Cristal)　チューブ　电气套管



Varnished cloth rolled tube (empire tube) length 1 mtr. P.V.C. vinyl tube in various colours. Length 50 mtrs. Glass tube white colour, Length 1 mtr.

How to order: CODE

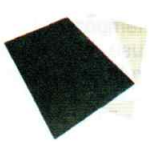
Electric sleeve tube, KIND of TUBE, INSIDE DIAM mm

Unit Per Mtr.

Empire Tube		PVC Tube		Glass Tube	
CODE	Inside Diam. mm	CODE	Inside Diam. mm	CODE	Inside Diam. mm
79 54 71	1	**79 54 81**	1	**79 54 91**	2
72	3	**82**	3	**92**	4
73	5	**83**	5	**93**	6
74	7	**84**	7	**94**	8
75	9	**85**	9	**95**	10
79 54 76	11	**79 54 86**	11		
77	13	**87**	13		
78	15	**88**	15		

Heat Release Silicone Rubber Sheet

Hoja de caucho de silicona de liberación de calor
熱放射シリコンシート　热辐射硅片



An adhesive silicone rubber sheet to release heat from heat-generating devices such as control panels or other electrical devices efficiently without power consumption. Suitable for electronic substrates that cannot use heat sink, just put it on electrical systems to prevent overheating. It helps not only saving electricity consumption but also improving the usage environment and extending its operation life. It is made with 3 layers (heat releasing lamia, aluminum lamia, heat conduction lamia) and available in 3 colours (white, black, ivory).

Specification and Characteristic

Material	Silicon Rubber
Purposes	Control Panel, Server, etc.
Thickness	30 µm (heat releasing lamina) 30 µm (aluminum lamina) 30 µm (heat conduction lamina)
Heat Emissivity	0.85<
Thermal Conductivity	0.7 (W/m·K)

Unit Per Sht.

CODE	Colour	Size
79 54 69	Black	200 × 300 mm
70		300 × 1,000 mm
79 54 79	White	200 × 300 mm
80		300 × 1,000 mm
79 54 89	Ivory	200 × 300 mm
90		300 × 1,000 mm

Heat Shrink Plastic Tubing

Tuberías de plástico de encogimiento por calentamiento
ヒートシュリンクチューブ　热收缩套管



Used to insulate wires, or to bundle them together, providing abrasion resistance and environmental protection for stranded and solid wire conductors, connections, joints and terminals in electrical work. Shrink tubing will shrink one half of its nominal diameter, and less than 7% of its length, when heated.

Please specify colour of tubing, with nominal size, finish length, material of tubing.

Nom. Size	Min. Expanded I.D.	Max. Recovered I.D.	Nom. Size	Min. Expanded I.D.	Max. Recovered I.D.
3/64	0.046" (1.17mm)	0.023" (0.058mm)	1/2	0.500" (12.70mm)	0.250" (6.35mm)
1/16	0.063" (1.60mm)	0.031" (0.079mm)	3/4	0.750" (19.05mm)	0.375" (9.53mm)
3/32	0.093" (2.36mm)	0.046" (1.17mm)	1	1.00" (25.40mm)	0.500" (12.70mm)
1/ 8	0.125" (3.18mm)	0.062" (1.57mm)	1-1/2	1.500" (38.10mm)	0.750" (19.05mm)
3/16	0.187" (4.75mm)	0.093" (2.36mm)	2	2.000" (50.80mm)	1.00" (25.40mm)
1/ 4	0.250" (6.35mm)	0.125" (3.18mm)	3	3.00" (76.20mm)	1.50" (38.10mm)
3/ 8	0.375" (9.53mm)	0.187" (4.75mm)	4	4.00" (101.60mm)	2.00" (50.80mm)

How to order: 79 - 54 - 96

Tubing, heat shrink, plastic, NOMINAL SIZE, FINISH LENGTH, COLOUR (mtr)

Insulation Putty

(Neoseal)

Masilla Dieléctrica　絶縁パテ　绝缘油泥



An insulation sealing compound called "Neoseal". This is a common solution for sealing cable entrances through walls or floors...terminal boxes. Furnished in 1 kg pkt.

79 55 01	Putty insultion 1 kg	Pkt.

Electric Contact Restorer

Restaurador Contacto Eléctrico　接点復活剤　电接点还原剂

Used for electrical machinery. Cleans contact points with a protective oil film and immediately restores long-lasting, good contact. (Do not apply to relay contacts.) Contains no CFC's (Chlorofluorocarbons).

Unit Per Tin

CODE	**79 55 05**	**79 55 06**
grm	157	250

Electric Contact Relay Cleaners

Limpiadores Contacto Eléctrico "Contact Cleaner"
リレークリーナー　电气接点清洁剂

Cleaner for relay contacts. Simply spray it on contact points. It dissolves and removes film and dirt, to ensure reliable contact. Does not affect metals or resin. Contains no CFC's (Chlorofluorocarbons).

Unit Per Tin

CODE	**79 55 10**	**79 55 11**
grm	100	260

Electrical Industry Formula

Fórmula de Industrial Eléctrico Limpiador
"CRC" 2-26 フォーミュラ　电气工业配方



Prevents malfunction due to the deteriorating effects of moisture and corrosion; extends operational life and reduces down-time and maintenance. Displaces moisture, lubricates and penetrates. Restores and maintains the resistivity of insulating material and improves the conductivity of contacts, commutators, etc. 16 oz aerosols.

45 05 91	Electrical industry formula CRC 2-26, 16 oz tin	Tin

Insulation Varnishes

Barnices Aislantes　絶縁ニス　绝缘漆

For general use with insulation or electrical apparatus. Red and clear types available. Furnished in 300 cc spray tins or 4 ltr liquid cans.

How to order: CODE

Insulation varnish, COLOUR, CONTENTS

CODE	Colour	Contents	Unit
79 55 21	Clear	Spray, 300 cc	Tin
79 55 22		Liquid, 4 ltr	Can
79 55 23	Red	Spray, 300 cc	Tin
79 55 24		Liquid, 4 ltr	Can

Electric Insulation Rubber Gloves

Guantes Aislante Eléctrico de Goma
絶縁ゴム手袋　电气绝缘橡皮手套



Rubber gloves with high dielectric strength.

Unit Per Pr.

CODE	Available to	Tested to
79 55 31	600V	3,000V
32	7,000V	20,000V

21. Megaphones & Loud Speakers

Power Megaphones

Megáfonos Powere　パワーメガホン　Powere 扩音器

High power transistor megaphone for use with R14P (C) or R6P(AA) dry batteries. Megaphones have a well balanced, snug fitting pistol grip. Audible range is approx. 250 mtr or more (JEITA, EIAJ TT-4501A). Dry batteries are sold separately.



79 57 01　79 57 02 w/Siren　79 57 03 w/Whistle　79 57 04

How to order: CODE

Megaphone, power, RATED OUTPUT POWER, FUNCTION

Unit Per Pc.

CODE	Rated Output Power	Batteries	Audible Distance (JEITA)	Size mm Diam.× Length	Funcion
79 57 01	6W	R6P(AA) × 6	Voice: 250 mtr	154 × 250	-
02	6W	R6P(AA) × 6	Voice: 250 mtr Siren: 315 mtr	154 × 250	w/Siren
03	6W	R6P(AA) × 6	Voice: 250 mtr Siren: 315 mtr	154 × 250	w/Whistle
04	15W	R14P(C) × 6	Voice: 315 mtr	210 × 346	-

Reflex Horn Speakers

Altavoces reflex de bocina
リフレックスホーンスピーカー　反射式号角扬声器

Aluminium alloy made loud speakers for fixed installation. Its external speaker component finished with powder coating ensure the unit's weatherproof capability. Large input type speakers as well as spark proof speakers not listed here are also available if required.



79 57 11　79 57 12　79 57 13　79 57 14

Unit Per Pc.

CODE	Rated Input Power Watts	OHM At Rated Input Power	Mouth Diam. mm	Material
79 57 11	5	2,000	172	Alum. Alloy, Stainless steel
12	10	1,000	172	
13	15	670	400	Alum. Alloy, Steel
14	30	330	500	

22. Test Instruments

Circuit Testers

Comprobador de Corriente　サーキットテスター　电路探测器

Industrial quality tester for safe, easy testing of electrical circuits, spark-plugs, motors, fuses, etc. A built in neon lamp glows if the circuit is in order.



Twin Lead

Pencil

Unit Per Pc.

CODE	Type	Voltage
79 57 21	Twin Lead	80 - 550
22	Pencil	80 - 600

Clamp Meters

Pinzas Volti-amperimétricas
クランプメーター　夾式仪器



Generally a current is measured by closing the clamp meter jaws over the conductor. The specially shaped mating heads of the clamp form a closed magnetic circuit with the cable passing through it.

Unit Per Set

CODE	79 57 30	
Model	DCM60R	
True RMS	Yes	
ACA	199.9/600A	±(2.0% + 5) 50-60Hz ±(2.9% + 5) 60-400Hz
ACV	199.9/600V	±(1.5% + 5) 50-400Hz
Ω	199.9Ω	±(1.9% + 3)
Continuity	Buzzer sounds at less than 100Ω	
Clamp Diameter/ Conductor Size	25 mm / 10 x 30mm	
Withstand Voltage	Less than AC 3,700 Vrms (Root Mean Square)	
Power Source	R-03 (UM-4 or AAA) 1.5V x 2 pc	
Size / Weight	L187 x W50 x H29mm / 210 grm	
Name of Mfr.	Sanwa Electric Instrument Co., Ltd.	

Unit Per Set

CODE	79 57 31	
Model	DCM400	
ACA	40/400A	±(1.9% + 5) 50-500Hz ±(2.5% + 5) 60-500Hz
ACV	400 / 600V	±(1.5% + 5) 50-500Hz
DCV	400 / 600V	± (1% + 2)
Ω	400Ω	
Frequency (A)	20 - 4k/10k Hz	± (0.1% + 1)
Frequency (V)	4k/40k/400k/ 1 MHz	
Continuity	Buzzer sounds at less than approx 40Ω	
Clamp Diameter/ Conductor Size	25 mm / 10 x 34mm	
Withstand Voltage	Less than AC 3,700 Vrms (Root Mean Square)	
Power Source	R-03 (UM-4 or AAA) 1.5V x 2 pc	
Size / Weight	L193 x W50 x H28mm / 230 grm	
Name of Mfr.	Sanwa Electric Instrument Co., Ltd.	

Unit Per Set

CODE	79 57 33
Model	376
True RMS	Yes
Current AC via jaw	0.1 – 999.9A
Voltage AC via iFlex™	0.1 – 2,500V
Voltage AC	0.1 - 1,000V
Voltage DC	0.1mV – 1,000V
Resistance	0.1 – 60,000Ω
Continuity	Less than 30Ω
Jaw Opening	34 mm
Power Source	R6P (UM-3 or AA) 1.5V × 2 pc
Size mm	L249 × W85 × H45
Weight	395 grm
Name of Mfr.	Fluke (U.K.) Ltd.

Remark : RMS denotes Remote Mean Square.

Avo Meters

(Testers)

Multimetros　回路計　万用表

These are matched, portable instruments; highly accurate for industrial electricity testing. They are designed to meet the requirements of most industrial test situations.

Carrying cases are available for all models. The specifications listed below are for your reference.



SP-18D



YX-361TR



CX-506a

How to order: CODE

Avo meter, TYPE, MEASURING RANGE of DCV, ACV, DCA, ACA with MANUFACTURER'S NAME & MODEL

Unit Per Set

CODE		79 57 41	79 57 42	79 57 44
Model		SP-18D	YX-361TR	CX-506a
Type		Drop shock proof	Zero center & continuity LED	Universal polarity switching
Measuring Range	DCV	300m (5kΩ/v) 3/12/ 30/120V/600V. (20kΩ/V) ± 3% f.s.	0.1/0.5/2.5/ 10/50/250/1,000V (20kΩ/V) ±2.5% f.s. 25kV(w/HV probe)	120m (4kΩ)±4%f.s. 3/12/30/ 120/300 (50kΩ/V) 1,000V (15kΩ/V) ±2.5%f.s.
	ACV	12/30/120/300/ 600V (9kΩV) ± 3% f.s.	2.5/10V ± 4% f.s. 50/250/1,000V (9kΩ/V) ± 3% f.s.	3/12V±4%f.s. 30/120/300/ 750V (8kΩ/V) ± 3% f.s.
	DCA	60μ/30m/0.3A ± 3% f.s.	50μ/2.5m/25m/ 0.25A(250mV) ± 2.5% f.s.	30μ/0.3m±3%f.s. 3m/30m/0.3A ± 2.5% f.s.
	Ω	2k/20k/2MΩ ± 3% of arc. 200MΩ ± 5% of arc.	2k/20k/200k/2M/ 20MΩ ± 3% of arc.	5k/50k/500k/5M/ 50MΩ ±3% of arc.
Power Source		R6P (1.5V) × 2	R6P (1.5V) × 2, 6F22(9V) × 1	R6(1.5V) × 2, 6F22(9V) × 1
Size mm		159.5 × 129 × 41.5	150 × 100 × 37	165 × 106 × 46
Weight grm		320	290	370

Name of Mfr.: Sanwa Electric Instrument Co.,Ltd.

Compact System Digital Multi Testers

Multimetros Digitales　コンパクトシステムデジタルマルチテスター
简便数字多用电表

These compact system digital multi-testers cover all basic measuring functions of DC voltage, AC voltage, DC current, AC current and resistance.





79 57 54 / 79 57 55　　79 57 56

Unit Per Set

CODE	79 57 54	79 57 55	79 57 56
Model	CD771	CD772	CD800a
Type	4,000 count	AC True RMS & Wide current	4,000 count display
DCV	400mV 4/40/400/ 1,000V	400mV 4/40/400/ 1,000V	400mV 4/40/400/ 600V
ACV	4/40/400/ 1,000V	4/40/400/ 1,000V	4/40/400/ 600V
DCA	400μ/4,000μ/ 40m/400m/ 4/10A	400μ/4,000μ/ 40m/400m/ 4/15A	40m/400mA

(to be continued)

Unit Per Set

CODE	79 57 54	79 57 55	79 57 56
Model	CD771	CD772	CD800a
ACA	400µ/4,000µ/ 40m/400m/ 4/10A	400µ/4,000µ/ 40m/400m/ 4/15A	40m/400mA
Resistance	400/4k/40k/ 400k 4M/40MΩ	400/4k/40k/ 400k 4M/40MΩ	400/4k/40k/ 400kΩ 4M/40MΩ
Capacitance	50n/500n/5µ/ 50µ/100µF	50n/500n/5µ/ 50µ/100µF	50/500nF 5µ/50µ/100µF
Frequency	5/50/500/5k/ 50k/100kHz	5/50/500/5k/ 50k/100kHz	5Hz – 100kHz
Over Voltage Category	IEC61010 CAT.III 600V CAT.II 1,000V	IEC61010 CAT.III 600V CAT.II 1,000V	-
CE Mark	Applied	Applied	-
Power Source	R6P(1.5V)×2	R6P(1.5V) x 2	R6P(1.5V) x 2
Size mm	H166×W82× D44	H166xW82x D44	H176xW104x D46
Weight grm	360	360	340
Name of Mfr.	Sanwa Electric Instrument Co.,Ltd.		

Unit Per Set

CODE	79 57 60	79 57 67	79 57 68
Model	115	177	27II
Type	True RMS & 6,000 count	True RMS & 6,000 count	6,000 count & display mode
DCV	600mV 60/600V	600mV 6/60/600/ 1,000V	600mV 6/60/600/ 1,000V
ACV	600mV 6/60/600V	600mV 6/60/600/ 1,000V	600mV 6/60/600/ 1,000V
DCA	6A/10A continuous or 20A overload for 30 seconds maximum	60m/400mA 6A/10A	600µ/6,000µA 60mA/400mA/ 6A/10A
ACA	6A/10A continuous or 20A overload for 30 seconds maximum	60m/400mA 6A/10A	600µ/6,000µA 60mA/400mA/ 6A/10A
Resistance	600Ω 6k/60k/ 600kΩ 6M/40MΩ	600Ω 6k/60k/ 600kΩ 6M/50MΩ	600Ω 6k/60k/ 600kΩ 6M/50MΩ
Frequency	99.99/ 999.9Hz 9.999k/50kHz	99.99/ 999.9Hz 9.999k/ 99.99kHz	199.99/ 1999.9Hz 19.999/ 199.99kHz >200kHz
Capacitance	1,000nF 10µ/100µ/ 10,000µF	1,000nF 10µ/100µ/ 9,999µF	10/100nF 1/10/100µF 9,999µF
Safety Compliance	ANSI/ SA-S82.01-1988, CSA C22.2 No.231 and IEC 61010-1-95 Overvoltage Category III, 600V	ANSI/ISA-S82.02.01, CSA C22.2-1010.1, IEC 61010 to 1,000V Overvoltage Category III, 600V Overvoltage Category IV	IEC 1010-1 CAT III/MSHA Approved
Power Source	9V Alkaline battery	Alkaline battery	3 x AA battery
Size mm	H167xW96x D46	H185xW90x D43	H198xW100x D63.5
Weight grm	350	420	698.5
Name of Mfr.	Fluke (U.K.) Ltd.		

Solar-powered Digital Multi Testers

Multimetros Digitales, de Energía Solar
ソーラー式デジタルテスター　太阳能数字式多用途表



Pocket type and high performance, magnesium dioxide lithium secondary battery powered with amorphous solar battery to store solar energy.

Basic Futures:
3-3/4 digits 4,000 count / 0.7% best accuracy / Range hold / Auto power off (15 min.) / Low power ohm (input voltage 0.4V) at continuity range / Power saving design.

Specifications

Model	PS8a	
Type	Solor powered	
DCV	400m/4/40/400/500V	±(0.7%+3)
ACV	4/40/400/500V	±(2.3%+5)
Resistance	400/4k/40k/400k/4M/40MΩ	±(2.0%+5)
Continuity	Buzzer sounds at less than 10-120Ω	Open voltage 0.4V
Bandwidth	40 - 400 Hz	
Power Source	Amorphous solar battery + manganese dioxide lithium secondary battery	
Size mm	H115 × W57 × D18	
Weight grm	85	

Name of Mfr.: Sanwa Electric Instrument Co.,Ltd.

79 57 69	Digital multi tester, solar powered model PS8A	Pc.

Digital Multimeter

Multímetro digital
デジタルマルチメーター　数字万用表



Pocketable high performance digital multimeter that has accurate electrical measurements plus temperature, frequency and duty cycle. Also easy to use with gloves.

Basic Futures:
Ideal for Industrial / Commercial applications
600 V Cat III safety rating.
6,000 count white LED backlit display Over-voltage indicator
Diode test, data hod, Auto Power Off

Unit Per Set

CODE	79 57 70
Model	DMM2100
AC Voltage	750 V, accuracy ± (1.0%+3)
DC Voltage	1,000 V, accuracy± (0.5%+3)
AC/DC Current	0.1µA to 20A, accuracy ± (1.2%+3)
Resistance	0.1Ω to 60MΩ, accuracy, ± (1.5%+3)
Capacitance	0.001nF to 9.999mF, accuracy ± (5.0%+5)
Frequency	0.01Hz to 9.99MHz, accuracy ± (0.1%+2)
Duty Cycle	1% to 99%, accuracy ± (0.1%+2)
Temperature	20 to 1,000 °C, accuracy ± (2.5%+5)
Diode Test / Continuity	Yes
Battery	1.5V AA Battery x 2
Size / Weight	180 x 90 x 45 mm / 319 grm

Name of Mfr.: Acision

Insulation Testers

Medidor Aislamiento　絶縁抵抗計　电阻表

AC 0 – 600V

A solid state insulation tester. Constructed for the purpose of testing the insulation of household electrical appliances.



How to order: CODE

Insulation tester, AC 0 – 600V, TYPE with MANUFACTURER'S NAME & MODEL

Unit Per Set

CODE	79 57 71	79 57 72
Model	PDM509S	DM509S
Insulation Resistance	500V / 100MΩ	500V / 1,000MΩ
	0.05 - 0.1 - 50 -100MΩ	0.5 - 1 - 500 -1,000MΩ
ACV	0 - 600V	
DCV	0 - 60V	
Power Source	Alkaline battery 6LR61 (9V) x 1	
Size mm	H144 x W99 x D43	
Weight grm	310	
Name of Mfr.	Sanwa Electric Instrument Co., Ltd.	

Unit Per Set

CODE	79 57 74	79 57 75
Model	1503	1507
Insulation Test Range	0.1 - 2,000MΩ	0.01MΩ- 10GΩ
Insulation Test Voltage	500V / 1,000V	50V / 100V / 250V / 500V / 1,000V
ACV	0.1 - 600V	
DCV	0.1 - 600V	
Standards	ANSI/ISA 82.02.01 (61010-1) 2004, CAN/CSA-C22.2 No.61010-1-04, and IEC/EN 61010-1 2nd Edition	
Over Voltage Category	Category IV 600V	
Power Source	Alkaline battery LR6 (1.5V) x 4	
Size mm	H203 x W100 x D50	
Weight grm	550	
Name of Mfr.	Fluke (U.K.) Ltd.	

AC 2 – 600V

An all-transistor insulation resistance tester featuring simple push-button, operation. It has a voltmeter scale for measuring AC voltage in addition to insulation resistance. This portable instrument is used for insulation resistance measurement of electrical machines and devices, control and switching equipment, power line and cable wiring, as well as other applications.



How to order: CODE

Insulation tester, AC 2 – 600V/ohm rated with MANUFACTURER'S NAME & MODEL

Unit Per Set

CODE	79 57 76
Model	MY600
V/Ω Rated	50V/ 100MΩ 100V/ 200MΩ 125V/ 250MΩ 250V/ 500MΩ 500V/2,000MΩ 1,000V/4,000MΩ
Effective Measuring Range	0.1 – 4,000MΩ
ACV	2 - 600 V
DCV	2 - 600 V
Resistance	0-4,000Ω
Standards	EN61557 part1, 2, 4 and 10 EN61010 part 1
Over voltage category	CAT III 600V, CAT II 1,000V
Power Source	Alkaline battery LR6(1.5V) x 4
Size	156 x 97 x 46 mm
Weight	Approx. 490 grm
Name of Mfr.	Yokogawa Test & Measurement Corporation

Digital Type Insulation Testers

Medidor Aislamiento Digital　デジタル式絶縁抵抗計　数字式电阻表

Digital type insulation resistance tester.

Basic features:
Hot-line state (30V minimum) detection / large volt mark with the buzzer sound / Automatic data hold function / Bar graph just like analog meter / Large display with backlight.



How to order: CODE

Insulation tester, digital type, TYPE, VOLT/Ohm rated with MANUFACTURER'S NAME & MODEL

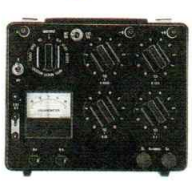
Unit Per Set

CODE	79 57 81
Model	MG500
MΩ	4M/40M/400M/4,000M ±(3%+4)
Test Voltage	500/250/125V
ACV/DCV	600V (AC/DC automatic detection) ±(3%+2)
Ω	4,000Ω (Buzzer and alarm indicator) ±(3%+3)
Ω	40Ω±(3%+10)
Battery	R6 × 6
Size mm	H170 × W142 × D57
Weight grm	600
Accessories	Test lead, Strap, Instruction manual

Name of Mfr.: Sanwa Electric Instrument Co.,Ltd.

Portable Wheatstone Bridges

Puente Portátil (Wheaststone) de Resistencias
ホイートストンブリッヂ 直流精密抵抗測定器
精密直流电阻测定器



Portable Wheatstone Bridge is convenient for use for general resistance measurement from 1Ω to 10Ω with 4 digit accuracy. The built-in galvanometer has taut-band suspension, minimizing the effects of shock.

Since the power source is self-contained, operation is easy and simple. The instrument can be used for field tests, maintenance, and other resistance type measurements.

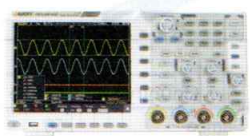
Specification

Measuring Range	1Ω to 10 Mohm in four digit reading
Minim. Division	0.001Ω
Accuracy	±0.1% 100Ω ~ 100 KΩ ±0.3% 10Ω ~ 1 MΩ ±0.6% 1Ω ~ 10 MΩ
Galvanometer Sensitivity	0.9 μA/div.
Power Source	3 × 1.5V R20 (UM-1) Dry Cell
Size	H182 × W226 × D128 mm
Weight	2 kg

79 58 01	Wheatstone bridge, portable 1Ω to 10MΩ	Set

Oscilloscopes

Osciloscopios　オシロスコープ　示波器



An oscilloscope is an electro precision test instrument for detailed observation of the desired portion of complex waveforms. Wide range of models from different manufacturers. An outline of the basic specifications to determine the types of the oscilloscope is listed below. Before ordering, please write for, or ask for a catalogue for further information.

1. Frequency band area : _____MHz
2. Sensitivity : _____mV/div. (1 div. = 10 mm)
3. Power source currency : Alternating current, or Direct current
4. Power source voltage : _____volt
5. Frequency : _____Hz (50 or 60)

How to order: 79 - 58 - 10

Oscilloscope, with further information as
(1) Frequency band area,
(2) Sensitivity,
(3) AC or DC,
(4) Power source voltage,
(5) Frequency, etc.

23. Ultrasonic Parts Cleaners

Ultrasonic Cleaning Equipment

Equipos de limpieza por ultrasonidos
超音波洗浄機　超声波清洁设备



It is difficult to remove for the dirt that builds up on cleaning equipment of a complicated design with manual labor.

This product removes the dirt clogging the metal filter by ultrasonic effect neatly quickly.

- The use of ultrasonic power is higher than conventional products therefore It cleans in a shorter time.
- The wave is uniform and prevents cleaning irregularities.
- The cleaning time can be set for various degrees of cleaning.
- There is a removable cleaning basket that makes cleaning easy.
- Its design has a protective lid and other safety devices.

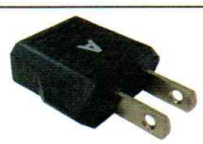
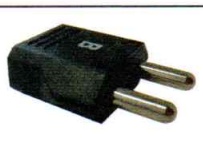
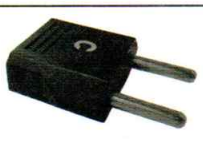
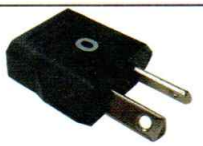
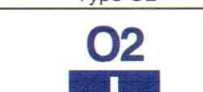
Unit Per Set

CODE	79 58 21	79 58 22
Power supply	AC 110 V, 50/60 Hz	AC 220V, 50/60 Hz
Ultrasonic power	480 W	
Power consumption	650 W	
Heater power	300 W	
Tank capacity	22 Ltr	
Cleaning time	Max. 20 minutes (1 minute increments)	
Operating environment temperature range	10–35 °C	
Material	Main body: Stainless steel SUS304 Tank: Stainless steel SUS304 Pipes, valves: Stainless steel SUS304 Panel: Polypropylene	
Ultrasonic frequency	38 kHz BLT self-oscillation	
Equipment dimensions	W568 × D365 × H284 mm	
Tank dimension	W498 × D295 × H150 mm	
Equipment weight	18 kg	

Note: This product is not designed for protection against explosion.

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Electricity of the World Principal Nation

Type A	Type B	Type C	Type O
			
			
Type SE	**Type BF**	**Type B3**	**Type O2**
			
			

Country	Cycle	Voltage	Plug Type
Asia			
Bangladesh	50Hz	230V	A/B/C/BF/B3
Bhutan	50	230	C
Brunei	50	240	BF/B3
Cambodia	50	120/220	A/C/BF
China	50	110/220	All Types
Hong Kong	50	200/220	B/C/BF/B3
India	50	115/230/240	B/C/BF/B3/SE
Indonesia	50	127/220/230	A/B/C/BF/B3/SE
Japan	50/60	100	A
Laos	50	220	A/C/SE
Macao	50	115/127/220	A/B/C/BF/B3/SE
Malaysia	50	240	B/C/BF/B3/SE
Maldives	50	220	B/C/BF/B3
Mongolia	50	220	B/C/B3/SE
Myanmar	50	230	B/C/BF/B3/SE
Nepal	50	115/220	A/B/C/BF/B3/SE
N.Korea	60	100/200/220	A/B/C/BF/B3/O/SE
Pakistan	50	230	A/B/C/B3
Philippines	60	120/230/240	A/B/C/B3/O
Singapore	50	115/230	B/C/BF/B3
S.Korea	60	220	C/SE
Sri Lanka	50	230	B/C/BF/B3
Taiwan	60	110/220	A/C/O
Thailand	50	220	A/B/C/BF/B3
Vietnam	50	110/220	A/C/BF/SE
Oceania			
Australia	50Hz	240/250V	O
Fiji	50	120/240	A/B/C/O
Guam	50	120/240	A/BF/O
Kiribati	50	240	BF/O
Marshall Islands	60	110/220	A/C/O
Micronesia	60	110/220	A/C/O
Nauru	50	240	O
New Caledonia	50	220	B/C/B3/O/SE
New Zealand	50	230/240	O
Niue	50	220	O
Palau	50	110/220	A/O
Papua New Guinea	50	240	O

Country	Cycle	Voltage	Plug Type
Samoa	50	230	O
Solomon Islands	60	240	B/B3/O
Tonga	60	240	O
Tuvalu	50	240	O
Vanuatu	50	240	C/B3/O
North America			
U.S.A.	60Hz	120V	A
Canada	60	120/240	A/BF
Europe			
Albania	50Hz	220V	C/SE
Austria	50	230	C/BF/B3/O/SE
Belarus	50	220	C
Belgium	50	127/230	A/B/C/SE
Bosnia & Herzegovina	50	220	C/SE
Bulgaria	50	110/220	A/C/SE
Croatia	50	220	C/SE
Cyprus	50	240	C/BF/B3
Czech	50	230	C/SE
Denmark	50	230	C
Estonia	50	127/220	A/C/SE
Finland	50	120/230	A/B/C/SE
France	50	127/230	A/C/O/SE
Germany	50	127/230	A/C/SE
Gibraltar	50	230/240	B/C/BF/B3
Greece	50	230	B/C/B3/SE
Greenland	50	220	C
Hungary	50	220	B/C
Iceland	50	230	B/C/SE
Italy	50	125/220	A/C/SE
Ireland	50	230	A/B/C/BF/B3/SE
Kazakhstan	50	127/220	A/C/SE
Latvia	50	127/220	A/C/SE
Lithuania	50	220	C
Luxembourg	50	120/220	A/C/SE
Macedonia	50	220	C/SE
Malta	50	240	B/C/BF/B3
Moldova	50	127/220	A/C/SE
Monaco	50	127/220	A/B/C/SE

Country	Cycle	Voltage	Plug Type
Montenegro	50	220	C/SE
Netherlands	50	230	B/C/SE
Norway	50	230	C/SE
Poland	50	220	B/C/B3
Portugal	50	230	B/C/BF/B3/SE
Romania	50	220	C/SE
Russia	50	127/220	A/B/C/SE
Serbia	50	220	C/SE
Slovakia	50	220	B/C/SE
Slovenia	50	220	C
Spain	50	127/220	A/C/SE
Sweden	50	230	B/C/SE
Switzerland	50	230	A/B/C/SE
Turkmenistan	50	127/220	A/C/SE
U.K.	50	230/240	B/C/BF/B3
Ukraine	50	127/220	A/B/C/SE
Uzbekistan	50	127/220	A/C/SE
Central/South America			
Antigua & Barbuda	50Hz	230V	C/BF/SE
Argentina	60	220	C/BF/O/SE
Bahamas	60	120/240	A/C/BF/SE
Balbados	50	110/120/200	A/B/BF/B3
Belize	60	120/240	A/C/BF/B3
Bolivia	60	110/220	A/C/SE
Brazil	60	110/127/220	A/C/SE
Cayman Islands	50	120/240	A/C/BF/B3
Chile	50	220	C/BF/B3/SE
Columbia	50	120	A
Costa Rica	50	120/240	A/C/BF/O/SE
Cuba	60	110/220	A/B/C/BF
Dominica	50	230	B/BF/B3
Dominican Republic	60	110/220	A/C/BF
El Salvador	60	110/220	A/BF/B3
Ecuador	60	115/120/220	A/C/B3/O
Grenada	50	230	C/BF
Guatemala	50	120/240	A/C/BF
Guyana	60	110/220	A/C/BF
Haiti	60	110/220	A/C/BF
Honduras	50	110	A
Jamaica	50	110/220	A/C/BF/B3
Mexico	50	120/127/230	A/C/SE
Nicaragua	60	120/240	A/BF
Panama	60	120/240	A/BF
Paraguay	50	220	A/C/SE
Peru	60	220	A/C/SE
Puerto Rico	60	120/240	A/C/BF
St. Christopher and Nevis	60	230	C/BF/B3
Saint Lucia	50	240	C/BF
Suriname	60	127	C/SE
Trinidad & Tobago	60	115/230	A/BF/O
Uruguay	50	220	C/BF/B3
Venezuela	60	120	A
Middle East			
Afganistan	50Hz	220V	B/C/B3/SE
Bahrain	50	110/230	A/BF
Iran	50	230	C/BF/SE
Iraq	50	220	B/C/BF/B3/SE
Israel	50	230	C/O/SE
Jordan	50	220	B/BF/B3
Lebanon	50	110/220	A/C
Oman	50	230	B/C/BF/B3
Qatar	50	240	BF
Quwait	50	240	B/C/B3/SE
Saudi Arabia	50	127/220	A/B/C/BF/B3/SE
Syria	50	220	B/C/B3/SE
Turkey	50	220	B/C/B3/SE
U.A.E.	50	220/240	B/C/BF/B3
Yemen	50	230	C/B3

Country	Cycle	Voltage	Plug Type
Africa			
Algeria	50Hz	127/220V	A/C/BF
Angola	50	220	B/C/B3
Benin	50	120/220	A/B/C/B3/SE
Botswana	50	220	B/C/BF/B3
Burkina Faso	50	220	B/C/SE
Burundi	50	220	B/C/B3/SE
Cameroon	50	127/220	A/C/BF
Canary Islands	50	127/220	A/C
Central Africa	50	220	B/C/B3/SE
Chad	50	220	C
Congo, Democratic Republic	50	220	C
Congo, Republic	50	220	B/C
Cote D'Ivoire	50	220	B/C/B3
Djibouti	50	220	C
Egypt	50	220	C/BF/B3/SE
Ethiopia	50	220	C
Gabon	50	220	C/BF/SE
Gambia	50	230	C/BF/B3
Ghana	50	220/230/240	C/BF/B3
Guinea, Republic	50	220	B/C
Guinea, Republic of Equatorial	50	220	B/C/BF
Kenya	50	240	B/C/BF/B3
Lesotho	50	220	C/B3
Liberia	50	120/240	A/C/B3/SE
Libya	50	127/230	A/C/B3
Madagascar	50	110/220	A/C/B3
Malawi	50	230	C/BF/B3
Mali	50	220	C/SE
Mauritania	50	220	C/SE
Mauritius	50	230	B/C/BF/B3/SE
Morocco	50	115/127/220	A/C/SE
Mozambique	50	220	C/B3/SE
Niger	50	220	B/C/B3/SE
Nigeria	50	230	B/C/BF/B3
Rwanda	50	110/220	A/C/SE
Saint Helena	50	240	C/BF/B3
Senegal	50	127/220	A/C/B3/SE
Seychelles	50	230	C/BF
Sierra Leone	50	230	B/C/BF/B3
Somalia	50	110/220/230	A/C/BF/B3
South Africa	50	220/230/250	B/C/BF/B3
Sudan	50	220/240	C/BF/B3
Swaziland	50	230	B/C/B3
Togo	50	220	B/C/BF
Tanzania	50	230	C/BF/B3
Tunisia	50	127/220	All Types
Uganda	50	240	C/BF
Zambia	50	230	B/C/BF/B3
Zimbabwe	50	220	C/BF/B3

Conversion Table

[Length]	m	km	in	ft	yd	mile
m	1	1×10^{-3}	39.37	3.28	1.093	6.214×10^{-4}
km	1×10^{3}	1	3.937×10^{4}	3,280	1,093	0.621
in	0.0254	2.54×10^{-5}	1	1/12	1/36	1.58×10^{-5}
ft	0.305	3.048×10^{-4}	12	1	1/3	1.894×10^{-4}
yd	0.914	9.144×10^{-4}	36	3	1	5.682×10^{-4}
mile	1,609	1.609	63,360	5,280	1,760	1

[Mass (Weight)]	g	kg	t	lb	oz
g	1	1×10^{-3}	1×10^{-6}	2.204×10^{-3}	0.0352
kg	1×10^{3}	1	1×10^{-3}	2.204	35.27
t	1×10^{6}	1×10^{3}	1	2,204	35,270
lb	453.6	0.4536	4.536×10^{-4}	1	16
oz	28.35	0.02835	2.835×10^{-5}	1/16	1

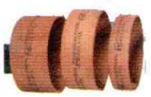
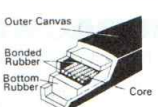
[Volume]	cm^3 (cc or ml)	m^3	l	in^3	qt	pt	fl-oz	ft^3	gal
cm^3 (cc or ml)	1	0.000001	0.001	0.061	0.00088	0.0018	0.035	-	0.00022
m^3	1,000,000	1	1,000	61,024	880	1,760	35,195	35.314	220
l	1,000	0.001	1	61.024	0.880	1.760	35.195	0.035	0.220
in^3	16.387	0.000016	0.016	1	0.014	0.029	0.577	0.00058	0.0036
qt	1,136.52	0.0011	1.137	69.355	1	2	40	0.033	0.25
pt	568	0.00057	0.568	34.677	0.5	1	20	0.017	0.125
fl-oz	28.413	0.000028	0.028	1.734	0.025	0.05	1	0.0008	0.00625
Ft^3	28,316	0.0283	28.316	1,728	29.922	59.844	958	1	7,481
gal	4,546	0.0045	4.546	277	4	8	160	0.134	1

[Pressure]	bar	kgf/cm^2	lbf/cm^2	mmHg (0°C)	Pa (SI)
bar	1	1.020	14.50	750.1	100,000
kgf/cm^2	0.9807	1	14.22	753.6	98,066
lbf/cm^2	0.0689	0.0703	1	51.72	6,895
mmHg (0°C)	0.00133	0.0013	0.0193	1	133.3
Pa (SI)	1×10^{-5}	1.02×10^{-5}	1.45×10^{-4}	10.2×10^{-4}	1

[Stress]	Pa (SI)	MPa	kgf/mm^2	kgf/cm^2
Pa (SI)	1	1×10^{-6}	1.01972×10^{-7}	1.01972×10^{-5}
MPa	1×10^{6}	1	1.01972×10^{-1}	1.01972×10
kgf/mm^2	9.80665×10^{6}	9.80665	1	1×10^{2}
kgf/cm^2	9.80665×10^{4}	9.80665×10^{-2}	1×10^{-2}	1

[Force]	kW	kgf · m/sec	HP
kW	1	102.0	1.341
kgf · m/sec	0.009807	1	0.01315
HP	0.7457	76.04	1

81
Packing Jointing

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Comparison Table of Packing Products

Tabla comparativa de Empaquetaduras

パッキング製品の比較表　密封制品厂商一览

Products from a few manufacturers are listed below for your reference. If there is some question as to what types of products are most suitable for the working conditions, please ask for further information or brochures from the local manufacturer when ordering.

In the table below, the products for each manufacturer are listed vertically according to the working conditions which are listed in the left hand column.

When ordering: Packing

1. Specify the name of the machine to be applied:Stern tube.
2. Specify the type of fluid to be applied: Sea water.
3. Specify the type of material : Non asbestos.
4. Select CODE: 81 13 02.
5. Select a manufacturer from the columns to the below: Beldam Crossley.
6. List the type number of the packing from the manufacturer: Pilotpack 5080.
7. Specify the size and length in meter per box: 3.0 mm × 15 mtr per box.

Comparison Table of Non-Asbestos Packing Products

Service	Machine		Beldam Crossley (UK)	James Walker (UK)	Vulcan Engineering (UK)	Alligator (The Netherlands)	Drew Marine (U.S.A.)	Garlock (U.S.A.)	Spitmaan (India)	Champion (India)	Pillar (Japan)
Stern Tube											
Sea Water	Stern Tube Rudder Post		Pilotpack 2010 **81 13 02 - 12** Pilotpack 5080	Fluolion Sturntite Sextant	VF4 VT2	Marpack PE 031 Marpack PE 044	AMERFLON SG AMERINE 400 AMERINE 2500 AMERPACK 1200	#5413 #98	#2224 #23	#2224 #2224	**81 02 21 - 35** #426F **81 03 81 - 95** #6501L
Pump											
Sea Water	Main & Aux. Circulating Pump Cooling Water Pump Bilge Ballast Pump Sanitary Pump Fire Pump General Service Pump		**81 13 02 - 12** Pilotpack 5080 Pilotpack 5035 Pilotpack 2010	Liongraf Duracom Fluolion Emulsion 2XA Fluograf	VT2 VK5 VF4	Marpack PE 031 Marpack PE 044	AMERPACK 1200 AMERINE 400 AMERINE 2500	#98 #5200 Pack-master 5	#3 #176 #2224	#36 #176 #2224	**81 03 81 - 95** #6501L **81 04 18 - 69** #4526L **81 04 72 - 86** #4536WL
Fresh Water Hot Water	Boiler Feed Pump Boiler Water Circulating Pump		Pilotpack 5020 Pilotpack 5035	Fluograf Supagraf Ribbonpak	VK4 VK5	Marpack PE 025 Marpack PE 031 Marpack PE 044	AMERPACK 1200	#1333-G #98	#174 #176	#36/668 #176	**81 04 18 - 69** #4526L **81 05 46 - 54** #6733
	Drain Pump Condensate Pump Auxiliary Machinery Cooling Pump		**81 13 02 - 12** Pilotpack 5080 Pilotpack 5035	Supagraf Ribbonpak Fluograf Liongraf	VT2 VK5	Marpack PE 025 Marpack PE 031 Marpack PE 044	AMERINE 400	#98 #1333-G	#23 #176	#36/668 #176	**81 03 81 - 95** #6501L
Oil	Lubricating Oil Pump Fuel Oil Transfer Pump Fuel Oil Booster Pump Fuel Oil Burning Pump Cargo Oil Pump		**81 13 02 - 12** Pilotpack 5080 Pilotpack 3435	Fluograf Fluolin Emulsion 2XA Liongraf Supeta XA	VT2 VP2	Marpack PE 022 Marpack PE 305	AMERPACK 1200	#98 or #88	#23 #36	#3 #36	**81 03 81 - 95** #6501L **81 04 72 - 86** #4536WL
Chemical	Chemical Transfer pump	pH 2-13	Pilotpack 4001	Fluolion Filament L Fluograf	VR3	Marpack PE 025 Marpack PE 027 Marpack PE 044 Marpack PE 702	AMERPACK 2400	AMERPACK 2400	#78	#668	**81 04 72 - 86** #4536WL **81 05 21 - 33** #4527L
		pH 0-14	Pilotpack 3435	Fluolion Filament L Fluograf Liongraf	VP2	Marpack PE 027 Marpack PE 702	AMERINE 1400 AMERFLON 2001	AMERINE 1400 AMERINE 2001	#36	#36	**81 05 21 - 33** #4527L
Deck Machine											
Steam	Winch Windlass		Pilotpack 4000	Supagraf Ribbonpak M	VR3	Marpack PE 022 Marpack PE 305	AMERINE 800 AMERPACK 1200	#1303-FEP	#80	#668 (I)	**81 13 61 - 75** #6315CH
Valve											
Steam	Saturated Steam Valve		Pilotpack 4000	Supeta XA	VR3	Marpack PE 022 Marpack PE 305	AMERINE 800	#1303-FEP	#80	#668 (I)	**81 13 61 - 75** #6315CH
	Superheated Steam Valve		Pilotpack 4000	Supagraf Ribbonpak M	VR3	Marpack PE 022 Marpack PE 305	AMERINE 800	#1303-FEP	#80	#668 (I)	**81 05 81 - 91** #6711
Fresh & Sea Water Oil Chemical	Water Valve Fuel Oil Valve Chemical Valve		Pilotpack 7000 Pilotpack 3435	Fluolion Emulsion 2XA, Fluograf, Liongraf Fluolion Filament D	VT5 VP2	Marpack PE 022 Marpack PE 305	AMERINE 800	#1303-FEP	#169 #36	#2300 #36	**81 13 61 - 75** #6315CH
LNG · LPG	LNG-LPG Valve		Pilotpack 3408 Pilotpack 4000	Fluolion Filament D	VT9-D VR3	Marpack PE 025 Marpack PE 027 Marpack PE 044 Marpack PE 702	AMERPACK 1200 AMERINE 800 COMBINA-TION SET	Garlock & 98 Combination set	#2 #80	#1 #668 (I)	**81 04 17** #6616CH **81 04 16** #6710CH
Cover											
Gas	Man Holes		Pilotpack 4000	PTFE	VR3	Marpack PE 025 Marpack PE 027 Marpack PE 044 Marpack PE 702	AMERINE 800	#1303-FEP	#80	#668 (I)	**81 05 81 – 91** #6711 **81 13 45** #6114-M

Packing Product Selection Charts

Object	Application			Principal Materials of Manufacture	Operating Conditions							Beldam Crossley Products
	Pumps		Valves		Shaft Speed m/s		Pressure in Bar			Max. Temp. Deg. C	pH Range	
	Rotary	Recip.			Rotary	Recip.	Rotary	Recip.	Valves			
Water	•	•	•	Flax, Graphite, Lubricants	8	2	20	40	70	120	5- 9	Pilotpack 76
	•	•	•	Flax, Mica, Lubricants	8	2	20	40	70	120	5- 9	Pilotpack 76
	•	•	•	Cotton, Lubricants	7	2	25	40	50	120	5- 9	Pilotpack 76
	•	•	•	Cotton, Graphite, Lubricants	7	2	25	40	50	120	5- 9	Pilotpack 116
	•	•	•	Flax, PTFE, Lubricants	10	2	20	40	70	120	5- 9	Pilotpack 2010
Solvents & Chemicals			•	Spirally wrapped PTFE cord	-	1	-	-	50	280	0-14	Pilotpack 3235
	•	•	•	PTFE filament yarn, PTFE	2	1	5	150	200	280	0-14	Pilotpack 3408
	•	•	•	PTFE filament yarn, PTFE, Lubricants	10	2	20	150	200	280	0-14	Pilotpack 3410
Water	•	•	•	PTFE, PTFE dispersion, Silicone	10	2	20	150	200	280	0-14	Pilotpack 3411
Solvents & Chemicals	•	•	•	Graphite impregnated PTFE, Lubricants	25	2	25	200	350	290	0-14	Pilotpack 3435
	•	•	•	Aramid, PTFE, Lubricants	20	2	20	200	250	300	2-13	Pilotpack 5020
Water	•	•	•	Ramie Yarn, PTFE Lubricants	11	1	20	70	100	140	2-12	Pilotpack 5020
Solvents & Chemicals	•	•	•	Aramid, Lubricants ePTFE graphited yarn	25	2	20	250	350	290	1-14	Pilotpack 5035
	•	•	•	Aramid, Lubricants Filament PTFE graphited yarn	25	2	20	250	350	300	1-14	Pilotpack 5080
Steam, Gas & Hot Water			•	BCX fibre, Inconel wire, Plastic core	-	1	-	120	170	540	3-14	Pilotpack 8300
	•	•	•	BCX fibre, Graphite, expanded Lubricants	10	1	10	70	100	400	3-12	Pilotpack 4001

All Graphite Ribbon Packings

for Valves

Empaquetadura de Cinta de Grafito para Válvulas
ピラーフォイルリボンパッキン
石墨带状阀用盘根



Performance:
Temperature
-200°C to 400°C

Pillar No. 6650

For high temperature & high pressure valves

Construction & Features:
Free-size packing of a tape shape made by corrugating both sides of all graphite sheet. It can be wound and formed in the stuffing boxes of any size of valve.

Applications:
For water, steam, oils, oil gas, solvents, heat transfer oil, LNG, strong acids and strong alkalis.

81 01 51	All graphite ribbon packing Pillar No.6650, 0.38 x 12.7 mm x 7.6 mtr	C/L
81 01 52	All graphite ribbon packing Pillar No.6650, 0.38 x 25.4 mm x 15.2 mtr	C/L
81 01 53	All graphite ribbon packing Pillar No.6650, 0.38 x 6.3 mm x 7.6 mtr	C/L

Ramie Fiber Braided Gland Packings

for Stern Tube

Empaquetadura de prensaestopas de fibra de ramio trenzada para bocinas
船尾管用ラミー繊維グランドパッキング
船舶尾管用苎麻纤维编织填料



Pillar No.426F

Structure and Features:
A gland packing made of braided hemp fibers impregnated with PTFE dispersion and white grease as lubricant.

Applications:
Ideal choice for sealing stern tube (low pressure sea water) and rubber stock. 426F can also be used for sealing rotating equipments and reciprocating equipments.

Performance:

Temperature	to 80°C
Pressure	to 0.6 MPaG (6.5 kgf/cm²)
Velocity	to 10 m/s
PV	to 3.4 MPaG · m/s (35 kgf/cm² · m/s)

Unit Per Box

CODE	Size mm	Length Per Box	CODE	Size mm	Length Per Box
81 02 21	3	20 mtr	**81 02 29**	16	
22	5	20	**30**	17.5	
23	6.5	20	**31**	19	3.6 mtr
24	8	3.6	**32**	20.5	
25	9.5	3.6	**33**	22	
81 02 26	11		**81 02 34**	24	
27	12.5	3.6 mtr	**35**	25.5	3.6 mtr
28	14.5				

Carbon Fiber Packings

Empaque de fibra de carbono　炭素繊維パッキン　碳纤维盘根

Pillar No. 6527L

A packing consisting of carbon fiber woven in interlocking braids and processed with a special lubricant.



Feature:
Excellent in heat resistance and chemical resistance and ideal for pumps and agitators

Applications:
Water, hot water, oil, solvent, strong acid, strong alkali, pumps, mixers

Performance: PH 0 to 14

Temp.	350°C
Pressure	1.6 MPa {16kgf/cm²}
Velocity	10 m/s
PV	value 9.8 MPa·m/s {100 kgf/cm²·m/s}

Unit Per Box

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
81 05 16	5		**81 05 63**	16	
81 05 17	6.5		**81 05 64**	17.5	
81 05 18	8		**81 05 96**	19	
81 05 19	9.5	3 mtr	**81 05 97**	20.5	3 mtr
20	10		**98**	22	
81 05 45	11		**81 05 99**	24	
61	12.5		**81 06 00**	25.5	
62	14.5				

Carbonized Synthetic Fiber Braided Versatile Gland Packings

for Rotating & Reciprocating Equipments and Valves

Envases de glándulas versátiles trenzados de fibra sintética carbonizada

万能炭化繊維グランドパッキン　万能碳化纤维编织填料

Pillar No. 6501L



An original gland packing made of braided carbonized synthetic fibers impregnated with micro PTFE dispersion and treated with lubricating oil to achieve superior, well-balanced performance in lubricity, flexibility and strength.

Feature:

Become a standard gland packing for the standard pumps due to its high performance such as low abrasion of the stem.

Applications:

Its versatile and high performance has made this gland packing a popular choice for use with many types of rotating equipments as well as reciprocating valves. It is also great for use with stern tubes and rudder stocks.

Performance:

Temperature	to 200°C (Over 80°C, external cooling required)
Pressure	to 1.0 MPaG (10 kgf/cm²)
Velocity	to 20 m/s
PV	to 9.8 MPaG · m/s (100 kgf/cm² · m/s).

Unit Per Box

CODE	Size mm	Length Per Box	CODE	Size mm	Length Per Box
81 03 81	3		**81 03 88**	14.5	
82	5		**89**	16	
83	6.5	3 mtr	**90**	17.5	3 mtr
84	8		**91**	19	
85	9.5		**92**	20.5	
96	10		**93**	22	
81 03 86	11	3 mtr	**81 03 94**	24	3 mtr
87	12.5		**95**	25.5	

Carbonized Fiber Braided Versatile Gland Packings

for Rotating & Reciprocating Equipments and Valves

Empaquetadura versátil trenzada de fibra carbonizada

炭化繊維パッキン　碳化纤维盘根

Pillar No. 6521L



A packing made of carbonized fiber which is impregnated with the PTFE resin liquid and interlocking braided into square and then impregnated with a special lubricant after.

Feature:

A sister product of Style 6501L, has further been improved in its pressure-proof property and has characteristics that its sealing property is less influenced by pressure fluctuation of pump and it is stable when used for a large-sized shaft.

Applications:

Water, hot water, oil, solvent, weak acid, weak alkali, pumps, mixers, sterntubes.

Performance:

Temperature	pH 2 to 12 200°C
Pressure	1.2 MPa {12.5 kgf/cm²}
Velocity	20 m/s
PV value	9.8 MPa·m/s {100 kgf/cm²·m/s}

Unit Per Box

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
81 03 97	5		**81 04 91**	16	
81 03 98	6.5		**81 04 92**	17.5	
81 03 99	8		**81 04 93**	19	
81 04 00	9.5	3 mtr	**81 04 94**	20.5	3 mtr
87	10		**95**	22	
81 04 88	11		**81 04 96**	24	
89	12.5		**97**	25.5	
90	14.5				

PTFE Fiber Braided Gland Packings

Empaquetaduras de prensaestopas trenzadas de fibra de PTFE

PTFE 繊維編組グランドパッキン　PTFE 纤维编织盘根

Pillar No. 4505L

Structure & Features:



A Square-braided packing consisting of PTFE (Polytetrafluoroethylene resin) fiber impregnated with PTFE dispersion and lubricant. It has good so solvent and chemical resistance.

Applications:

Solvents, strong acid, strong alkali, pumps, valves, mixers.

Performance:

pH	0 to 14
Temperature	-100 to 260°C (Over 80°C, external cooling required)
Pressure	to 1.0 MPaG (10 kgf/cm²). (in pumps) to 10.3 MPagG(106 kgf/cm²).(in valves)
Velocity	to 10 m/s
PV	to 4.9 MPaG · m/s (50 kgf/cm² · m/s)

Unit Per Box

CODE	Size mm	Length Per Box	CODE	Size mm	Length Per Box
81 04 01	3		**81 04 06**	11	
02	5		**07**	12.5	
03	6.5	3 mtr	**08**	14.5	3 mtr
04	8		**09**	16	
05	9.5		**11**	19	

Pillarfoil Braided Packings

Mark III Combi for High Temperature & Pressure Valves

Empaquetadura Trenzada Pillarfoil

ピラーフォイル編組パッキン　柱形箔编织盘根

Pillar No.6710CH



A Pillarfoil packing braid over braid, reinforced by NCF600 wire. Suitable used for adapter packings to combine with Pillar style 6616CH. When ordering, please specify outer dia size, inner dia size and height of the packing due to make to order.

Performance:

Temperature	-200 to 600°C (Maximum temperature in oxidizing atmosphere : 450°C)
Pressure	77.6 MPa {791 kgf/cm²} (ASME class 4500)

Application:
Water, Steam, Oil, Heat transfer oil, Solvent, Gas, Acid, Alkali, High pressure valves, Heat transfer oil valves, High pressure gas valves.

How to order: 81 - 04 - 16
Pillarfoil braided packing, Mark III Combi, Pillar style 6710CH, OUTER DIA, INNER DIA, HEIGHT in mm

Pillarfoil Packings
for High Pressure & High Temperature & Pressure Valves

Empaquetaduras de Pilar para válvulas de alta presión y alta temperatura y presión
高圧・高温・高圧バルブ用ピラーフォイル成型パッキン
用于高压和高温高压阀门 柱式盘根

Pillar No.6616CH



This is pure graphite wire mesh inserted, one cut type, high performance packing. Use style 6616CH in combination with style 6710CH.

Performance:

Temperature	-200 to 600° (Maximum temperature in oxidizing atmosphere : 450°C)
Pressure	77.6 MPa {791 kgf/cm²} Class 4500

Application:
High pressure & High temperature valves, LNG valves

How to order: 81 - 04 - 17
Pillarfoil packing, Pillar No. 6616CH, OUTER DIA, INNER DIA, HEIGHT in mm

High-Intensity Aramid Fiber Braided Gland Packings
for Slurry Pump

Empaquetadura de prensaestopas de fibra de aramida trenzada de alta intensidad para bombas de mezcla
高強度アラミド繊維グランドパッキン 高强度芳纶纤维编织填料

Pillar No. 4526L



Structure:
A braided packing made of highly resistant aramid fibers treated with PTFE dispersion and lubricant.

Feature:
The packing stay flexible thanks to the original interlocked braiding technology.

Applications:
An ideal choice for applications that require packings made of strong fibers, such as slurry pumps.

Performance:

Temperature	to 260°C (Over 80°C, external cooling required)
Pressure	to 1.6 MPaG (16 kgf/cm²)(in pump) to 10.3 MPaG(106 kgf/cm²)(in valve)
Velocity	to 16 m/s
PV	to 14.7 MPaG · m/s (150 kgf/cm² · m/s)

Unit Per Box

CODE	Size mm	Length Per Box	CODE	Size mm	Length Per Box
81 04 18	3.0		**81 04 54**	14.5	
19	5.0		**55**	16.0	
20	6.5	3 mtr	**56**	17.5	3 mtr
58	8.0		**57**	19.0	
51	9.5		**60**	20.5	
81 04 59	10.0		**81 04 68**	22.0	
52	11.0	3 mtr	**69**	25.5	3 mtr
53	12.5				

Aramid Fiber Braided White Gland Packings
for Rotating Equipment

Empaquetadura de prensaestopas blanca de fibra de aramida trenzada para equipo giratorio
回転機器用アラミド繊維ホワイトパッキン
旋转设备用芳纶纤维白色编织填料

Pillar No. 4536WL

Structure:
A white gland packing made of aramid-fiber-covered yarn. It is treated with special lubricant and PTFE to ensure good lubricity.



Feature: It has outstanding flexibility and sealing properties.

Applications:
For rotating equipments that require white packings.

Performance:

Temperature	to 260°C (Over 80°C, external cooling required)
Pressure	to 1.0 MPaG (10 kgf/cm²)
Velocity	to 10 m/s
PV	to 6.5 MPaG · m/s (150 kgf/cm² · m/s)

Unit Per Box

CODE	Size mm	Length Per Box	CODE	Size mm	Length Per Box
81 04 72	5.0		**81 04 80**	16.0	
73	6.5		**81**	17.5	
74	8.0	3 mtr	**82**	19.0	3 mtr
75	9.5		**83**	20.5	
76	10.0		**84**	22.0	
81 04 77	11.0		**81 04 85**	24.0	
78	12.5	3 mtr	**86**	25.5	3 mtr
79	14.5				

Particular-processed PTFE Fiber Braided Gland Packings
for Chemical Pumps

Empaquetadura de prensaestopas de fibra de PTFE trenzada tratada con partículas para bombas de productos químicos
特殊加工 PTFE 繊維グランドパッキン 特殊加工 PTFE 纤维编织填料

Pillar No. 4527L



Structure:
A packing consisting of the PTFE fiber, and containing highly pure graphite and a special lubricant woven into interlocked braids.

Features:
Achieved high sealing performance and chemical resistance by the flexibility obtained from interlocked braiding technology.

Applications:
Recommended for use with chemical transfer pumps.

Performance :

pH	0 to 14
Temperature	-100°C to 260°C (Over 80°C, external cooling required)
Pressure	to 1.2 MPaG (12.5 kgf/cm²)
Velocity	to 20 m/s
PV	to 12.3 MPaG · m/s (125 kgf/cm² · m/s)

Unit Per Box

CODE	Size mm	Length Per Box	CODE	Size mm	Length Per Box
81 05 21	5.0		**81 05 28**	14.5	
22	6.5		**29**	16.0	
23	8.0	3 mtr	**30**	17.5	3 mtr
24	9.5		**31**	19.0	
25	10.0		**32**	20.5	
81 05 26	11.0	3 mtr	**81 05 33**	22.0	3 mtr
27	12.5				

Non-Asbestos Braided Packings

for Low-Torque Adjusting Valves

Empaquetadura Trenzada sin Amianto de Fibra de Carbón y Teflón para Válvulas de Bajo Par-torsión
ノンアスベスト 編組パッキン調整弁用
用于低扭矩调节阀 无石棉编织填料



Pillar No. 4519

PTFE fiber covers the inner core which is made of spun carbon fiber threads. This packing is a combination of the excellent features of PTFE in chemical resistance and the heat resistance and elasticity of carbon fiber. The low friction surface of this fiber makes it suitable particularly for adjusting valves in which smooth revolution of the valve rod is especially important.

Performance:

pH	0 to 14
Temperature	260°C
Pressure	Class 600
Fluid	Oil solvent, acid, alkali.

Applications: For valves, control valves.

Unit Per Box

CODE	Size mm	Length Per Box	CODE	Size mm	Length Per Box
81 05 37	5.0		**81 05 41**	11	
38	6.5	3 mtr	**42**	12.5	3 mtr
39	8.0		**43**	14.5	
40	9.5		**44**	16	

Braided Gland Packings

for High Temp. Pump

Empaquetadura de prensaestopas trenzada para bombas de alta temperatura
高温ポンプ用グランドパッキン　高温泵用编织填料

Pillar No. 6733



Structure:
A gland packing made of braided aramid-fibre-reinforced braided expanded graphite yarn.

Features and Applications:
Treated with highly thermally resistant lubricant and is great for use with high-temperature high-pressure pumps, such as boiler feed pumps and boiler circulation pumps.

Performance:

Temperature	to 350°C
Pressure	to 2.0 MPaG (20 kgf/cm²)
Velocity	to 20 m/s
PV	to 19.6 MPaG · m/s (200 kgf/cm²· m/s)

Unit Per Box

CODE	Size mm	Length Per Box	CODE	Size mm	Length Per Box
81 05 46	3		**81 05 50**	9.5	
47	5	3 mtr	**51**	11	3 mtr
48	6.5		**52**	12.5	
49	8		**54**	16	

Braided Gland Packings

for High Temperature and High Pressure Valves

Empaquetadura de prensaestopas trenzada para válvulas de alta temperatura y alta presión
高温・高圧バルブ用グランドパッキン　高温高压阀用编织填料

Pillar No. 6711



Structure:
A graphite packing made of braided expanded graphite yarn reinforced with NCF600 wire with its surface being coated with graphite powder.

Features:
Can be used without top and bottom adaptor packing.

Application:
It is suitable for high-temperature and high pressure valves.

Performance :

Temperature	-200 to 600°C (at oxygen atmosphere limited to 450°C)
Pressure	to 25.9 MPaG (264 kgf/cm²) (Class 1500)

Unit Per Box

CODE	Size mm	Length Per Box	CODE	Size mm	Length Per Box
81 05 81	3.0		**81 05 86**	11.0	
82	5.0		**87**	12.5	
83	6.5	3 mtr	**88**	14.5	3 mtr
84	8.0		**89**	16.0	
85	9.5		**91**	19.0	

Pilotpack 76 Packings

for Sea and Fresh Water

Empaquetadura para Agua Salada y Agua Dulce
海水・淡水用パイロットパック 76 パッキング
用于海水和淡水 Pilotpack 76 包装



Beldam Pilotpack 76

Plaited from high grade flax blended with other natural fibres carefully selected to provide a high wet strength when in contact with sea water thereby ensuring a long packing life. Each strand is throughly impregnated with a special water resistant mica lubricant before plaiting.

Performance:

Max. Temperature	120°C
Pressure	70 bar
pH	5 - 9
Speed	8 m/s

Applications:
Reciprocating, rotary and static, Stern glands and in smaller sizes general purpose water packing.

How to order: CODE

Pilotpack 76 packing, Beldam Crossley SIZE mm x LENGTH mtr

Unit Per Box

CODE	Size mm	Length Per Box	CODE	Size mm	Length Per Box
81 07 01	3.0		**81 07 07**	12.5	
02	5.0	15 mtr	**08**	14.5	10 mtr
03	6.5		**09**	16.0	
04	8.0		**81 07 10**	19.0	
81 07 05	9.5	10 mtr	**11**	22.0	5 mtr
06	11.0		**12**	25.0	

All-purpose Grand Packings

Threebond No.5910

Empaquetadura Multi-usos,　万能グランドパッキン　万用盘更

Preformed in triangle shape for easy installation and can be fitted into any size or any shape of stuffing box due to self expansion performance by built-in air bubbles.

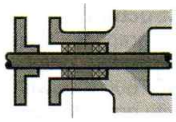
Performance :

Temperature	-200 to 300°C
Pressure	1,400 kg/cm²
Fluid	Oxalic acid, Alkali, Alcohol, Organic solvent



No.5910

Applications:
Chemical pumps, Turbine pumps, Vertical pumps, Plunger pumps, Centrifugal pumps, Reciprocating pumps, Gate valves, Globe valves, Air valves, Solenoid valves


Old Grand Packing

81 07 15	Grand packing, all-purpose Threebond No.5910, 1 kg/box	Box

Tank Lid Packings

Pilot Lidpack 3800

Empaquetadura para tapa de tanque Pilot
タンクリッドパッキン　液货舱盖填料



Constructions:
Specially developed to seal marine cargo tank lids. The PTFE outer cover gives complete protection to the packing and is abrasion resistant. The unique core construction enables the packing to be welded together to form an endless seal, thus preventing the chance of any leakage at the joint.

Performance:

Max. Temperature	100°C
Pressure	1 Bar
pH	1 to 14.

Applications:
For static cargo or chemical tanks, and acids, alkalis, oils, solvents, chemicals and edible products.
In coils or cut to size upon request. Also available in square or rectangular sections as required.

Unit Per Mtr.

Square Section		Rectangular Section	
CODE	Size mm	CODE	Size mm
81 07 21	20 × 20	**81 07 26**	20 × 15
22	25 × 25	**27**	30 × 20
23	35 × 35	**28**	35 × 25
24	38 × 38	**29**	40 × 30
25	40 × 40		

Endless welded rings ready for fitting.

81 07 30	Tank lid packing, Pilot Lidpack 3800, endless welded ring, SECTIONAL SIZE, INNER DIAM, OUTER DIAM	Pc.

Tankatite 440

Constructed from a resilient elastomeric core spirally wrapped with P.T.F.E. tape for added chemical protection. The core is then surrounded with successive braided jackets of inert polypropylene which is wrapped with further layers of P.T.F.E. tape and finally enclosed in braid of P.T.F.E. yarns. Tankatite 440 provides a reliable seal for tank lids, main hatches, and cleaning covers on tankers carrying all known bulk liquid cargoes in all IMO classes.

It will protect the cargo from sea-water ingress and prevent any environmental contamination by the cargo itself.

Tankatite 440 meets U.S. Coast Guard requirements for tank lid sealing of hazardous cargoes and is pressure tight beyond Lloyds and Det Norske Veritas (DNV) test criteria. Any reasonable length can be supplied in square or rectangular from 12.5 mm upwards, or can be supplied in factory produced endless ring form to exactly fit the tank lid recess.

Unit Per Mtr.

Square Section		Rectangular Section	
CODE	Size mm	CODE	Size mm
81 07 31	25 × 25	**81 07 35**	20 × 15
32	30 × 30	**36**	30 × 20
33	38 × 38	**37**	40 × 25
34	40 × 40	**38**	40 × 30

Non-Asbestos Universal Packings

Pilotpack 5080

Empaquetadura sin Amianto Universal
ノンアスベスト・ユニバーサルパッキン　非石棉统一填料



A firm compression packing of the crossplait type designed for effective sealing over a wide scope of static or dynamic applications. The packing is a composite of two base fibres that provide good heat dissipation, abrasion resistance, with the ability to withstand high pressures. The packing also possesses a surface lubricant for initial bedding-in purposes that aids longer term performance.

Performance:

Max. Temperature	300
Pressure	Up to 350 bar
pH	1 - 14
Speed	Up to 25 m/s-1

Applications:
Pumps and valves, Condensates, Dilute acids and alkalis, Oils, Solvents, Abrasive Media, Steam and water.

How to order: CODE

Pilotpack packing, Beldam Crossley No.5080, SIZE mm x LENGTH mtr

Unit Per Box

CODE	Size mm	Length Per Box	CODE	Size mm	Length Per Box
81 13 02	5.0	15 mtr	**81 13 07**	12.5	10 mtr
03	6.5		**08**	14.5	
04	8.0		**09**	16.0	
81 13 05	9.5	10 mtr	**81 13 10**	19.0	5 mtr
06	11.0		**11**	22.0	
			12	25.0	

Pilotgraph 4001 Packings

for Oils, Hot Water and Steam

Pilotgraph 4001 Empaquetaduras
パイロットグラフ 4001 パッキン　Pilotgraph 4001 填料

Exfoliated graphite packing



Performance:

Max. Temperature	-200 tp 3,000°C
Steam	650°C
Pressure	300 bar
pH	0 - 14
Speed	25 m/s

Applications:
Rotary, reciprocating and static. Saturated steam, hot water, hot air and gases. Piston rods and valves rods. Ballast, bilge and cargo feed pumps.

How to order: CODE

Pilotgraph packing, Beldam Crossley No. 4001, SIZE mm x LENGTH mtr

Unit Per Box

CODE	Size mm	Length Per Box	CODE	Size mm	Length Per Box
81 13 21	3.0		**81 13 27**	12.5	
22	5.0	15 mtr	**28**	14.5	10 mtr
23	6.5		**29**	16.0	
24	8.0		**81 13 30**	19.0	
81 13 25	9.5	10 mtr	**31**	22.0	5 mtr
26	11.0		**32**	25.0	

Pillarfoil Braided Packings (Mark VII)

for manhole Cover

Empaquetaduras trenzadas Pillarfoil

ピラーフォイル編組パッキン　柱形箔编织盘根

Pillar No. 6114-M



This is made of flexible graphite yarn reinforced by organic fiber and braided. This flexible graphite material is pretreated on its surface to obtain low torque properties as well as sealability.

Performance:

Temperature 400°C

Fluid Hot air, exhaust gas, dust.

Applications: For manhole packing

How to order: 81 - 13 - 45

Pillarfoil braided packing, (Mark VII), Pillar No. 6114-M, SIZE mm x LENGTH mtr

Low Friction Type Braided Gland Packings

for High Temperature & High Pressure Valve

Empaquetadura de prensaestopas trenzada de baja fricción para válvulas de alta temperatura y alta presión

低トルクタイプ高温・高圧バルブ用グランドパッキン

低转矩型高温高压阀用编织填料

Pillar No. 6315CH



Structure:

A gland packing made of braided expanded graphite yarn reinforced with stainless wire.

Features:

Its surface is coated with lubricant and graphite powder to minimize the sliding resistance of the valve stem.

Applications:

Suitable for use with high-temperature and pressure valves.

Performance:

Temperature -200 to 600°C
(at oxygen atmosphere limited to 450°C)

Pressure to 25.9 MPaG (264 kgf/cm²)
ANSI Class 1500

Unit Per Box

CODE	Size mm	Length Per Box	CODE	Size mm	Length Per Box
81 13 61	3.0		**81 13 69**	16.0	
62	5.0		**70**	17.5	
63	6.5	3 mtr	**71**	19.0	3 mtr
64	8.0		**72**	20.5	
65	9.5		**73**	22.0	
81 13 66	11.0		**81 13 74**	24.0	3 mtr
67	12.5	3 mtr	**75**	25.5	
68	14.5				

Grafan Fibre & Inconel Wire Packings

Vulcan VR31

Empaquetadura de fibra Grafan y alambre Inconel

インコネルワイヤー補強グラファン繊維パッキン

Grafan 纤维铬镍铁合金填料



Braided packings constructed from 100% Grafan yarns to form truly exceptional capability and performance. It is additional reinforced with inconel wire to create the packing for high temperature, high pressure valves. Can be merely cut to length and spiraled into the gland. Extreme condition, long life and zero leakage packing for all uses up to high temperature, high pressure, high speed applications on pumps, valves, mixers, agitators, expansion joints, ball valve seats and other static seals. It is designed for use in static applications only. Against all acids, alkalis and solvents (except very strong oxidizers), gases, feed water and superheated, or saturated, steam.

Service Capability

Pressure rating: 360 Bar	Rotary speed: 1 m/s
Temperature: -200 + 3,000 deg.C (Inert ATM)	
Temperature: -200 + 600 deg.C (In air)	
pH range: 0-14	

Unit Per C/L

CODE	Size mm × mtr	CODE	Size mm × mtr
81 51 01	3 mm × 3 mtr	**81 51 05**	10 mm × 3 mtr
02	5 mm × 3 mtr	**06**	11 mm × 3 mtr
03	7 mm × 3 mtr	**07**	13 mm × 3 mtr
04	8 mm × 3 mtr	**08**	14 mm × 3 mtr

Name of Mfr. : Vulcan Engineering

PTFE Graphite Fibre Packings

Vulcan VP2

Guarnición de fibra de grafito PTFE

PTFE 黒鉛繊維パッキン　PTFE 碳纤维保护套



Manufactured from 100% Vulcan type G1 fibre. This newly developed outstanding yarn is very similar in material construction to the original GORE GFO fibre and has been manufactured to optimise performance at an improved cost. They will increase service life whilst minimizing wear and gland adjustments, against nearly all media in static, rotary and reciprocating uses.

Service Capability

Pressure rating: 120 Bar	Rotary speed: 25 m/s
Temperature: -200 + 280°C	pH range: 0 - 14

Unit Per C/L

CODE	Size mm × mtr	CODE	Size mm × mtr
81 51 11	3 mm × 3 mtr	**81 51 15**	10 mm × 3 mtr
12	5 mm × 3 mtr	**16**	11 mm × 3 mtr
13	7 mm × 3 mtr	**17**	13 mm × 3 mtr
14	8 mm × 3 mtr	**18**	14 mm × 3 mtr

Name of Mfr.: Vulcan Engineering

Non-Asbestos Gland Packings

Carbon Fiber Based

Empaquetadura de casquillo sin amianto con base de fibra de carbono

炭素繊維系グランドパッキン　碳纤维密封填料

For Water & Oil Pumps
Valqua® No. 6201



Coil packing made of carbonized fabric yarn, processed with PTFE dispersion and lubricating oil, then braided into a square cross-section and finished with PTFE, fine graphite and lubricating oil.

Features:
· Serviceable for relatively versatile fluids.
· Allows permissible PV value and shaft speed limit.
· Reduced shaft wear due to packing.

Temperature	Pressure	pH	Speed
200°C / 392°F	1 MPa	2 to 12	20 m/s

Unit Per Box

CODE	Size (mm)	Length (m)	CODE	Size (mm)	Length (m)
81 54 01	3.0		**81 54 09**	11	
02	4.0		**10**	12.5	
03	5.0	3	**11**	14.5	3
04	6.0		**12**	16	
05	6.5		**13**	19	
81 54 06	8.0		**81 54 14**	20	
07	9.5	3	**15**	22	3
08	10.0		**16**	25	

For General Use Valves & Reciprocating Motion Machines
Valqua® No. 6232



Coil packing made of carbon fiber yarns, processed with PTFE dispersion and lubricating oil, then braided into a square-cross section and finished with PTFE, fine graphite and lubricating oil.

Features:
- Good compatibility with shafts means excellent sealing property even at low tightening pressures.
- Suitable for almost all fluids except for strong oxidizing fluids.

Temperature	Pressure	pH
260°C / 500°F	10.3 MPa	0 to 14

Unit Per Box

CODE	Size (mm)	Length (m)	CODE	Size (mm)	Length (m)
81 54 21	3		**81 54 29**	12.5	
22	4		**30**	14.5	
23	5	3	**31**	16	3
24	6.5		**32**	19	
25	8		**33**	20	
81 54 26	9.5		**81 54 34**	22	3
27	10	3	**35**	25	
28	11				

For Chemical Pumps
Valqua® No. 6262

Coil packing made of carbon fiber yarns, processed with PTFE dispersion and lubricating oil, then braided into a square cross-section and finished with PTFE, fine graphite and lubricating oil.

Features:
- Allows permissible PV value and shaft speed limit.
- Reduced shaft wear due to packing.
- Suitable for almost all fluids except for strong oxidizing fluids.

Temperature	Pressure	pH	Speed
260°C / 500°F	1.6 MPa	0 to 14	20 m/s

Unit Per Box

CODE	Size (mm)	Length (m)	CODE	Size (mm)	Length (m)
81 54 41	3		**81 54 49**	11	
42	4		**50**	12.5	
43	5	3	**51**	14.5	3
44	6		**52**	16	
45	6.5		**53**	19	
81 54 46	8		**81 54 54**	20	
47	9.5	3	**55**	22	3
48	10		**56**	25	

Shaft Seal Gland Packings

Empaquetadura de casquillo de obturador de ejes
軸封グランドパッキン　軸封密封填料

PTFE Fiber Based

A base de fibra de PTFE　PTFE 系グランドパッキン
軸密封压盖填料 PTFE 纤维基

For Corrosive Fluid Valves
VALQUA® No. 7233

Coil packing made of PTFE fiber yarns, processed with PTFE dispersion, then braided into a square cross-section.

Features:
- Made of 100% PTFE, and therefore resistant to almost all fluids. Best suited for chemical use valve shaft seals for handling corrosive fluids.
- When low torque or gas sealing properties are required, use the following products which are treated with lubricating oil:
- No. 7233 (O) for general gas-based fluids.
- No. 7233 (SO) for low-temperature use of inflammable gas and liquefied gas.
- No. 7233 (FO) for gas susceptible to burning, such as oxygen and ozone.
- Compliant with the Food Sanitation Law, and the Regulations concerning Food & Additives.

Temperature	Pressure	pH
260°C / 500°F	10.3 MPa	0 to 14

Unit Per Box

CODE	Size (mm)	Length (m)	CODE	Size (mm)	Length (m)
81 54 61	3		**81 54 69**	12.5	
62	4		**70**	14.5	
63	5	3	**71**	16	3
64	6.5		**72**	19	
65	8		**73**	20	
81 54 66	9.5		**81 54 74**	22	3
67	10	3	**75**	25	
68	11				

Special Fiber Based

A base de Fibras Especiales
特殊繊維系グランドパッキン　特殊纤维



For Low & Medium Shaft Speed Pumps and Rotary Equipment
Valqua® No. 8132

Coil packing made of blended yarn of aramid fibers and of artificial inorganic fibers treated with PTFE dispersion, braided into a square cross section, and then finished soft with PTFE dispersion and lubricating oil.

Features:
- Flexible and compatible with shafts.
- Being white, can be used for fluid applications where black should be avoided.
- Can be used as shaft seals of pumps for handling water-based and oil-based fluids as well as weak acid and weak alkaline fluids.
- Also used as shaft seals for rotating machines where contamination is undesirable, such as mixers and agitators.

Temperature	Pressure	pH	Speed
260°C / 500°F	1.0 MPa	2 to 13	10 m/s

Unit Per Box

CODE	Size (mm)	Length (m)	CODE	Size (mm)	Length (m)
81 54 81	3		**81 54 89**	11	
82	4		**90**	12.5	
83	5	3	**91**	14.5	3
84	6		**92**	16	
85	6.5		**93**	19	
81 54 86	8		**81 54 94**	20	
87	9.5	3	**95**	22	3
88	10		**96**	25	

For rotating machines
Valqua® No. 8137



Coil packing made of blended yarn of aramid fibers and of artificial inorganic fibers treated with PTFE dispersion, braided into a square cross-section, then finished with PTFE dispersion.

Features:
- White clean packing without lubricating oil.
- Excellent cost per performance.
- Can be widely used for general-use valves as well as for shaft seals of agitators and plunger pumps.

Temperature	Pressure	pH	Speed
260°C / 500°F	14.7 MPa	2 to 13	1 m/s

Unit Per Box

CODE	Size (mm)	Length (m)	CODE	Size (mm)	Length (m)
81 55 01	3(1)		**81 55 09**	12.5	
02	4		**10**	14.5	
03	5	3	**11**	16	3
04	6.5		**12**	19	
05	8		**13**	20	
81 55 06	9.5		**81 55 14**	22	3
07	10	3	**15**	25	
08	11				

Note(1) For manufacturing reasons, rectangular products with a cross section of 3 mm x 5 mm are available.

Flexible Graphite Based

Base de grafito flexible　膨張黒鉛系グランドパッキン　柔性石墨基

For General Use Valves
Valqua® No. VFT-22



Coil packing made of expanded graphite yarn clad with PTFE film, and braided into a square cross-section, that is, gland packing that makes use of the features of each material.

Features:
- Excellent in sealing property and durability with expanded graphite as the major material.
- Low stem friction as the surface is clad with PTFE.

Temperature	Pressure	pH
300°C / 572°F	10.3 MPa	0 to 14

Unit Per Box

CODE	Size (mm)	Length (m)	CODE	Size (mm)	Length (m)
81 55 21	3		**81 55 29**	12.5	
22	4		**30**	14.5	
23	5	3	**31**	16	3
24	6.5		**32**	19	
25	8		**33**	20	
81 55 26	9.5		**81 55 34**	22	
27	10	3	**35**	25	3
28	11				

For High Temperature & High Pressure Valves
Valqua® No. VFX-15



A coil packing made of expanded graphite yarns reinforced with metal wire, braided into a square cross-section treated with lubricant oil.

Features:
- Can be used individually as a stem seal.
- Higher cost performance than existing graphite packing.

Temperature	Pressure	pH
650 (400)(1)°C / 1,202 (752)°F	25.9 MPa	0 to 14

Note(1) Temperature limit in air.

Unit Per Box

CODE	Size (mm)	Length (m)	CODE	Size (mm)	Length (m)
81 55 41	3		**81 55 47**	12.5	
42	5		**48**	14.5	
43	6.5	3	**49**	16	3
44	8		**50**	19	
45	9.5		**51**	22	
81 55 46	11	3	**81 55 52**	25	3

Comparison Table of Gaskets

Products from a few manufacturers are listed below for your reference. If there is some question as to what types of products are most suitable for the condition of use, please ask for further information or brochures from the local manufacturer when ordering.

In the table, the products for each manufacturer are listed vertically according to the working conditions which are listed in the left hand column.

When ordering: Gasket

1. Select the purpose: All purpose.
2. Specify the name of the machine to be applied: Pump, valve, etc
3. Specify the type of material: Non-asbestos.
4. Select the CODE: 81 11 00.
5. Select a manufacturer from (one of) the columns to the right: Beldam Crossley.
6. List the type number of the gasket from the manufacturer: Pilotseal 178.
7. Specify the thickness and size (Width × Length) in mm. 1.0 mm × 1,500 × 1,500 mm.

Comparison Table of Non-Asbestos Gaskets

Purpose	CODE	Beldam Crossley (UK)	James Walker (UK)	Alligator (The Netherlands)	Drew Marine (U.S.A.)	Garlock (U.S.A.)	Spitmaan (India)	Champion (India)	Pillar (Japan)
All Purpose	**81 11 00** Non-asbestos	**81 12 91-96** Pilotseal 178, Pilotseal 34	Inca, Centurion, Sentinel	Marpack PA 245, Marpack PA 250, Marpack PA 276, Marpack PA 277	Amerine CF, Amerine S	#3400 (#3000 for water, air, lube oil system), #9850, #9800	AF 170, AF 139	AF139	**81 11 24-29** #5650 **81 11 44-59** #5600
Steam	**81 11 10** Non-asbestos	Pilotseal 34, "Ibex 162" Spiral Wound Gaskets	Chieftain, Centurion, Metaflex Gaskets	Marpack PA 231, Marpack PA 256	Amerine CF, Amerine S	#3400, #9900 (Not recommended for superheated steam)	Spiral Wound	Spiral Wound AF154	#2603-EEE
Exhaust Gas	**81 11 30** Non-asbestos	Pilotseal 34, Pilotseal 2T	Chieftain, Supagraf N7, Super Twilstele XA	Marpack PA 256	Amerine CFR, Milam mica sheet	HTC 9850, #9900, Graphlock 3200, Graphlock 3400	AF 170 (Non Metallic / Metallic)	AF154	**81 10 25-29** #6633
Feed Water, Boiler water, Blow off, Drain	**81 11 50** Non-asbestos	**81 12 91-96** Pilotseal 178	Chieftain, Sentinel, Inca, Centurion	Marpack PA 245, Marpack PA 250, Marpack PA 276, Marpack PA 277	Amerine CF, Amerine S	#3300, Graphlock #3400	AF 154	AF139	#2603-EEE
Compressed Air	**81 11 60** Non-asbestos	Pilotseal 34, **81 12 91-96** Pilotseal 178	Inca Centurion, Sentinel, Chieftain	Marpack PA 245, Marpack PA 250	Amerine CF, Amerine S	#3300	AF 159, AF 139	AF139	#5001, **81 13 55-58** #5003-NBR
Fresh Water, Condensate Water, Seawater. Bilge, and Ballast	**81 11 70** Non-asbestos	**81 12 91-96** Pilotseal 178	Rubber Insertion 332C, Inca, Sentinel, Centurion, Chieftain	Marpack PA 245, Marpack PA 250, Marpack PA 276, Marpack PA 277	Amerine CFR, Amerine S	#3300, #9850, #3400, #9900	AF 111, AF 120	AF154	**81 10 25-29** #6633 **81 10 71-76** #5611 **81 11 24-29** #5650, #5600 #5001, #5002 #5003-NBR
Fuel Oil, Cargo Oil, Lubricating Oil	**81 11 80** Non-asbestos	**81 12 91-96** Pilotseal 178	Gaskoid, Inca, Sentinel	Marpack PA 090, Marpack PA 245, Marpack PA 250, Marpack PA 276, Marpack PA 277	Amerine CF, Amerine S	#3000, #9850	AF 159	AF159	**81 10 25-29** #6633 **81 10 71-76** #5611 **81 11 24-29** #5650, #5600 #5001, #5002 #5003-NBR
Chemical	**81 11 90** Non-asbestos	Pilotseal 550, PTFE Gaskets	PTFE Sheet Steel Lined PTFE Gaskets, Chieftain	Marpack PO 473, Marpack PO 500, Marpack PO 665, Marpack PO 808, Marpack PO 850, Marpack PO 860	PTFE Sheet	#3000 (Suited for mild solvent and aliphatic hydrocarbons), #3510, #3504, #3565, #3535 Joint Sealantt	AF 120, AF 154, AF 160	PTFE Gaskets	#4430AF #4400

Graphite Joint Sheet Gaskets

Plancha gratificada para juntas
黒鉛ジョイントシートガスケット　石墨结合垫片

Pillar No. 5650



A joint sheet gasket made of graphite black lead and aramid fiber bound with a rubber binder.

Feature:
1. Highly thermally resistant.
2. High mechanical strength.
3. Non-adhesive to flange surfaces.
4. Great workability.

Applications:
Gaskets for pipe flanges, maintenance hatches, and valve bonnets. Especially suitable for use with pipes that carry saturated vapors.

Performance:
Temperature −100 to 260°C
Pressure up to 5.2 MPaG (ASME Class 300)

Unit Per Sht.

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
81 11 24	0.5	1,500 × 1,500	**81 11 26**	1.0	1,500 × 2,000
25	0.8	1,500 × 1,500	**27**	1.5	
			28	2.0	
			29	3.0	

Expanded Graphite Joint Sheet Gaskets

Plancha para juntas de estanqueidad de grafito expandido
膨張黒鉛ジョイントシートガスケット　膨胀石墨密封垫圈

Pillar No. 5600

Structure:
A joint sheet gasket made of expanded graphite, inorganic-fiber and aramid fiber bound with a rubber binder.



Feature:
1. Very flexible.

2. Highly thermally resistant.
3. Great gas-sealing performance.
4. Roll-upable for compact storage.

Applications:
Gaskets for pipe flanges, maintenance hatches, and valve bonnets. Especially suitable for use with pipes that carry saturated vapors.

Performance:
Temperature -50 to 260°C
Pressure up to 4.0 MPaG

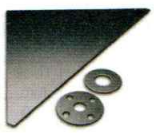
Unit Per Sht.

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
81 10 07	0.5		**81 10 39**	0.5	
08	0.8		**58**	0.8	
09	1.0	1,270 × 1,270	**59**	1.0	1,270 ×3,810
22	1.5		**69**	1.5	
23	2.0		**77**	2.0	
81 10 38	3.0	1,270 × 1,270	**81 10 78**	3.0	1,270 × 3,810

Tear Resistant Type Graphite Sheet Gaskets
for High Temperature Sheet Gasket

Plancha gratificada resistente a desgarros para planchas de altas temperaturas
金属箔入り膨張黒鉛シートガスケット
含金属箔的抗撕裂型膨胀石墨垫片

Pillar No. 6633



Structure:
An expanded graphite sheet gasket reinforced with stainless steel foil to protect against tearing and improve ease of handling.

Features:
1. Extremely thermally resistant.
2. Tear resistant.
3. Easily cut with a knife or scissors.
4. Highly chemically resistant.

Applications:
Suitable for use with pipe flanges and other types of applications that require gaskets with thermal resistance and anti-chemical properties.

Performance:
Temperature -200 to 400°C
Pressure up to 5.2 MPaG

Unit Per Sht.

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
81 10 25	0.5		**81 10 27**	1.5	
24	0.8	1,000 × 1,000	**28**	2.0	1,000× 1,000
26	1.0		**29**	3.0	

Joint Sheet Gaskets
(Common Used)

Plancha para juntas (uso común)
汎用ジョイントシート　通用结合垫片

Pillar No. 5611



Structure:
A joint sheet gasket made of inorganic fiber and aramid fiber bound with a rubber binder.

Features:
1. High mechanical strength.
2. Superior fit with flange surfaces that ensures high sealing performance.
3. Great workability.

Applications:
Gasket for pipe flanges, maintenance hatches, and valve bonnets. Especially suitable for use with pipes that carry room-temperature water or oil.

Performance:
Temperature −50 to 120°C
Pressure up to 3.3 MPaG

Unit Per Sht.

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
81 10 71	0.5		**81 10 40**	0.5	
72	0.8		**45**	0.8	
73	1.0	1,270 × 1,270	**46**	1.0	1,270 × 3,810
74	1.5		**47**	1.5	
75	2.0		**48**	2.0	
81 10 76	3.0	1,270 × 1,270	**81 10 49**	3.0	1,270 × 3,810

Vegetable Fiber Oil-Proof Joint Sheets

Plancha de Fibra Vegetal Resistente al Aceite para Juntas
植物繊維耐油ジョイントシート　蔬菜纤维制防油结合垫片

Construction & Features:
Made of chemically treated vegetable fiber. For packing against gasoline, oil, water, and lubricating oil.

Performance:
Temperature 100°C
Pressure 1.0 MPa (10 kgf/cm²)

Applications:
Gasket for oil pumps, crank cases, transmission covers, gasoline pumps, oil drums, etc.

Unit Per Sht.

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
81 10 79	0.1		**81 10 84**	0.8	
81	0.3	1,000 × 1,000	**85**	1.0	1,000 × 1,000
82	0.4		**86**	1.6	
83	0.6		**88**	3.0	

Fiber Joint Sheets

Plancha de Fibra para Juntas　繊維ジョイントシート　纤维接缝板

Construction & Features:
A red paper packing sheet which is chemically neutralized from cotton fiber and treated with zinc chloride solvents.

Applications:
Flange packing for water and oil service or electrical insulation.

Unit Per Sht.

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
81 10 91	0.35		**81 10 95**	1.6	
92	0.5	910 × 1,220	**96**	2.4	910 × 1,220
93	0.8		**97**	3.2	
94	1.0				

Cortex Joint Sheets

Plancha Goma-Corcho para Juntas　コルクシート　皮质接缝片

Construction & Features:
Made of cork skin and mixed with oil resistant rubber by rolling and curing.

Applications:
Pipe flange packing for tank covers, etc.

Unit Per Sht.

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
81 11 01	1.0		**81 11 03**	2.0	
02	1.5	915 × 1,830	**04**	3.0	915 × 1,830

Natural Rubber Joint Sheets

Plancha Goma Natural para Juntas　天然ラバーシート　天然橡胶接缝板

Applications:
For pipe flanges or cover gaskets where gas, hot or cold water, diluted solutions, low pressures, and service steam are used.



Unit Per Mtr.

CODE	Thick mm	Sheet Size mm	CODE	Thick mm	Sheet Size mm
81 11 11	1.0		81 11 17	6.0	
12	1.5		18	8.0	
13	2.0	1,000 × 1,000	19	10.0	1,000×1,000
14	3.0		20	12.0	
15	4.0		21	15.0	
81 11 16	5.0	1,000 × 1,000	81 11 22	20.0	1,000 × 1,000

Synthetic Rubber Joint Sheets

Planchas para juntas de caucho sintético
合成ゴム製ジョイントシート　合成橡胶接缝板

Construction & Features:
Made from natural oil-resistant rubber mixed into sheet form.

Applications:
For pipe flanges servicing petroleum solvent for heavy or light oil and for animal or vegetable oils.

Unit Per Mtr.

CODE	Thick mm	Sheet Size mm	CODE	Thick mm	Sheet Size mm
81 11 31	1.0		81 11 37	6.0	
32	1.5		38	8.0	
33	2.0	1,000 × 1,000	39	10.0	1,000 × 1,000
34	3.0		40	12.0	
35	4.0		41	15.0	
81 11 36	5.0	1,000 × 1,000	81 11 42	20.0	1,000 × 1,000

Viton Rubber Sheets

Hojas de caucho Viton　バイトンゴムシート　氟橡胶板



Viton sheeting, known as fluoroelastomer or FKM, is highly appreciated for the most demanding industrial applications as it has the highest resistance to hydrocarbons, acids, alkalis and even oxidants, and its mechanical properties remain intact at temperatures of up to 200°C.

- Tensile strength : 6 - 8 MPA
- Elongation: 300%
- High temperature: 200°C
- Hardness 75+/15 Shore A

Applications:
Industrial maintenance (oils / high temperature) / Sealing

Unit Per Mtr.

CODE	Thickness × Width mm	Temperature	Shore Hardness	Article No.
81 11 43	1 × 1,000			RP630010
44	1.5 × 1,000			RP630015
45	2 × 1,000	200°C	75°	RP630020
46	3 × 1,000			RP630030
47	4 × 1,000			RP630040
81 11 48	5 × 1,000	200°C	75°	RP630050
49	6 × 1,000			RP630060

Cotton Insertion Rubber Joint Sheets

Planchas de caucho para juntas de inserción de algodón
綿入りゴムジョイントシート　棉质插入式橡胶接缝片

Construction:
Cotton inserted natural rubber sheet.

Applications:
For the same use as a natural rubber sheet.

Unit Per Mtr.

CODE	Thick mm	Sheet Size mm	CODE	Thick mm	Sheet Size mm
81 11 51	1.5	1,000 × 1,000	81 11 53	3.0	1,000 × 1,000
52	2.0				

Canvas Inserted Rubber Joint Sheets

Planchas para juntas de goma insertadas en lona
キャンバス入りゴム製ジョイントシート　帆布嵌缝橡胶板

Construction & Features:
Made of quality, strong canvas inserted onto rubber sheet in the same way as cotton insertions but this construction is more durable.

Unit Per Mtr.

CODE	Thick mm	Sheet Size mm	CODE	Thick mm	Sheet Size mm
81 11 61	1.0		81 11 64	3.0	
62	1.5	1,000 ×1,000	65	4.0	1,000 × 1,000
63	2.0		66	5.0	

Leather Sheets

Sábanas de cuero　レザーシート　皮革床单

Suitable for a wide variety of applications.

Unit Per Mtr.

CODE	Thick mm	Sheet Size mm	CODE	Thick mm	Sheet Size mm
81 11 71	1.0		81 11 75	4.0	
72	1.5	300 × 300	76	5.0	300 × 300
73	2.0		77	6.0	
74	3.0		78	8.0	

Felt Sheet Packings

Planchas Fieltro　フェルトシート　毛毡片填料



Made from pressed white sheep hair shaped into sheet form. Used for filling or stopping oil because of its high absorbency to oil.

How to order: CODE
Felt sheet packing, WIDTH x LENGTH, THICKNESS mm

Unit Per Sht.

CODE	Thickness mm	CODE	Thickness mm
W × L 900 × 1,000 mm		W × L 1,800 × 1,000 mm	
81 11 81	2	81 11 91	2
82	3	92	3
83	4	93	4
84	5	94	5
85	6	95	6
81 11 86	8	81 11 96	8
87	10	97	10
88	12	98	12
89	20	99	20

Non-Asbestos Mica Jointing Sheets

Pilotseal Jointing (201)

Plancha de fibra de mica sin amianto para juntas
ノンアスベスト・マイカジョイントシート　无石棉云母结合垫片

Non-asbestos jointing material for use in the sealing of hot, dry gases.

Performance:

Max. Temperature	900°C
Max. Pressure	20 bar
Tensile Strength	20 MPa
Density	1.72 g/cm³

Applications :
For use in refractory underlays, metal foundries, exhaust manifolds and as thermal insulation and sealing gasket within a wide range of industries.

Unit Per Sht.

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
81 12 63	0.5	1,250 × 1,250	81 12 66	1.5	1,250 × 1,250
64	1.0		67	2.0	
65	1.3		68	3.0	

Pilot Non-Asbestos Jointing Pilotseal 172

for Steam, Water, Oils, Gases, Dilute Acids and Alkalis

Juntas Pilotseal 172 sin amianto para vapor, agua, aceites, gases y acido y álcali diluidos
ノンアスベスト ジョイントパイロットシール 172
Pilotseal 172 无石棉结合垫片



High quality compressed jointing manufactured from heat resistant fibre and polymer.

The anti-stick graphite silver finish facilities easy gasket removal and flange cleaning.

Performance:

Max. Temperature	475°C
Max. Pressure	13.8 N/mm² (2,000 psi)
Tensile Strength	10.3 N/mm² (1,500 psi)
Density	1.4 gm/cc

Applications:
For sealing against steam, water, oils, gases, dilute acids and alkalis.

Unit Per Sht.

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
81 12 80	0.5	1,500 × 1,500	81 12 83	1.5	1,500 × 1,500
81	0.75		84	2.0	
82	1.0		85	3.0	

Expand Metal Insert Graphite Joint Sheets

Novaphit SSTC

Juntas de Expansión de Grafito
エクスパンドメタル入りグラファイトジョイントシート
膨胀金属嵌件 石墨 接缝板



The highest quality gasket material based on pure exfoliated graphite with a stainless steel mesh reinforcement and no binders or adhesives. It is easier to cut than the traditional tang metal reinforced graphite and it is fire-safe approved by Lloyds. It exhibits virtually no creep in service. Available in sheet form or as a Cut Gasket to suit standard or non-standard flanges.

Performance:

Temperature	-240°C to 550°C
Stress Relaxation	300/C - 43 N/mm² (approx)
DIN 52913	175/C - 45 N/mm² (approx)

Applications:
For sealing high pressure steam, most hydrocarbons, solvents, flammable liquids, fuels, gases, alkalis and many acids.

Unit Per Sht.

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
81 12 86	1.0	1,000 × 1,000	81 12 88	2.0	1,000 × 1,000
87	1.5		89	3.0	

Non-Asbestos Jointing Pilotseal 178

for Steam, Water, Oils, Gases, Dilute Acids and Alkalis

Junta de unión sin amianto Pilotseal 178
ノンアスジョイント・パイロットシール 178
无石棉接缝导向密封 178



General service non-asbestos jointing manufactured from heat resistant synthetic fibre and polymer. The printed green 25 mm squares assist when cutting and making gaskets.

Performance:

Max. Temperature	400°C
Max. Pressure	6.9 N/mm²
Tensile Strength	10.3 N/mm² (1,500 psi)
Density	1.95 gm/cc

Applications:
For sealing against steam, water, oils, gases, dilute acids and alkalis.

Unit Per Sht.

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
81 12 91	0.5	1,500 × 1,500	81 12 94	1.5	1,500 × 1,500
92	0.75		95	2.0	
93	1.0		96	3.0	

High-Strength Rubber Sheet Gaskets

Reinforced in Aramid Fiber

Plancha de caucho de alta resistencia reforzada con fibra de aramida
アラミド繊維複合ゴムシートガスケット
高强度芳纶纤维复合橡胶垫片



Pillar No.5003-NBR
Structure:
An NBR rubber sheet gasket reinforced with short aramid fibers.

Feature:
1. High sealing performance.
2. Low stress relaxation and high mechanical strength.
3. High insulation performance.

Applications:
- Flange gaskets for water (including sea water) pipes
- Insulation gaskets
- Flanges for watertight test

Performance:

Temperature	-30 to 120°C
Pressure	up to 2.6 MPaG

Unit Per Sht.

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
81 13 55	1.5	1,270 × 1,270	81 13 57	3.0	1,270 × 1,270
56	2.0		58	6.0	

Low Creep PTFE Sheet Gaskets

Mixed with Selectable Fillers

Plancha para juntas PTFE de baja percolación mezclada con relleno seleccionable
低クリープ充填材混合 PTFE シートガスケット
低蠕变充填材混合 PTFE 密封垫片

Pillar No.4001, 4002, and 4003



Structure:
PTFE sheet gaskets with fillers.

Features & Applications:
Protected from creeping of PTFE sheet gasket by using different types of filler.

4001: High anti-creeping and acid-resistance properties. It is best suitable to the strong acid, hydrocarbon, water, steam, etc.

4002: Good compression property and superior fit with flange surfaces. It is also best suitable to the lining flange, etc. tightened at low torque, and to the substitution of enveloped gasket.

4003: High anti-creeping and alkaline-resistance properties. It is best suitable to the strong alkali and oxygen, and is also applicable safely to the food application in safe.

Properties and Performance

Pillar No.	4001	4002	4003
Hue (Colour)	Light brown	Aqua blue	White
Filler	Silicone dioxide low creep acid resistance	Particular glass compressible fit in well	Barium oxide low creep alkali-resistant
Temperature	-210 to 260°C		
Pressure	Up to 8.3 MPaG	Up to 5.1 MPaG	Up to 8.3 MPaG

Unit Per Sht.

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
4001			4003		
81 13 81	1.5		**81 13 87**	1.5	
82	2.0	1,500 × 1,500	**88**	2.0	1,500 × 1,500
83	3.0		**89**	3.0	
4002					
81 13 84	1.5				
85	2.0	1,500 × 1,500			
86	3.0				

Bi-directional PTFE Gasketing Materials

SICHEM S11

Materiales de empaquetadura de PTFE bidireccional
PTFE フランジジョイントガスケット　双向 PTFE 垫片材料



A bi-directional orientated gasketing material on PTFE-basis, filled with silica, designed to achieve the lowest creep values and seal integrity, combining excellent chemical resistance and optimal sealing performances.

Can be used for applications with pH-range from 0 to 14 with exception to hydrogen fluoride, fluorine compounds and molten alkali metals.

Applications:
For all types of flanges joint connections in maritime applications in all sizes for temperatures from -260°C/+260°C and pressures classes up to 80 Bar

Characteristics:
Density: 2.2 g/cm^3

Leckage DIN 3535-6 = <0.05 mg/(s*m)
KSW DIN 28090-2 = <4.0%
KRW DIN 28090-2 = >1.7%
WSW DIN 28090-2 = <24%
Tensile Strength ASTM F 152 = 15 N/mm^2

Characteristics Certifications:
*FDA 21§177.1550 Approval
*LFGB and Regulation (EC) No.1935/2004
*BAM proofed for gaseous oxygen until 30 bar and +260°C
*EN 13555 (Qmin, Qsmin, PQR, ...)
*TA-Luft + Blowout test,
*DVGW

Unit Per Sht.

CODE	Thick (mm)	Size (mm)	CODE	Thick (mm)	Size (mm)
81 13 90	1.5	1,500 x 1,500	**81 13 93**	2.0	1,750 x 1,750
91	1.5	1,750 x 1,750	**94**	3.0	1,500 x 1,500
92	2.0	1,500 x 1,500	**95**	3.0	1,750 x 1,750

Name of Mfr: Planichem Srl

High Performance Non-Asbestos Sheets

Plancha de alta capacidad sin amianto
高機能ノンアスシート　高效非石棉纤维垫片



BLACKHYPER™
Valqua® No. GF300

This gasket is mainly composed of PTFE as a binder and doesn't contain any rubber.

Features:
- Very minor change in physical properties even under high temperatures.
- Excellent chemical resistance.
- Excellent heat resistance.
- Easy to handle.
- Does not harden easily.
- No hardening makes retightening possible.

Temperature	Pressure
-200 to 300°C / -328 to 572°F	Max 3.5 MPa

Suitable fluids: General fluids (water, steam, oil, etc.), solvents, liquefied gas.
Applications: Pipe flanges, valve bonnets, towers & tanks, pressure vessels and heat exchangers.
Color type: Black
Print color: Black

The ring molded article supports JPI (ASME / ANSI).

Unit Per Sht.

CODE	Thickness (mm)	CODE	Thickness (mm)
1,270 × 1,270 (mm)		1,500 × 1,500 (mm)	
81 56 01	1.0	**81 56 04**	2.0
02	1.5	**03**	3.0

Compressed Non-Asbestos Fiber Sheets

Plancha de fibra comprimida sin amianto
ノンアスジョイントシート　压缩非石棉纤维垫片

Compressed Non-Asbestos Fiber Sheets are rolled and vulcanized sheet-type gasket materials, in which special rubber binders and a small amount of filler material are mixed with organic and inorganic fibers.



General use type
Valqua® No. 6500

Features:
- An economical option.
- Easy to handle.

Temperature	Pressure
-50 to 183°C / -58 to 361°F	Max 3 MPa

Suitable fluids: General fluids (water, steam, oil, etc.), liquefied gas.
Applications: Pipe flanges, valve bonnets and other equipment used in various industries.
Color type: Blue
Print color: Black
The ring molded article supports JPI (ASME / ANSI).

Unit Per Sht.

CODE	Thickness (mm)	CODE	Thickness (mm)
1,270 × 1,270 (mm)		2,540 × 3,810 (mm)	
81 56 05	1.0	**81 56 08**	1.0
06	1.5	**09**	1.5
17	2.0	**18**	2.0
07	3.0	**10**	3.0

Anti-corrosion type
Valqua® No. 6500AC

This gasket is low in leachable chloride.

Feature:
• Corrosion suppressive

Temperature	Pressure
-50 to 183°C / -58 to 361°F	Max 3 MPa

Suitable fluids: General fluids (water, steam, oil, etc.), liquefied gas.
Applications: Stainless steel pipe flanges, valve bonnets and other equipment used in various industries requiring corrosion resistance.
Color type: Blue
Print color: Orange

Unit Per Sht.

CODE	Thickness (mm)	CODE	Thickness (mm)
1,270 × 1,270 (mm)		2,540 × 3,810 (mm)	
81 56 11	1.0	**81 56 14**	1.0
12	1.5	**15**	1.5
19	2.0	**20**	2.0
13	3.0	**16**	3.0

VALFLON™ (PTFE) Gaskets

Junta VALFLON™ (PTFE)
バルフロン PTFE ガスケット VALFLON™（PTFE）垫片

These are sheet gaskets made of VALFLON™ (PTFE) with excellent chemical resistant and non-stick properties.

VALQUALON™ (PTFE-blended sheet) Gasket

Junta VALQUALON ™ (lámina con mezcla de PTFE)
バルカロンガスケット（聚四氟乙烯混合板材）垫片

Valqua® No. 7020 (For oxidizing)



In order to improve the cold flow (the creep phenomenon), which is a drawback in PTFE, these gaskets are shaped by means of a special manufacturing process where inorganic filler material is compounded.

Features:
• Excellent acid resistance.
• Heat resistance.
• Anti-cold flow properties.
• Can handle various chemicals.

Temperature	Pressure
-200 to 200°C / -328 to 392 °F	Max 4 MPa

Suitable fluids: General fluids (water, steam, oil, etc.), solvents, corrosive liquids (especially, acid liquid), liquefied gas, cryogenic fluid, flammable gas.

Applications: Pipe flanges, valve bonnets, towers & tanks.

The ring molded article supports JPI (ASME / ANSI).

Unit Per Sht.

CODE	Thickness (mm)	CODE	Thickness (mm)
1,270 × 1,270 (mm)		1,500 × 1,500 (mm)	
81 56 31	1.0	**81 56 33**	2.0
32	1.5	**34**	3.0

Black VALQUALON™ Gasket

Junta negra VALQUALON
ブラックバルカロンガスケット 黒色 VALQUALON™ 垫片

Valqua® No. 7026 (For alkali)

Similar to their companion products, the No. 7020 and No. 7026 gaskets have excellent heat resistance, chemical resistance, and anti-cold flow properties.

Features:
Excellent alkali resistance.
Heat resistance.
Anti-cold flow properties.
Handling various chemical.

Temperature	Pressure
-200 to 200°C / -328 to 392°F	Max 4MPa

Suitable fluids: General fluids (water, steam, oil, etc.), solvents, corrosive liquids (especially, alkali liquid), liquefied gas, cryogenic fluid.
Applications: Pipe flanges, valve bonnets, towers & tanks.
The ring molded article supports JPI (ASME / ANSI).

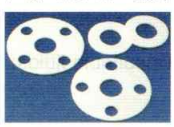
Unit Per Sht.

CODE	Thickness (mm)	Width × Length (mm)
81 56 35	1.5	1,270 × 1,270
36	2.0	
37	3.0	

New VALFON™ Gasket

Nueva junta VALFON ニューバルフロンカスケット 新 VALFON™ 垫片

Valqua® No. 7010-EX



Made of New VALFLON™ material with improved anti-creeping performance, while maintaining the PTFE's excellent chemical resistance.

Features:
• Anti-creeping performance.
• Excellent chemical resistance.
• Heat resistance.
• Non-stick properties.

Temperature	Pressure
-50 to 150°C / -58 to 302°F	Max 1 MPa

Suitable fluids: General fluids (water, steam, oil, etc.), solvents, corrosive liquids, liquefied gas.
Applications: Pipe flanges, valve bonnets, towers & tanks.
The ring molded article supports JPI (ASME / ANSI).

Unit Per Sht.

CODE	Thick (mm)	Size (mm)	CODE	Thick (mm)	Size (mm)
81 56 38	1.5	1,100×1,100	**81 56 39**	3.0	1,100×1,100

VALFON™ Soft Sheet

VALFON™ Hoja Blanda バルフロンソフトシート VALFON™ 软床单

Valqua® No. 7GP61S



This highly flexible sheet has a specially made mesh construction.

Features:
• Highly flexible sheets.
• Excellent chemicals resistance.
• Heat resistance.

Temperature	Pressure
-240 to 260°C / -400 to 500°F	Max 2 MPa

Suitable fluids: General fluids (water, steam, oil, etc.), solvents, corrosive liquids.
Applications: Pipe flanges, valve bonnets, towers & tanks.
The ring molded article supports JPI (ASME / ANSI).

Unit Per Sht.

CODE	Thickness (mm)	Width × Length (mm)
81 56 41	1.5	1,500 × 1,500
42	2.0	
43	3.0	

VALQUAFOIL™ (Expanded Graphite) Gaskets

Junta VALQUAFOIL™ (grafito expandido)
バルカホイルシートガスケット
VALQUAFOIL™（膨胀石墨）垫片

Valqua® No. VF-35E



Leverages the characteristics of the pure graphite sealing material VALQUAFOIL™.

Features:
- Excellent heat resistance.
- Very small changes in physical properties under high temperatures .
- Low stress relaxation.
- Chemical resistance.

Temperature	Pressure
-240 to 400°C / -400 to 752°F	Max 5 MPa

Suitable fluids: General fluids (water, steam, oil, etc.), corrosive liquids, liquefied gas, cryogenic fluid.
Unsuitable fluids: Not applicable to oxidizing acids such as hot concentrated sulfuric acid and concentrated nitric acid.
Applications: Pipe flanges, valve bonnets, covers, various industries.
The ring molded article supports JPI (ASME / ANSI).

Unit Per Sht.

CODE	Thick (mm)	Size	CODE	Thick (mm)	Size
81 56 51	0.8	1,000 × 1,000	**81 56 53**	3.0	1,000 × 1,000
52	1.6				

Non-Asbestos Manhole Packings

Empaquetadura de Amianto para Registro
マンホールパッキン　非石棉密封垫



Flat folded glass cloth with rubber lined manhole packing in the required manhole sizes. All sizes are made to order except for the standard sizes listed below. When ordering, specify the inside longer length (L), inside shorter length (S), width (W), and thickness (T).

How to order: CODE

Manhole packing, non-asbestos, INSIDE LONGER LENGTH, INSIDE SHORTER LENGTH, WIDTH and THICKNESS mm

Unit Per Pc.

CODE	Dimensions mm			
	Inside Length (L)	Inside Length (S)	Width (W)	Thick (T)
81 15 96	400	300	25.4	6.4
97	400	300	22.3	9.6
81 15 98	380	260	25.4	6.4
99	380	260	22.3	9.6

*Sizes not listed above are made to order.

Spiral Wound Gaskets

Juntas Espirometálicas　スパイラルガスケット　缠绕式垫片

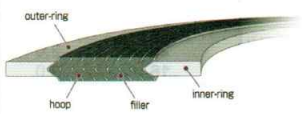
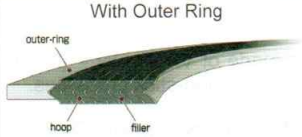
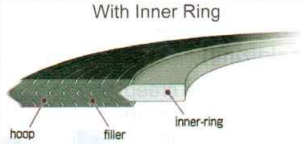
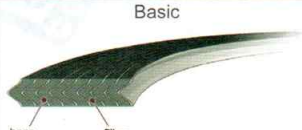


Spirally wound gaskets are constructed of a continuous strip of preformed V shaped metal which is wound spirally with pure graphite and inorganic fibers as fillers instead of asbestos, which is excellent in gas sealing and heat resistance. The complex combination of a single metal ply and soft filler offers greater resiliency than any other metallic gasket and therefore provides good compensation for relaxation, temperature or pressure cycling, and shock or vibration.

Because there is a variety of sizes, shapes, and materials available such as copper, iron, stainless steel, monel, aluminium, and combinations of metal, pure graphite and inorganic fibers, please specify the details referring to the illustration below. A sample is acceptable for order made gaskets, but the standard shapes are illustrated below for your information.

Applications: Pipe flanges, tanks, valve bonnets and other equipment.

< Standard Shape of Spiral Wound Gasket >

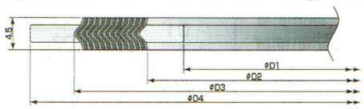
	Type	Usage
IOR	With Inner & Outer Ring 	Used on plain flat face, and raised face flanges. Inner ring prevents inner buckling of sealing element, protects from heat and media. Outer ring serves to center the gasket in the flange joint and work to prevent media from blowout.
OR	With Outer Ring 	Used on plain flat face flanges, and raised face flanges. Outer ring serves to center the gasket in the flange joint and work to prevent media from blowout.
IR	With Inner Ring 	Used for tongue and groove type, male and female type of flanges, sealing the pump casing joint and valves bonnet and body fixing joints
R	Basic 	

< Standard Material of Spiral Wound Gasket >

Material Type	Temperature	Pressure	Suitable fluids
Expanded Graphite	*-270 to 450°C / -454 to 842°F	Max 43.1 MPa	General fluids (water, oil, etc.), high temperature & high pressure steam, liquefied gas, cryogenic fluid.
Non Asbestos	-200 to 500°C / -328 to 932°F	Max 30.0 MPa	General fluids (water, steam, oil etc.), high temperature & high pressure fluids, liquefied gas
PTFE	-200 to 260°C / -328 to 500°F	Max 15.5 MPa	General fluids (water, steam, oil, etc.), solvents, corrosive liquids, liquefied gas, gas (oxygen, etc.)

* For use under a non-oxidizing atmosphere, it is up to 600°C.

Round Shape with Inner & Outer Rings "IOR"



How to order: CODE

Gasket, wound, spiral, Shape "IOR", SIZE, PRESSURE, MATERIAL (GRAPHITE/ PTFE/NON ASBESTOS), THICKNESS

JIS 10K, 16K/20K

Unit Per Pc.

Nom. Dia	JIS 10K CODE	D1	Main Gasket D2	Main Gasket D3	D4	JIS 16K, 20K CODE	D1	Main Gasket D2	Main Gasket D3	D4
10A	**81 57 01**	18	24	37	52	**81 57 26**	18	24	37	52
15A	**02**	22	28	41	57	**27**	22	28	41	57
20A	**03**	28	34	47	62	**28**	28	34	47	62
25A	**04**	34	40	53	74	**29**	34	40	53	74
32A	**05**	43	51	67	84	**30**	43	51	67	84
40A	**81 57 06**	49	57	73	89	**81 57 31**	49	57	73	89
50A	**07**	61	69	89	104	**32**	61	69	89	104
65A	**08**	77	87	107	124	**33**	77	87	107	124
80A	**09**	89	98	118	134	**34**	89	98	119	140
90A	**10**	102	112	130	144	**35**	102	112	139	150
100A	**81 57 11**	115	125	143	159	**81 57 36**	115	127	152	165
125A	**12**	140	152	173	190	**37**	140	152	177	202
150A	**13**	166	178	199	220	**38**	166	182	214	237
175A	-	-	-	-	-	-	-	-	-	-
200A	**14**	217	229	252	270	**39**	217	233	265	282
225A	-	-	-	-	-	-	-	-	-	-
250A	**81 57 15**	268	282	310	332	**81 57 40**	268	288	328	354
300A	**16**	319	333	361	377	**41**	319	339	379	404
350A	**17**	356	372	406	422	**42**	356	376	416	450
400A	**18**	407	423	457	484	**43**	407	432	482	508
450A	**81 57 19**	458	478	518	539	**81 57 44**	458	483	533	573
500A	**20**	508	528	568	594	**45**	508	533	583	628
550A	**21**	559	579	619	650	**46**	559	584	634	684
600A	**22**	610	630	670	700	**47**	610	635	685	734

DIN PN10, PN16

Unit Per Pc.

Nom. Dia	PN 10 CODE	D1	Main Gasket D2	Main Gasket D3	D4	PN 16 CODE	D1	Main Gasket D2	Main Gasket D3	D4
10A	**81 57 51**	18	24	36	46	**81 57 71**	18	24	36	46
15A	**52**	24	30	42	51	**72**	24	30	42	51
20A	**53**	27	33	47	61	**73**	27	33	47	61
25A	**54**	34	40	54	71	**74**	34	40	54	71
32A	**55**	44	50	66	82	**75**	44	50	66	82
40A	**81 57 56**	51	57	73	92	**81 57 76**	51	57	73	92
50A	**57**	59	69	87	107	**77**	59	69	87	107
65A	**58**	73	83	103	127	**78**	73	83	103	127
80A	**59**	87	97	117	142	**79**	87	97	117	142
90A	-	-	-	-	-	-	-	-	-	-
100A	**81 57 60**	114	124	144	162	**81 57 80**	114	124	144	162
125A	**61**	140	150	172	192	**81**	140	150	172	192
150A	**62**	168	178	200	217	**82**	168	178	200	217
175A	**63**	189	199	225	247	**83**	189	199	225	247
200A	**64**	220	230	256	272	**84**	220	230	256	272
225A	-	-	-	-	-	-	-	-	-	-
250A	**81 57 65**	269	279	307	327	**81 57 85**	269	279	307	328
300A	**66**	319	329	357	377	**86**	319	329	357	383
350A	**67**	365	375	405	437	**87**	365	375	405	443
400A	**68**	416	426	458	488	**88**	416	426	458	495
450A	-	-	-	-	-	-	-	-	-	-
500A	**81 57 69**	520	530	566	593	**81 57 89**	520	530	566	617
550A	-	-	-	-	-	-	-	-	-	-
600A	**81 57 70**	615	630	666	695	**81 57 90**	615	630	666	734

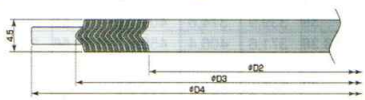
ASME/ANSI Class 150, 300

Unit Per Pc.

Nom. Dia	ASME Class 150 CODE	D1	Main Gasket D2	Main Gasket D3	D4	ASME Class 300 CODE	D1	Main Gasket D2	Main Gasket D3	D4
1/2B	**81 57 91**	14.2	19.0	31.8	47.8	**81 58 11**	14.2	19.0	31.8	54.1
3/4B	**92**	20.6	25.4	39.6	57.2	**12**	20.6	25.4	39.6	66.8
1B	**93**	26.9	31.8	47.8	66.8	**13**	26.9	31.8	47.8	73.2
1-1/4B	**94**	38.1	47.8	60.5	76.2	**14**	38.1	47.8	60.5	82.6
1-1/2B	**95**	44.4	54.1	69.8	85.9	**15**	44.4	54.1	69.8	95.2
2B	**81 57 96**	55.6	69.8	85.9	104.9	**81 58 16**	55.6	69.8	85.9	111.3
2-1/2B	**97**	66.5	82.6	98.6	124.0	**17**	66.5	82.6	98.6	130.3
3B	**98**	81.0	101.6	120.6	136.7	**18**	81.0	101.6	120.6	149.4
3-1/2B	**99**	93.7	114.3	133.3	161.9	**19**	93.7	114.3	133.3	165.1
4B	**81 58 00**	106.4	127.0	149.4	174.8	**20**	106.4	127.0	149.4	181.1
5B	**81 58 01**	131.8	155.7	177.8	196.8	**81 58 21**	131.8	155.7	177.8	215.9
6B	**02**	157.2	182.6	209.6	222.2	**22**	157.2	182.6	209.6	251.0
8B	**03**	215.9	233.4	263.7	279.4	**23**	215.9	233.4	263.7	308.1
10B	**04**	268.2	287.3	317.5	339.9	**24**	268.2	287.3	317.5	362.0
12B	**05**	317.5	339.9	374.6	409.7	**25**	317.5	339.9	374.6	422.4
14B	**81 58 06**	349.2	371.6	406.4	450.8	**81 58 26**	349.2	371.6	406.4	485.9
16B	**07**	400.0	422.4	463.6	514.4	**27**	400.0	422.4	463.6	539.8
18B	**08**	449.3	474.7	527.0	549.4	**28**	449.3	474.7	527.0	596.9
20B	**09**	500.1	525.5	577.8	606.6	**29**	500.1	525.5	577.8	654.0
24B	**10**	603.2	628.6	685.8	717.6	**30**	603.2	628.6	685.8	774.7

(to be continued)

Round Shape with Outer Ring "OR"



How to order: CODE

Gasket, wound, spiral, Shape "OR", SIZE, PRESSURE, MATERIAL (GRAPHITE/ PTFE/NON ASBESTOS), THICKNESS

JIS 10K, 16K/20K

Unit Per Pc.

Nom. Dia	JIS 10K CODE	Main Gasket D2	Main Gasket D3	D4	JIS 16K, 20K CODE	Main Gasket D2	Main Gasket D3	D4
10A	**81 58 31**	24	37	52	**81 58 56**	24	37	52
15A	**32**	28	41	57	**57**	28	41	57
20A	**33**	34	47	62	**58**	34	47	62
25A	**34**	40	53	74	**59**	40	53	74
32A	**35**	51	67	84	**60**	51	67	84
40A	**81 58 36**	57	73	89	**81 58 61**	57	73	89
50A	**37**	69	89	104	**62**	69	89	104
65A	**38**	87	107	124	**63**	87	107	124
80A	**39**	98	118	134	**64**	99	119	140
90A	**40**	110	130	144	**65**	114	139	150
100A	**81 58 41**	123	143	159	**81 58 66**	127	152	165
125A	**42**	148	173	190	**67**	152	177	202
150A	**43**	174	199	220	**68**	182	214	237
175A	**44**	201	226	245	-	-	-	-
200A	**45**	227	252	270	**69**	233	265	282
225A	**81 58 46**	252	277	290	-	-	-	-
250A	**47**	278	310	332	**81 58 70**	288	328	354
300A	**48**	329	361	377	**71**	339	379	404
350A	**49**	366	406	422	**72**	376	416	450
400A	**50**	417	457	484	**73**	432	482	508
450A	**81 58 51**	468	518	539	**81 58 74**	483	533	573
500A	**52**	518	568	594	**75**	533	583	628
550A	**53**	569	619	650	**76**	584	634	684
600A	**54**	620	670	700	**77**	635	685	734

DIN PN10, PN16

Unit Per Pc.

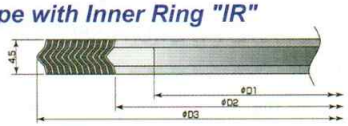
Nom. Dia	PN 10 CODE	Main Gasket D2	Main Gasket D3	D4	PN 16 CODE	Main Gasket D2	Main Gasket D3	D4
10A	**81 58 81**	24	36	46	**81 59 01**	24	36	46
15A	**82**	30	42	51	**02**	30	42	51
20A	**83**	33	47	61	**03**	33	47	61
25A	**84**	40	54	71	**04**	40	54	71
32A	**85**	50	66	82	**05**	50	66	82
40A	**81 58 86**	57	73	92	**81 59 06**	57	73	92
50A	**87**	69	87	107	**07**	69	87	107
65A	**88**	83	103	127	**08**	83	103	127
80A	**89**	97	117	142	**09**	97	117	142
90A	-	-	-	-	-	-	-	-
100A	**81 58 90**	124	144	162	**81 59 10**	124	144	162
125A	**91**	150	172	192	**11**	150	172	192
150A	**92**	178	200	217	**12**	178	200	217
175A	**93**	199	225	247	**13**	199	225	247
200A	**94**	230	256	272	**14**	230	256	272
225A	-	-	-	-	-	-	-	-
250A	**81 58 95**	279	307	327	**81 59 15**	279	307	328
300A	**96**	329	357	377	**16**	329	357	383
350A	**97**	375	405	437	**17**	375	405	443
400A	**98**	426	458	488	**18**	426	458	495
450A	-	-	-	-	-	-	-	-
500A	**81 58 99**	530	566	593	**81 59 19**	530	566	617
550A	-	-	-	-	-	-	-	-
600A	**81 59 00**	630	666	695	**81 59 20**	630	666	734

ASME/ANSI Class 150, 300

Unit Per Pc.

Nom. Dia	ASME Class 150 CODE	Main Gasket D2	Main Gasket D3	D4	ASME Class 300 CODE	Main Gasket D2	Main Gasket D3	D4
1/2B	**81 59 21**	19.0	31.8	47.8	**81 59 41**	19.0	31.8	54.1
3/4B	**22**	25.4	39.6	57.2	**42**	25.4	39.6	66.8
1B	**23**	31.8	47.8	66.8	**43**	31.8	47.8	73.2
1-1/4B	**24**	47.8	60.5	76.2	**44**	47.8	60.5	82.6
1-1/2B	**25**	54.1	69.8	85.9	**45**	54.1	69.8	95.2
2B	**81 59 26**	69.8	85.9	104.9	**81 59 46**	69.8	85.9	111.3
2-1/2B	**27**	82.6	98.6	124.0	**47**	82.6	98.6	130.3
3B	**28**	101.6	120.6	136.7	**48**	101.6	120.6	149.4
3-1/2B	**29**	114.3	133.3	161.9	**49**	114.3	133.3	165.1
4B	**30**	127.0	149.4	174.8	**50**	127.0	149.4	181.1
5B	**81 59 31**	155.7	177.8	196.8	**81 59 51**	155.7	177.8	215.9
6B	**32**	182.6	209.6	222.2	**52**	182.6	209.6	251.0
8B	**33**	233.4	263.7	279.4	**53**	233.4	263.7	308.1
10B	**34**	287.3	317.5	339.9	**54**	287.3	317.5	362.0
12B	**35**	339.9	374.6	409.7	**55**	339.9	374.6	422.4
14B	**81 58 36**	371.6	406.4	450.8	**81 59 56**	371.6	406.4	485.9
16B	**37**	422.4	463.6	514.4	**57**	422.4	463.6	539.8
18B	**38**	474.7	527.0	549.4	**58**	474.7	527.0	596.9
20B	**39**	525.5	577.8	606.6	**59**	525.5	577.8	654.0
24B	**40**	628.6	685.8	717.6	**60**	628.6	685.8	774.7

Round Shape with Inner Ring "IR"



How to order: CODE

Gasket, wound, spiral, Shape "IR", SIZE, PRESSURE, MATERIAL (GRAPHITE/ PTFE/NON ASBESTOS), THICKNESS

JIS 16K - 63K

Unit Per Pc.

CODE	Nominal Diameter	D1	Main Gasket D2	Main Gasket D3
81 59 61	10A	19	25	38
62	15A	23	29	42
63	20A	31	37	50
64	25A	38	44	60
65	32A	46	54	70
81 59 66	40A	51	59	75
67	50A	62	70	90
68	65A	80	90	110
69	80A	90	100	120
70	90A	100	110	130
81 59 71	100A	113	125	145
72	125A	138	150	175
73	150A	171	187	215
74	200A	215	231	259
75	250A	268	288	324
81 59 76	300A	318	338	374
77	350A	356	376	414
78	400A	409	434	474

DIN PN10, PN16

Unit Per Pc.

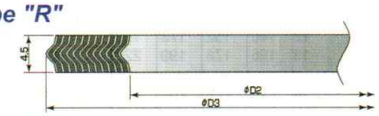
CODE	Nominal Diameter	D1	Main Gasket D2	Main Gasket D3
81 59 81	10A	18	24	36
82	15A	24	30	42
83	20A	27	33	47
84	25A	34	40	54
85	32A	44	50	66
81 59 86	40A	51	57	73
87	50A	59	69	87
88	65A	73	83	103
89	80A	87	97	117
-	90A	-	-	-
81 59 90	100A	114	124	144
91	125A	140	150	172
92	150A	168	178	200
93	175A	189	199	225
94	200A	220	230	256
-	225A	-	-	-
81 59 95	250A	269	279	307
96	300A	319	329	357
97	350A	365	375	405
98	400A	416	426	458
-	450A	-	-	-
81 59 99	500A	520	530	566
-	550A	-	-	-
81 60 00	600A	615	630	666

ASME/ANSI Class 300

Unit Per Pc.

CODE	Nominal Diameter	D1	Main Gasket D2	Main Gasket D3
81 60 01	1/2B	14.2	25.1	35.4
02	3/4B	20.6	33.0	43.2
03	1B	26.9	37.8	51.1
04	1-1/4B	38.1	47.2	63.8
05	1-1/2B	44.4	53.5	73.5
81 60 06	2B	55.6	72.6	92.5
07	2-1/2B	66.5	85.3	105.2
08	3B	81.0	107.6	127.3
09	3-1/2B	93.7	120.3	140.0
10	4B	106.4	131.2	157.6
81 60 11	5B	131.8	160.0	186.3
12	6B	157.2	190.2	216.3
13	8B	215.9	237.7	270.0
14	10B	268.2	285.7	323.9
15	12B	317.5	342.9	381.0
81 60 16	14B	349.2	374.6	412.8
17	16B	400.0	425.4	469.9
18	18B	449.3	488.9	533.4
19	20B	500.1	533.4	584.2
20	24B	603.2	641.8	691.7

Round Shape "R"



How to order: CODE

Gasket, wound, spiral, Shape "R", SIZE, PRESSURE, MATERIAL (GRAPHITE/ PTFE/NON ASBESTOS), THICKNESS

JIS 16K - 63K

Unit Per Pc.

Nominal Diameter	Tongue & Groove Flange CODE	Tongue & Groove Flange D2	Tongue & Groove Flange D3	Male & Female Flange CODE	Male & Female Flange D2	Male & Female Flange D3
10A	**81 60 21**	28	38	**81 60 41**	25	38
15A	**22**	32	42	**42**	29	42
20A	**23**	38	50	**43**	37	50
25A	**24**	45	60	**44**	44	60
32A	**25**	55	70	**45**	54	70
40A	**81 60 26**	60	75	**81 60 46**	59	75
50A	**27**	70	90	**47**	70	90
65A	**28**	90	110	**48**	90	110
80A	**29**	100	120	**49**	100	120
90A	**30**	110	130	**50**	110	130
100A	**81 60 31**	125	145	**81 60 51**	125	145
125A	**32**	150	175	**52**	150	175
150A	**33**	190	215	**53**	187	215
200A	**34**	230	259	**54**	231	259
250A	**35**	296	324	**55**	288	324
300A	**81 60 36**	341	374	**81 60 56**	338	374
350A	**37**	381	414	**57**	376	414
400A	**38**	441	474	**58**	434	474

DIN PN10, PN16

Unit Per Pc.

CODE	Nominal Diameter	D2	D3
81 60 61	10A	24	36
62	15A	30	42
63	20A	33	47
64	25A	40	54
65	32A	50	66
81 60 66	40A	57	73
67	50A	69	87
68	65A	83	103
69	80A	97	117
-	90A	-	-
81 60 70	100A	124	144
71	125A	150	172
72	150A	178	200
73	175A	199	225
74	200A	230	256
-	225A	-	-
81 60 75	250A	279	307
76	300A	329	357
77	350A	375	405
78	400A	426	458
-	450A	-	-
81 60 79	500A	530	566
-	550A	-	-
81 60 80	600A	630	666

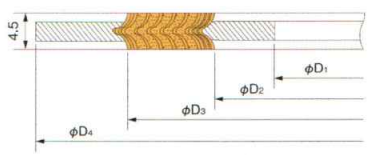
ASME/ANSI Class 300 - 2500

Unit Per Pc.

CODE	Nominal Diameter	D2	D3
81 60 81	1/2B	25.1	35.4
82	3/4B	33.0	43.2
83	1B	37.8	51.1
84	1-1/4B	47.2	63.8
85	1-1/2B	53.5	73.5
81 60 86	2B	72.6	92.5
87	2-1/2B	85.3	105.2
88	3B	107.6	127.3
89	3-1/2B	120.3	140.0
90	4B	131.2	157.6
81 60 91	5B	160.0	186.3
92	6B	190.2	216.3
93	8B	237.7	270.0
94	10B	285.7	323.9
95	12B	342.9	381.0
81 60 96	14B	374.6	412.8
97	16B	425.4	469.9
98	18B	488.9	533.4
99	20B	533.4	584.2
81 61 00	24B	641.8	691.7

JIS Standard Gasket Size for other Rating Pressure

IR ID = Inner Ring Inner Diameter
OR OD = Outer Ring Outer Diameter



30K

(mm)

Nominal Diameter	IR ID	Main Gasket		OR OD
		ID	OD	
	D1	D2	D3	D4
10A	18	24	37	59
15A	22	28	41	64
20A	28	34	47	69
25A	34	40	53	79
32A	43	51	67	89
40A	49	57	73	100
50A	61	69	89	114
65A	68	78	98	140
80A	80	90	110	150
90A	92	102	127	162
100A	104	116	141	172
125A	128	140	165	207
150A	153	165	197	249
175A	-	-	-	-
200A	202	218	250	294
225A	-	-	-	-
250A	251	271	311	360
300A	300	320	360	418
350A	336	356	396	463
400A	383	403	453	524

40K

(mm)

Nominal Diameter	IR ID	Main Gasket		OR OD
		ID	OD	
	D1	D2	D3	D4
10A	15	21	34	59
15A	18	24	37	64
20A	23	29	42	69
25A	29	35	48	79
32A	38	44	60	89
40A	43	51	67	100
50A	55	63	79	114
65A	68	78	98	140
80A	80	90	110	150
90A	92	102	127	162
100A	104	116	141	182
125A	128	140	165	224
150A	153	165	197	265
175A	-	-	-	-
200A	202	218	250	315
225A	-	-	-	-
250A	251	271	311	378
300A	300	320	360	434
350A	336	356	396	479
400A	383	403	453	531

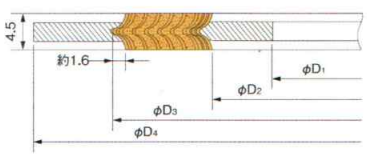
63K

Unit Per Pc.

Nominal Diameter	IR ID	Main Gasket		OR OD
		ID	OD	
	D1	D2	D3	D4
10A	15	21	34	64
15A	18	24	37	69
20A	23	29	42	75
25A	29	35	48	80
32A	38	44	60	90
40A	43	51	67	107
50A	55	63	79	125
65A	68	78	98	152
80A	80	90	110	162
90A	92	102	127	179
100A	104	116	141	194
125A	128	140	165	235
150A	153	165	197	275
175A	-	-	-	-
200A	202	218	250	328
225A	-	-	-	-
250A	251	271	311	394
300A	300	320	360	446
350A	336	356	396	488
400A	383	403	453	545

DIN Standard Gasket Size for other Rating Pressure

IR ID = Inner Ring Inner Diameter
OR OD = Outer Ring Outer Diameter



PN25, 40

(mm)

Nominal Diameter	IR ID	Main Gasket		OR OD	
		ID	OD	PN25	PN40
	D1	D2	D3	D4	
10A	18	24	36	46	46
15A	24	30	42	51	51
20A	27	33	47	61	61
25A	34	40	54	71	71
32A	44	50	66	82	82
40A	51	57	73	92	92
50A	59	69	87	107	107
65A	73	83	103	127	127
80A	87	97	117	142	142
90A	-	-	-	-	-
100A	114	124	144	168	168
125A	140	150	172	194	194
150A	168	178	200	224	224
175A	189	199	225	254	265
200A	220	230	256	284	290
225A	-	-	-	-	-
250A	269	279	307	340	352
300A	319	329	357	400	417
350A	365	375	405	457	474
400A	416	426	458	514	546
450A	-	-	-	-	-
500A	520	530	566	624	628
550A	-	-	-	-	-
600A	615	630	666	731	747

PN64 - 250

(mm)

Nominal Diameter	IR ID	Main Gasket		OR OD			
		ID	OD	PN64	PN100	PN160	PN250
	D1	D2	D3	D4			
10A	18	24	36	56	56	56	67
15A	24	30	42	61	61	61	72
20A	27	33	47	72	72	-	-
25A	34	40	54	82	82	82	83
32A	44	50	66	87	87	-	-
40A	51	57	73	103	103	103	109
50A	59	69	87	113	119	119	124
65A	73	83	103	138	144	144	154
80A	87	97	117	148	154	154	170
90A	-	-	-	-	-	-	-
100A	114	124	144	174	180	180	202
125A	140	150	172	210	217	217	242
150A	168	178	200	247	257	257	284
175A	189	199	225	277	287	284	316
200A	220	230	256	309	324	324	358

(to be continued)

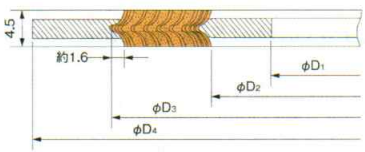
PN64 - 250

(mm)

Nominal Diameter	IR ID	Main Gasket		OR OD			
		ID	OD	PN64	PN100	PN160	PN250
	D1	D2	D3	D4			
225A	-	-	-	-	-	-	-
250A	269	279	307	364	391	388	442
300A	319	329	357	424	458	458	538
350A	365	375	405	486	512	-	-
400A	416	426	458	543	572	-	-
450A	-	-	-	-	-	-	-
500A	520	530	566	657	704	-	-
550A	-	-	-	-	-	-	-
600A	615	630	666	764	813	-	-

ASME/ANSI Standard Gasket Size for other Rating Pressure

IR ID = Inner Ring Inner Diameter
OR OD = Outer Ring Outer Diameter



Class 400

(mm)

Nominal Diameter	IR ID	Main Gasket		OR OD
		ID	OD	
	D1	D2	D3	D4
1/2B	14.2	19.1	31.8	54.1
3/4B	20.6	25.4	39.6	66.8
1B	26.9	31.8	47.8	73.2
1-1/4B	38.1	47.8	60.5	82.6
1-1/2B	44.5	54.1	69.9	95.3
2B	55.6	69.9	85.9	111.3
2-1/2B	66.5	82.6	98.6	130.3
3B	81.0	101.6	120.7	149.4
4B	102.6	120.7	149.4	177.8
5B	128.3	147.6	177.8	212.9
6B	154.9	174.8	209.6	247.7
8B	205.7	225.6	263.7	304.8
10B	255.3	274.6	317.5	358.9
12B	307.3	327.2	374.7	419.1
14B	342.9	362.0	406.4	482.6
16B	389.9	412.8	463.6	536.7
18B	438.2	469.9	527.1	593.9
20B	489.0	520.7	577.9	647.7
24B	590.6	628.7	685.8	768.4

Class 600

(mm)

Nominal Diameter	IR ID	Main Gasket		OR OD
		ID	OD	
	D1	D2	D3	D4
1/2B	14.2	19.1	31.8	54.1
3/4B	20.6	25.4	39.6	66.8
1B	26.9	31.8	47.8	73.2
1-1/4B	38.1	47.8	60.5	82.6
1-1/2B	44.5	54.1	69.9	95.3
2B	55.6	69.9	85.9	111.3
2-1/2B	66.5	82.6	98.6	130.3
3B	81.0	101.6	120.7	149.4
4B	102.6	120.7	149.4	193.8
5B	128.3	147.6	177.8	241.3
6B	154.9	174.8	209.6	266.7
8B	205.7	225.6	263.7	320.8
10B	255.3	274.6	317.5	400.1
12B	307.3	327.2	374.7	457.2
14B	342.9	362.0	406.4	492.3
16B	389.9	412.8	463.6	565.2
18B	438.2	469.9	527.1	612.9
20B	489.0	520.7	577.9	682.8
24B	590.6	628.7	685.8	790.7

Class 900

(mm)

Nominal Diameter	IR ID	Main Gasket		OR OD
		ID	OD	
	D1	D2	D3	D4
1/2B	14.2	19.1	31.8	63.5
3/4B	20.6	25.4	39.6	69.9
1B	26.9	31.8	47.8	79.5
1-1/4B	33.3	39.6	60.5	88.9
1-1/2B	41.4	47.8	69.9	98.6
2B	52.3	58.7	85.9	143.0
2-1/2B	63.5	69.9	98.6	165.1
3B	78.7	95.3	120.7	168.4
4B	102.6	120.7	149.4	206.5
5B	128.3	147.6	177.8	247.7
6B	154.9	174.8	209.6	289.1
8B	196.9	222.3	257.3	358.9
10B	246.1	276.4	311.2	435.1
12B	292.1	323.9	368.3	498.6
14B	320.8	355.6	400.1	520.7
16B	374.7	412.8	457.2	574.8
18B	425.5	463.6	520.7	638.3
20B	482.6	520.7	571.5	698.5
24B	590.6	628.7	679.5	838.2

Class 1500

(mm)

Nominal Diameter	IR ID	Main Gasket		OR OD
		ID	OD	
	D1	D2	D3	D4
1/2B	14.2	19.1	31.8	63.5
3/4B	20.6	25.4	39.6	69.9
1B	26.9	31.8	47.8	79.5
1-1/4B	33.3	39.6	60.5	88.9
1-1/2B	41.4	47.8	69.9	98.6
2B	52.3	58.7	85.9	143.0
2-1/2B	63.5	69.9	98.6	165.1
3B	78.7	92.2	120.7	174.8
4B	97.8	117.6	149.4	209.6
5B	124.5	143.0	177.8	254.0
6B	147.3	171.5	209.6	282.7
8B	196.9	215.9	257.3	352.6
10B	246.1	266.7	311.2	435.1
12B	292.1	323.9	368.3	520.7
14B	320.8	362.0	400.1	577.9
16B	368.3	406.4	457.2	641.4
18B	425.5	463.6	520.7	704.9
20B	476.3	514.4	571.5	755.7
24B	577.9	616.0	679.5	901.7

Class 2500

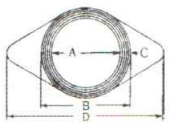
(mm)

Nominal Diameter	IR ID	Main Gasket		OR OD
		ID	OD	
	D1	D2	D3	D4
1/2B	14.2	19.1	31.8	69.9
3/4B	20.6	25.4	39.6	76.2
1B	26.9	31.8	47.8	85.9
1-1/4B	33.3	39.6	60.5	104.9
1-1/2B	41.4	47.8	69.9	117.6
2B	52.3	58.7	85.9	146.1
2-1/2B	63.5	69.9	98.6	168.4
3B	78.7	92.2	120.7	196.9
4B	97.8	117.6	149.4	235.0
5B	124.5	143.0	177.8	279.4
6B	147.3	171.5	209.6	317.5
8B	196.9	215.9	257.3	387.4
10B	246.1	270.0	311.2	476.3
12B	292.1	317.5	368.3	549.4

<Other Shape of Spiral Wound Gasket>

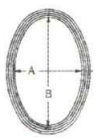
Hanger Shape

When ordering, specify PRESSURE, MATERIAL, LARGEST OUTSIDE SIZE (D), OUTER DIAM (B), INNER DIAM (A), and THICKNESS. Inner or outer ring if any.



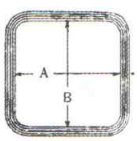
Oval Shape

When ordering, specify PRESSURE, MATERIAL, INNER & OUTER SIZES for A, INNER & OUTER SIZES for B, and THICKNESS.



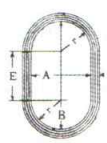
Square Shape

When ordering, specify PRESSURE, MATERIAL, INNER & OUTER SIZES for A, INNER & OUTER SIZES for B and THICKNESS.



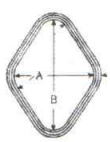
Oblong Shape

When ordering, specify PRESSURE, MATERIAL, INNER & OUTER SIZES for A, INNER & OUTER SIZES for B, RADIUS
for r, LENGTH for E, and THICKNESS.



Diamond Shape

When ordering, specify PRESSURE, MATERIAL, INNER & OUTER SIZES for A, INNER & OUTER SIZES for B, RADIUS
for r1 & r2, and THICKNESS.



Non-Asbestos Spiral Wound Gasket

Manufacturing ranges:

(mm)

Gasket Thickness	Manufacturing ranges Inside Diameter
4.5	10 to 3,000

Valqua® No.	Type	
＊＊＊0 Series (for example 6590 series)	R	Basic
＊＊＊1 Series (for example 6591 series)	OR	With Outer Ring
＊＊＊2 Series (for example 6592 series)	IR	With Inner Ring
＊＊＊6 Series (for example 6596 series)	IOR	With Inner & Outer Ring

Applications: Pipe flanges, tanks, valve bonnets and other equipment

BLACKTIGHT™



VALQUA® No. 6590 Series

These gaskets are composed of pure graphite (expanded graphite) as filler material.

Features:
- Reducing retightening frequency
- Excellent air tightness
- Excellent sealing properties at very low temperatures

Temperature	Pressure
−270 to 450°C / −454 to 842°F	Max 30.0 MPa

Suitable fluids: General fluids (water, oil, etc.), high temperature & high pressure steam, liquefied gas, cryogenic fluid.

Unit Per Pc.

CODE	Valqua® No.	Type	
81 18 03	6590	R	Basic
81 18 04	6591	OR	With outer ring
81 18 05	6592	IR	With inner ring
81 18 06	6596	IOR	With inner & outer ring

How to order: 81 - 18 - XX

Gasket, wound, spiral, SHAPE, PRESSURE, MATERIAL (INNER RING, HOOP, OUTER RING), OUTER DIAM, INNER DIAM, THICKNESS

WHITETIGHT™



VALQUA® No. 7590 Series

These gaskets are composed of PTFE tape as a filler material.

Features:
- Excellent corrosion resistance
- Excellent air tightness

Temperature	Pressure
−260 to 300°C / −436 to 572°F	Max 20.0 MPa

Suitable fluids: General fluids (water, steam, oil, etc.), solvents, corrosive liquids, liquefied gas, gas (oxygen, etc.)

Unit Per Pc.

CODE	Valqua® No.	Type	
81 18 07	7590	R	Basic
81 18 08	7592	IR	With inner ring
81 18 09	7596	IOR	With inner & outer ring

How to order: 81 - 18 - XX

Gasket, wound, spiral, SHAPE, PRESSURE, MATERIAL (INNER RING, HOOP, OUTER RING), OUTER DIAM, INNER DIAM, THICKNESS

CLEANTIGHTTM



VALQUA® No. 8590 Series

These gaskets are composed of non-asbestos-based inorganic paper tape as a filler material.

Features:
- Excellent heat resistance

Temperature	Pressure
−200 to 500°C / −328 to 932°F	Max 30.0 MPa

Suitable fluids: General fluids (water, steam, oil etc.), high-temperature & high-pressure fluids, liquefied gas

Unit Per Pc.

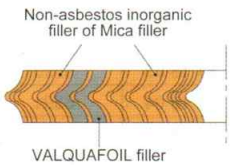
CODE	Valqua® No.	Type	
81 18 31	8590	R	Basic
81 18 32	8591	OR	With outer ring
81 18 33	8592	IR	With inner ring
81 18 34	8596	IOR	With inner & outer ring

How to order: 81 - 18 - XX

Gasket, wound, spiral, SHAPE, PRESSURE, MATERIAL (INNER RING, HOOP, OUTER RING), OUTER DIAM, INNER DIAM, THICKNESS

Spiral Wound Gaskets with Lines Lined CLEANTIGHT™

VALQUA® No. 8590L Series



These gaskets are composed of VALQUAFOIL™ (expanded graphite sealing material) filler that has been wound in the middle of inorganic fillers.

Features:

- Excellent heat resistance
- Airtight

Temperature	Pressure
−200 to 600°C / −328 to 1,112°F	Max 30.0 MPa

Unit Per Pc.

CODE	Valqua® No.	Type	
81 18 35	8590L	R	Basic
81 18 36	8591L	OR	With outer ring
81 18 37	8592L	IR	With inner ring
81 18 38	8596L	IOR	With inner & outer ring

How to order: 81 - 18 - XX

Gasket, wound, spiral, SHAPE, PRESSURE, MATERIAL (INNER RING, HOOP, OUTER RING), OUTER DIAM, INNER DIAM, THICKNESS

VALFLON™ Envelope Gaskets

VALFON® 封套型垫片
Junta envolvente VALFLON™
バルフロンジャケット形ガスケット



VALQUA® No. N7030 series

VALFLONTM (PTFE) Envelope Gasket using Compressed Non-Asbestos Fiber Sheet and Flexible Graphite in the core.

Feature:

· Excellent chemical resistance

Type	Temperature	Pressure (MPa)	Standard thickness (mm)
N	-100 to 150°C -148 to 302°F	Max 1.5	2.8
S	-100 to 200°C -148 to 392°F	Max 2.0	3.2
H	-100 to 260°C -148 to 500°F	Max 3.0	4.0

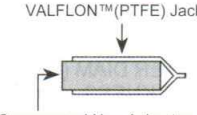
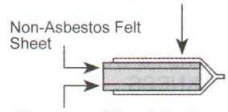
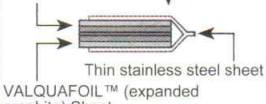
Suitable fluids: General fluids (water, steam, oil, etc.), solvents, corrosive liquids, liquefied gas.

Applications: Pipe flanges, tanks, valve bonnets, and other equipment used in various industries.

The ring molded article supports JPI (ASME / ANSI).

Type of VALFLON™ Envelope Gasket.

Unit Per Pc.

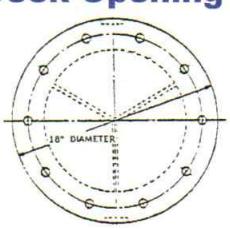
CODE	VALQUA® No.	Type
81 19 03	N7030 (N) Compressed non-asbestos fiber sheet inserted between VALFLON™ (PTFE) jacket	VALFLON™(PTFE) Jacket  Compressed Non-Asbestos Fiber Sheet **N type**
81 19 04	N7030 (S) Compressed non-asbestos fiber sheet inserted between VALFLON™ (PTFE) jacket and non-asbestos felt sheet	VALFLON™(PTFE) Jacket Non-Asbestos Felt Sheet  Compressed Non-Asbestos Fiber Sheet **S type**
81 19 05	N7030 (H) Thin stainless steel sheet inserted between VALFLON™ (PTFE) jacket, non-asbestos felt sheet and expanded graphite sheet	VALFLON™(PTFE) Jacket Non-Asbestos Felt Sheet  Thin stainless steel sheet VALQUAFOIL™ (expanded graphite) Sheet **H type**

How to order: CODE

Gasket, envelope Valflon, VALQUA® N7030 (N) or (S) or (H), JIS, PRESSURE, NOMINAL DIAMETER

Hole Gaskets for Deck Opening

Juntas para Orificio
船倉孔用パッキン　塑钢粘合剂



For deck opening holes on tankers. The available materials are non-asbestos, oil, vegetable oil, or oil-resistant rubber gaskets.

Guide of How to order:

When ordering, please specify the following points:

CODE	**81 20 01**
Name	Hole gasket for deck opening
Material	Oil resist rubber
Size O.D. × I.D. × Th	460 × 320 × 3.2 mm
Bolt Hole Circle×Diam×No.	390 × 22 mm × 10 holes

Flange Gaskets

Juntas para Brida　フランジガスケット　法兰衬垫

Two types of gaskets are available.



Ring gaskets which cover from the face of the flange to the inside edge of the bolts, and full face gaskets which cover the whole face of the flange including the bolt holes. These gaskets are made of either non-asbestos oil or vegetable oil. When ordering, specify the type of gasket (ring or full face), the pipe size and material, and the bolt hole number and size if required.

Guide of How to order:

CODE	**81 21 01**
Name	Flange gasket
Type	Full face
Pipe Size	100A
Material	Vegetable oil

Full Face Flange Gaskets

Non-Asbestos



Juntas de Brida de Cara Completa Sin amianto
ノンアスベスト全面銅包みフランジガスケット
无石棉 全端面法兰垫片

Commonly used for high temperature requirement such as incinerators or funnels. Material is available from steel, copper, aluminium, or stainless steel. Please specify the material when ordering.

How to order: CODE

Gasket, flange, full face, SIZE, MATERIALS PRESSURE RATING

5 kgf/cm² - Thick 2.0 mm

Unit Per Pc.

CODE	Nominal Size	I.D. × O.D. mm	CODE	Nominal Size	I.D. × O.D. mm
81 18 11	40A	49 × 120	**81 18 16**	100A	115 × 200
12	50A	61 × 130	**17**	125A	141 × 235
13	65A	84 × 155	**18**	150A	167 × 265
14	80A	90 × 180	**19**	175A	192 × 300
15	90A	102 × 190	**20**	200A	218 × 320

10 kgf/cm² - Thick 2.0 mm

Unit Per Pc.

CODE	Nominal Size	I.D. × O.D. mm	CODE	Nominal Size	I.D. × O.D. mm
81 18 21	40A	49 × 140	**81 18 26**	100A	115 × 210
22	50A	61 × 155	**27**	125A	141 × 250
23	65A	84 × 175	**28**	150A	167 × 280
24	80A	90 × 185	**29**	175A	192 × 305
25	90A	102 × 195	**30**	200A	218 × 330

Soft Flange Gaskets

Non-Asbestos

Juntas blandas para bridas sin amianto
ノンアスベストソフトフランジガスケット
非石棉软法兰垫圈



Valqua V6500

Raised Face
内パッキン 内填料

5 kgf/cm² - Thick 1.5 mm

Unit Per Pc.

CODE	Nominal Size	I.D. × O.D. mm	CODE	Nominal Size	I.D. × O.D. mm
81 18 51	15A	22 × 50	**81 18 56**	50A	61 × 93
52	20A	28 × 55	**57**	65A	84 × 118
53	25A	35 × 65	**58**	80A	90 × 129
54	32A	43 × 78	**59**	100A	115 × 149
55	40A	49 × 83	**60**	125A	141 × 184

10 kgf/cm² - Thick 1.5 mm

Unit Per Pc.

CODE	Nominal Size	I.D. × O.D. mm	CODE	Nominal Size	I.D. × O.D. mm
81 18 61	15A	22 × 58	**81 18 66**	50A	61 × 104
62	20A	28 × 63	**67**	65A	84 × 124
63	25A	35 × 74	**68**	80A	90 × 134
64	32A	43 × 84	**69**	100A	115 × 159
65	40A	49 × 89	**70**	125A	141 × 190

Full Face
全面パッキン 全脸填料



5 kgf/cm² - Thick 1.5 mm

Unit Per Pc.

CODE	Nominal Size	I.D. × O.D. mm	CODE	Nominal Size	I.D. × O.D. mm
81 18 71	15A	22 × 80	**81 18 76**	50A	61 × 130
72	20A	28 × 85	**77**	65A	84 × 155
73	25A	35 × 95	**78**	80A	90 × 180
74	32A	43 × 115	**79**	100A	115 × 200
75	40A	49 × 120	**80**	125A	141 × 235

10 kgf/cm² - Thick 1.5 mm

Unit Per Pc.

CODE	Nominal Size	I.D. × O.D. mm	CODE	Nominal Size	I.D. × O.D. mm
81 18 81	15A	22 × 95	**81 18 86**	50A	61 × 155
82	20A	28 × 100	**87**	65A	84 × 175
83	25A	35 × 125	**88**	80A	90 × 185
84	32A	43 × 135	**89**	100A	115 × 210
85	40A	49 × 140	**90**	125A	141 × 250

Flange Soft Gaskets

Non-Asbestos

Juntas blandas para bridas sin amianto
ノンアスベストソフトフランジガスケット
非石棉软法兰垫圈



Valqua VC610

Raised Face
内パッキン 内填料

5 kgf/cm² - Thick 3.0 mm

Unit Per Pc.

CODE	Nominal Size	I.D. × O.D. mm	CODE	Nominal Size	I.D. × O.D. mm
81 19 11	15A	22 × 50	**81 19 18**	80A	90 × 129
12	20A	28 × 55	**19**	100A	115 × 149
13	25A	35 × 65	**20**	125A	141 × 184
14	32A	43 × 78	**21**	150A	167 × 214
15	40A	49 × 83	**22**	200A	218 × 260
81 19 16	50A	61 × 93	**81 19 23**	250A	270 × 325
17	65A	84 × 118	**24**	300A	321 × 370

10 kgf/cm² - Thick 3.0 mm

Unit Per Pc.

CODE	Nominal Size	I.D. × O.D. mm	CODE	Nominal Size	I.D. × O.D. mm
81 19 26	15A	22 × 58	**81 19 33**	80A	90 × 134
27	20A	28 × 63	**34**	100A	115 × 159
28	25A	35 × 74	**35**	125A	141 × 190
29	32A	43 × 84	**36**	150A	167 × 220
30	40A	49 × 89	**37**	200A	218 × 270
81 19 31	50A	61 × 104	**81 19 38**	250A	270 × 333
32	65A	84 × 124	**39**	300A	321 × 378

Full Face
全面パッキン 全脸填料



5 kgf/cm² - Thick 3.0 mm

Unit Per Pc.

CODE	Nominal Size	I.D. × O.D. mm	CODE	Nominal Size	I.D. × O.D. mm
81 19 41	15A	22 × 80	**81 19 48**	80A	90 × 180
42	20A	28 × 85	**49**	100A	115 × 200
43	25A	35 × 95	**50**	125A	141 × 235
44	32A	43 × 115	**51**	150A	167 × 265
45	40A	49 × 120	**52**	200A	218 × 320
81 19 46	50A	61 × 130	**81 19 53**	250A	270 × 385
47	65A	84 × 155	**54**	300A	321 × 430

10 kgf/cm² - Thick 3.0 mm

Unit Per Pc.

CODE	Nominal Size	I.D. × O.D. mm	CODE	Nominal Size	I.D. × O.D. mm
81 19 56	15A	22 × 95	**81 19 63**	80A	90 × 185
57	20A	28 × 100	**64**	100A	115 × 210
58	25A	35 × 125	**65**	125A	141 × 250
59	32A	43 × 135	**66**	150A	167 × 280
60	40A	49 × 140	**67**	200A	218 × 330
81 19 61	50A	61 × 155	**81 19 68**	250A	270 × 400
62	65A	84 × 175	**69**	300A	321 × 445

Soft Flange Gaskets

Juntas blandas para bridas

全面ソフトフランジガスケット　　軟法兰垫圈

EPDM (Ethylene-Propylene-Diene Methylene Linkage)

Raised Face

内パッキン　内填料

5 kgf/cm² - Thick 3.0 mm

Unit Per Pc.

CODE	Nominal Size	I.D. × O.D. mm	CODE	Nominal Size	I.D. × O.D. mm
81 19 71	15A	22 × 50	**81 19 77**	65A	84 × 118
72	20A	28 × 55	**78**	80A	90 × 129
73	25A	35 × 65	**79**	100A	115 × 149
74	32A	43 × 78	**80**	125A	141 × 184
75	40A	49 × 83	**81**	150A	167 × 214
81 19 76	50A	61 × 93	**81 19 82**	200A	218 × 260

10 kgf/cm² - Thick 3.0 mm

Unit Per Pc.

CODE	Nominal Size	I.D. × O.D. mm	CODE	Nominal Size	I.D. × O.D. mm
81 19 86	15A	22 × 58	**81 19 92**	65A	84 × 124
87	20A	28 × 63	**93**	80A	90 × 134
88	25A	35 × 74	**94**	100A	115 × 159
89	32A	43 × 84	**95**	125A	141 × 190
90	40A	49 × 89	**96**	150A	167 × 220
81 19 91	50A	61 × 104	**81 19 97**	200A	218 × 270



Full Face

全面パッキン　全脸填料

5 kgf/cm² - Thick 3.0 mm

Unit Per Pc.

CODE	Nominal Size	I.D. × O.D. mm	CODE	Nominal Size	I.D. × O.D. mm
81 20 11	15A	22 × 80	**81 20 17**	65A	84 × 155
12	20A	28 × 85	**18**	80A	90 × 180
13	25A	35 × 95	**19**	100A	115 × 200
14	32A	43 × 115	**20**	125A	141 × 235
15	40A	49 × 120	**21**	150A	167 × 265
81 20 16	50A	61 × 130	**81 20 22**	200A	218 × 320

10 kgf/cm² - Thick 3.0 mm

Unit Per Pc.

CODE	Nominal Size	I.D. × O.D. mm	CODE	Nominal Size	I.D. × O.D. mm
81 20 26	15A	22 × 95	**81 20 32**	65A	84 × 175
27	20A	28 × 100	**33**	80A	90 × 185
28	25A	35 × 125	**34**	100A	115 × 210
29	32A	43 × 135	**35**	125A	141 × 250
30	40A	49 × 140	**36**	150A	167 × 280
81 20 31	50A	61 × 155	**81 20 37**	200A	218 × 330

Application Table for Flange Gasket

	Water	Steam	Oil	Heavy Oil	Gas/ Air	Strong Acid	Weak Acid / Weak Alkali
Victor VC610	○ 100°C	×	○ 120°C	×	○ 100°C	×	○ 100°C
Valqua V6500	○ 100°C	×	○ 120°C	×	○ 100°C	×	○ 100°C
EPDM	○ 100°C	○ 120°C	×	×	△	×	○ 120°C

Gasket Rings

Natural Nitrile Rubber with Boltholes

Anillos de empaquetadura de caucho de nitrilo natural con agujeros para pernos

ボルト穴付き天然ニトリルゴムガスケット

带螺栓孔天然丁腈橡胶垫圈



Application: Hot and cold water and mild chemicals. Maximum temperature : 400°C. Maximum pressure : -0 bar 0°C - 100 bar. Maximum pressure and temperature depends on the thickness of the sheet and may not appear at the same time. All the jointings are asbestos free. Pressure : PN16. Temperature : 150°C. Thickness : 2 mm.

Full Face

Unit Per Pc.

CODE	Nom Size	I.D. × O.D. mm	Bolt Hole (mm)		
			Pitch	No.	Hole
81 20 41	15	22 x 95	75	4	14
42	20	28 x 105	75	4	14
43	25	35 x 115	85	4	14
44	32	43 x 140	100	4	18
45	40	49 x 150	110	4	18
81 20 46	50	61 x 165	125	4	18
47	65	77 x 185	145	4	18
48	80	90 x 200	160	8	18
49	100	115 x 220	180	8	18
50	125	141 x 250	210	8	18
81 20 51	150	169 x 285	240	8	22
52	200	220 x 340	295	12	22
53	250	274 x 405	355	12	26
54	-	310 x 460	390	10	22
55	300	325 x 460	410	12	26
81 20 56	350	368 x 520	470	16	26
57	400	420 x 580	525	16	30
58	450	470 x 615	565	16	27
59	500	520 x 715	650	20	33
60	600	620 x 840	770	20	36

Name of Mfr. : Alligator

Gasket Rings

Natural Nitrile Rubber without Boltholes

Anillos de empaquetadura de caucho de nitrilo natural sin agujeros para pernos

穴なし天然ニトリルゴムガスケット　　无螺栓孔天然丁腈橡胶垫圈



Maximum temperature: 400°C. Maximum pressure: -0 bar 0°C - 100 bar. Maximum pressure and temperature depends on the thickness of the sheet and may not appear at the same time. All the jointings are asbestos free.

Pressure : PN16.

Application: Hot and cold water and mild chemicals.
Raised Face, Thickness: 2 mm. Temperature: 150°C.

Unit Per Pc.

CODE	Nom Size	I.D. × O.D. mm	CODE	Nom Size	I.D. × O.D. mm
81 20 61	350	368 x 445	**81 20 64**	500	520 x 618
62	400	420 x 497	**65**	600	620 x 735
63	450	470 x 557	**66**	650	670 x 750

Name of Mfr. : Alligator

Application: High pressure steam
Raised Face, Thickness: 3 mm

Unit Per Pc.

CODE	Nom Size	I.D. × O.D. mm	CODE	Nom Size	I.D. × O.D. mm
81 20 67	350	368 x 445	**81 20 70**	500	520 x 618
68	400	420 x 497	**71**	600	620 x 735
69	450	470 x 557			

Name of Mfr. : Alligator

Graphited Gasket Rings

Without Boltholes

Anillos de empaquetadura grafitados con agujeros para pernos
穴無しグラファイトガスケットリング　无螺栓孔石墨垫圈



An asbestos free jointing with both sides graphite.

Application: High pressure. Maximum temperature: 400°C. Pressure: PN16. Maximum pressure: - 0 bar 0°C - 100 bar. Maximum pressure and temperature depends on the thickness of the sheet and may not appear at the same time. Thickness: 2 mm.

Unit Per Pc.

CODE	Nom Size	I.D. × O.D. mm	CODE	Nom Size	I.D. × O.D. mm
81 20 72	15	22 x 50	**81 20 78**	80	90 x 142
73	20	28 x 60	**79**	100	115 x 162
74	32	43 x 82	**80**	125	141 x 192
75	40	49 x 92	**81**	150	169 x 218
76	50	61 x 107	**82**	200	220 x 273
81 20 77	65	77 x 127			

Name of Mfr. : Alligator – Model PA700

Carbon Cloth Gloves

Guantes de Tela de Carbono　カーボンクロスグローブ　碳布手套



These carbon cloth gloves provide a protective barrier against fire, heat, etc. The fist is manufactured with a separated thumb. Overall length is 350 mm.

81 15 86	Gloves, carbon cloth, two divided	Pr.

Ceramic Spinning & Textiles

Hilados y Textiles de Cerámica
超高温用セラミック紡織品　超高温用纺织品

Made of 85 % ceramic fiber and 15 % organic fiber. Ceramic fiber is made from Alumina and Silica. The maximum temperature breakdown per reinforcement used is as follows.

Reinforcement	Glass	Stainless Wire	Nickel Chrome
Temperature	400°C	800°C	1,100°C

Ceramic Cloths

Telas de Carbono　セラミッククロス　石墨纤维



How to order: CODE

Ceramic cloth, KIND of REINFORCEMENT, THICKNESS x WIDTH mm

Unit Per Mtr.

CODE	Reinforcement	Size mm		Maximum Temperature
		Thick	Width	
81 16 01	Glass	2	1,000	400°C
02		3	1,000	
81 16 03	Stainless Wire	2	1,000	800°C
04		3	1,000	
81 16 05	Nickel Chrome Wire	2	1,000	1,100°C
06		3	1,000	

Ceramic Yarn

Cordón de Carbono　セラミックヤーン　碳化纤维线



How to order: CODE

Ceramic yarn, KIND of REINFORCEMENT, DIAM mm

Unit Per Rls.

CODE	Reinforcement	Actual Dia. mm	Weight g/m	Weight /roll	Maximum Temperature
81 16 11	Glass	1.0	1.10	1 kg	400°C
12		1.5	1.64	1 kg	
81 16 13	Stainless Wire	1.0	1.10	1 kg	800°C
14		1.5	1.64	1 kg	
81 16 15	Nickel Chrome	1.0	1.12	1 kg	1,100°C
16	Wire	1.5	1.66	1 kg	

Ceramic Yarn Rope

Burlete de Cerámica　セラミックヤーンロープ
陶质线绳



Unit Per Rls.

CODE	Diameter mm	Length mtr/roll	Weight kg/roll
81 16 21	4.0	150	1.0
22	6.5	58	1.0
23	9.6	27	1.0
24	12.5	30	1.9
25	16.0	30	3.0
81 16 26	19.0	30	4.1
27	25.0	30	7.1
28	30.0	15	5.1
29	40.0	15	9.1
30	50.0	15	14.0

Ceramic Twist Rope

Cuerda Trenzada de Cerámica
セラミックツイストロープ　陶质扭编绳



Unit Per Rls.

CODE	Diameter mm	Length mtr/roll	Weight kg/roll
81 16 31	9.6	30	1.2
32	12.5	30	2.0
33	16.0	30	3.3
34	19.0	30	4.4
35	25.0	30	7.7
81 16 36	30.0	15	5.5
37	40.0	15	10.2
38	50.0	15	15.3

Ceramic Soft Rope

Cuerda de Cerámica
セラミックソフト ロープ　陶质软绳



How to order: CODE

Ceramic soft rope, KIND of WRAPPING, DIAM mm

Unit Per Rls.

CODE	Diameter mm	Length mtr/roll	Weight kg/roll
	Wrapped by Glass Yarn		
81 16 41	15	30	2.5
42	20	30	3.6
43	25	30	4.5
44	30	30	6.2
45	50	15	8.4
	Wrapped by Stainless Wire		
81 16 46	15	30	2.1
47	20	30	3.3
48	25	30	4.4
49	30	30	6.1
50	50	15	8.1

Ceramic Ribbons

Cintas de Cerámica　セラミックリボン　紗布



How to order: CODE

Ceramic ribbon, KIND of REINFORCEMENT, THICKNESS x WIDTH mm

Unit Per Rls.

CODE	Reinforcement	Size T mm x W mm x L mtr	Weight kg/roll	Maximum Temperature
81 16 51	Glass	2 x 25 x 30	0.9	400°C
52		2 x 50 x 30	1.8	
53		2 x 75 x 30	2.7	
54		3 x 25 x 30	1.3	
55		3 x 50 x 30	2.6	
56		3 x 75 x 30	3.9	
81 16 57	Stainless wire	2 x 25 x 30	0.9	800°C
58		2 x 50 x 30	1.8	
59		2 x 75 x 30	2.7	
60		3 x 25 x 30	1.3	
61		3 x 50 x 30	2.6	
62		3 x 75 x 30	3.9	
81 16 63	Nickel chrome wire	2 x 25 x 30	0.9	1,100°C
64		2 x 50 x 30	1.8	
65		2 x 75 x 30	2.7	
66		3 x 25 x 30	1.3	
67		3 x 50 x 30	2.6	
68		3 x 75 x 30	3.9	

Ceramic Fiber Blanket Sheets

Manta de Fibra de Cerámica
セラミックファイバーブランケットシート
陶瓷纤维垫



Ceramic fiber blanket made from the purest of raw materials. Which are electromelted, air-brown at high speed and fiberized. Light in weight and soft to the touch, ceramic fiber blanket has various application with excellent refractory and insulating properties. Suitable for sealing, filtering, and reinforcing of various composites.

Typical Application:
Furnace linings, heat seals, packing, fire protection, noise reduction, filter material.

General Properties	
Max. Service Temperature	1,260oC (2,300°F)
Melting Point	1,760°C
Fiber Diameter (μm)	2.8
Fiber Length (mm)	250
Specific Gravity	2.6
Chemical Analysis	Al_2O_3 : 47.1% SiO_2 : 52.3%

Unit Per Sht.

CODE	Size	
	Thick	W × L
81 16 71	6	600 × 7,200
72	12.5	600 × 7,200
73	25	600 × 7,200
74	30	600 × 3,600

Glass Fibre Spinning & Textiles

Hilados y Textiles de Fibra de Vidrio
グラスファイバー紡織品　玻璃纤维纺织品

Made with glass fibre and organic fibre spun to staple yarn.

Glass Cloths

Telas de Vidrio　ガラスクロス　玻璃纤维布



Unit Per Mtr

CODE	Thickness mm	Width mm	Weight (g/m²)
81 17 01	1.3	1,000	850
02	1.7	1,000	1,000
03	3.0	1,000	2,000

Glass Tapes

Cintas de Vidrio　ガラステープ　玻璃丝带



Unit Per Rls.

CODE	Thickness mm	Width mm	Length mtr	Weight kg/roll
81 17 10	1.7	38	30	1.1
81 17 11	1.3	50	30	1.2
12	1.7			1.5
13	3.0			3.0
81 17 14	1.7	75	30	2.5
81 17 15	1.7	100	30	3.2

Glass Duct Packings

Cinta Aislamiento de Fibra de Vidrio
ガラスダクトパッキン　玻璃纤维盼更



Made with glass fiber cloth and tape for use as duct packing. With holes of 100 mm pitch and one side paper seal. Packing without holes may be supplied upon request.

Unit Per Rls.

CODE	Thickness × Width × Length mm mm mtr	Weight kg/roll
81 17 21	1.7 × 25 × 30	0.7
22	1.7 × 32 × 30	0.8
23	1.7 × 38 × 30	0.9
81 17 24	3.0 × 25 × 15	0.6
25	3.0 × 32 × 15	0.7
26	3.0 × 38 × 15	0.8

Glass Packings for Fireproof Door

Juntas de cristal para puertas cortafuegos
耐火ドア用ガラスドアパッキン　用于防火门的玻璃门垫圈

Made with glass fiber cloth and tape for use as fireproof door packing. Tape type and packing types are available.



Tape



Packing

Unit Per Mtr

CODE	Type	Size	Unitt
81 17 27	Tape	W 15mm × T 3 mm × 30 mtr	Rls.
28		W 25mm × T 3 mm × 30 mtr	Rls.
81 17 29	Packing	Dia 15 mm × 30 mtr	Rls.
30		Dia 25 mm × 30 mtr	Rls.

Glass Wool Mats

Alfombra de Lana de Vidrio　ガラスウールマット　玻璃羊毛垫

Felt type made by a needle punch method without using any adhesive binder.



Unit Per Rls.

CODE	Thickness × Width × Length mm mm mm	Weight g/m²
81 17 31	3 × 1,000 × 30	300
32	5 × 1,000 × 30	500
33	6 × 1,000 × 25	600
34	8 × 1,000 × 20	800
35	10 × 1,000 × 20	1,000
81 17 36	15 × 1,000 × 10	2,000
37	20 × 1,000 × 10	3,000

Glass Wool
Lana de Vidrio　ガラスウール　玻璃棉



Made from yarn with the process of making glass wool mat by a needle punch method. Maximum temperature: 600°C.

81 17 41	Glass Wool	Kgs

Carbonized Fibre Spinning & Textiles
Hilados y Textiles de Fibra Carbonizada
耐炎炭化繊維紡織品　碳化纤维纺织品

Made from a chemical called PAN (Polyacrylo Nitril) by special heat treatment. It is very flexible and has excellent heat resistance.

Carbon Cloths
Telas de Carbono　カーボンクロス　石墨纤维



Unit Per Rls.

CODE	Thickness (mm) × Width (mm) × Length (mm)
81 17 51	1.0 × 1,000 × 30
52	2.0 × 1,000 × 30

Carbon Yarns
Cordón de Carbono　カーボンヤーン　碳化纤维线



Unit Per Rls.

CODE	Thickness mm	Weight kg/roll
81 17 61	9.5	1.0
62	16.0	2.5
63	22.0	2.5

Carbon Tapes
Cintas de Carbono　カーボンテープ　碳化纤维带



Unit Per Rls.

CODE	Thickness (mm) × Width (mm) × Length (mm)
81 17 71	1.0 × 25 × 30
72	1.0 × 50 × 30
73	1.0 × 75 × 30
81 17 74	2.0 × 25 × 30
75	2.0 × 50 × 30
76	2.0 × 75 × 30

Non-asbestos Brake Linings
Ferodo con Tejida sin Amianto
ノンアスベストブレーキライニング
非石棉刹车片



High quality lining made of special non asbestos heat-resistant tightly woven fabric, brass wire reinforced, impregnated with oil-resistant, wear-proof and heat resistant synthetic resin, finished to prescribed size of roll, generally from 5 to 25 mm thick, 25 mm to 300 mm width and 20 mtr long.

Application:
For large capacity / floating winch / crane, windlass, heavy industrial machines, dredger.

Asbestos Free #1350-WS (from FB Industrial)
A tough-heavy duty asbestos zero material with a high degree of flexibility & long life. Developed for use of resistance to heat, oil, abrasion and withdurability, and has stable coefficient of friction for a long period.

Asbestos Free Uni Tex No.8000 (from Wakasugi)
Service: For heavy duty brake lining such as windlass and winches.
Material: Woven brake lining with recent non-asbestos fibres and brass wire, and treated with special chemicals.

81 16 76	Brake lining, non-asbestos, SIZE, THICKNESS × WIDTH × LENGTH	Mtr.

Metal-filled Epoxies
Cemento epóxido con Metales
メタルエポキシ樹脂　含金属树脂

Loctite® Aluminium Liquid
Aluminio Líquido　アルミニウムパテ液状タイプ　铝液



Aluminium filled, pourable and self-leveling, steel-filled epoxy. Ideal for casting or making molds. Works well to fill hard-to-reach areas. Can be machined when cured. Sets in 25 minutes. Typical applications include filling or leveling equipment, pouring molds, parts, and fixtures, making aluminium forming dies, casting aluminium parts.

CODE	Contents	Unit
81 21 76	1 lb	Set

Loctite® PC7254 (3475 Aluminium Putty)
Masilla de Aluminio　アルミニウムパテ　铝油灰



Two-part epoxy system heavily reinforced with aluminium powder. Ideal for repairing aluminium parts under typical dry service temperatures to +93°C (+200°F), or where aluminium finish is desired. Use in repairing aluminium castings, repairing worn aluminium parts, making models and jigs for holding odd shaped parts, making aluminium dies.

CODE	Contents	Unit
81 21 77	1 lb	Set

Loctite® EA3476 (Stainless Steel Putty)
Masilla de Acero Inoxidable　ステンレススティールパテ　不锈钢油灰



Stainless steel filled two-part epoxy. Repairs stainless steel parts on applications where a stainless steel finish is desired under typical dry service temperatures to +107°C (+225°F). Once hardened it can be machined, drilled, tapped or filed just like the original metal. Typical applications are renewing stainless steel pumps, rebuilding stainless steel shafts, resurfacing stainless steel equipment, repairing stainless steel castings, making stainless steel molds.

CODE	Contents	Unit
81 21 78	1 lb	Set

Loctite® EA3472 (3472 Steel Liquid)

Líquido de Acero スティールリキッド（液状タイプ） 钢液



Two-part pourable epoxy system heavily reinforced with steel powder for casting parts or filling voids under typical dry service temperatures to +107°C (+225°F). Once hardened it can be machined, drilled, tapped or filled just like steel. Rebuilds worn parts fast, reduces downtime, high steel content-cures to a steel-like finish, superior adhesion-form a solid bond to steel, cast iron, stainless steel, concrete, and clean and abraded bronze, copper, and aluminium.

CODE	Contents	Colour	Unit
81 21 79	1 lb	Grey	Set
81 21 80	4 lb		

Loctite® EA3471 (3471 Steel Putty)

Masilla de Acero Inoxidable スティールパテ 不锈钢油灰



Steel reinforced, two-part epoxy that cures to a metal-like finish and can be machined, drilled, tapped or filed under typical dry service temperatures to +107°C (+225°F). Typical applications are sealing cracked castings, tanks, vessels, and valves, patching non-structural defects in steel castings, making models and jigs for holding odds shaped parts, making metal dies, resurfacing worn air seals, and filling cavitated areas.

CODE	Contents	Colour	Unit
81 21 81	1 lb	Grey	Set
81 21 82	4 lb		

Loctite® PC7290 (3474 Wear Resistant Putty)

Masilla Resistente al Desgaste 耐摩耗パテ 耐磨腻子



Ceramic fibers give this trowelable putty excellent wear and abrasion resistant properties under typical dry service temperature to +107°C (+225°F). Provides smooth, low friction finish for equipment exposed to wear, erosion, and cavitation. Typical applications are filling cavitation, providing protective coating in or on: pipes, pumps, elbows, transitions, butterfly valves, deflection plates, turbine blades, and tanks.

CODE	Contents	Colour	Unit
81 21 83	1 lb	Grey	Set
81 21 84	3 lb		

Loctite® (3478 Superior Metal)

Superior Metal スーペリア・メタル 高级金属



Non-rusting, ferro-silicone-filled epoxy. Extremely high compressive strength and wear resistance. Ideal for rebuilding worn surfaces exposed to harsh environments. Can be machined, drilled and tapped in 6-8 hours. For final finish cuts, let the product cure for 24 hours and use carbide tooling. Spreadable putty. Sets in 20 minutes.

CODE	Contents	Colour	Unit
81 21 85	1 lb	Grey	Set
81 21 86	4 kg		

Loctite® (3463 Metal Magic Steel)



Metal Magic Acero

メタルマジックスチール（10 分硬化補修エポキシパテ） 金属魔术钢

Steel epoxy in stick form. Cut off a section, knead and apply to leaking pipes or damaged equipment. Cures in 10 minutes. National Science Foundation (NSF) approved, standard 61.

CODE	Contents	Colour	Unit
81 21 90	50 grm	Grey	Pc.
81 21 91	113 grm		

Loctite® EA9480 (Underwater Repair Epoxy)



Epoxi de Reparación Subacuática

アンダーウォーターリペア（耐水性エポキシパテ）水下修复环氧树脂

This putty-like materials is ideal for plumbing, irrigation, and marine applications because it is unaffected by chlorinated or salt water. Ideally suited for underwater repairs. Sets in 15 minutes.

CODE	Contents	Unit
81 21 93	113 grm	Pc.

Loctite® EA3473 (3473 Fast Set Steel Putty)

Masilla de Acero de Fraguado Rápido

ファストセットスチールパテ 速凝钢腻子



Set in 3 minutes, steel reinforced, two-part epoxy designed for making fast and curable repairs to a variety of metals. This product is typically used in applications with maximum temperature +93°C (200°F). Typical applications include fuel and gas tank holes, stripped threads, cracked battery cases, leaking storage tanks, and leaks on pipes and elbows.

CODE	Contents	Colour	Unit
81 21 99	1 lb	Grey	Set

General Repair Products

Loctite®

Productos para reparaciones generales 一般補修剤 一般修补剂



Unit Per Pc.

CODE	Contents	Type	Colour	Description
81 21 51 **52**	24 ml 50 ml	Loctite® EA 3430 General Purpose Epoxy Adhesive	Ultra clear	General purpose, high-strength, ultra clear five-minute epoxy suitable for all applications requiring optically clear bond lines; toughened; water resistant; medium viscosity.
81 21 53	3 grm	Loctite® Double Bubble Epoxy Adhesive	Clear	Very fast (3 min.) multi purpose epoxy; ideal for small and quick repairs; easy to use: just burst plastic pouches and mix product.
81 21 54	50 ml	Loctite® AA 3295 Acrylic Adhesive	Green	General purpose 2K acrylic adhesive; good impact resistance, particularly suitable to bond metals, ceramics and plastics; convenient dispensing via static mixing nozzle from cartridge.

(to be continued)

Unit Per Pc.

CODE	Contents	Type	Colour	Description
81 21 55 81 21 56	50 ml 300 ml	Loctite® SI 5970 Oil Resistant Silicone Sealant	Black	Versatile 1-component silicone with very good oil resistance; neutral curing.
81 21 57 81 21 58	1 kgs can 10 kg pack with 40 grm bars	TEROSON RB IX Sealing Butyl	Grey	Kneadable, slightly tacky sealing materials; used for sealing, spacing and sound insulation; very good water and aging resistance; can be overpainted.
81 21 59	30 ml	Terostat 81 Butyl Sealing Tape	Black	High quality sealing tape; high tackiness and self-welding; very good water and aging resistance; no corrosive constituents. Standard size: 20 mm x 2 mm x 30 m; other sizes upon request.
81 21 60	310 ml	TEROSON RB 2759 Sealing Butyl	Grey	High quality butyl rubber-based sealant; aging- and weather-resistant material; low solvent content.
81 21 61 81 21 62 81 21 63	310 ml	TEROSON MS 939 Elastic Bonding Adhesive	White Grey Black	General purpose elastic bonding adhesive; high strength, good elasticity.
81 21 64 81 21 65	50 ml 400 ml	TEROSON MS 9399 Rapid Curing Elastic Bonding Adhesive	White	Universal and easy to handle 2K repair adhesive with high initial strength, short tack-free time and good elasticity.

Fix and Repair Tapes TEROSON VR5080(Loctite® 5080)

Cinta de arreglo y reparación　固定・補修テープ　固定 / 修补带

Fabric reinforced emergency repair tape; easy to tear by hand; for repairing, reinforcing, fixing, sealing and protecting; pressure resistance up to 4 bar (pipe leakage).



Unit Per Rls.

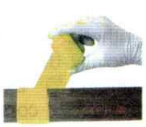
CODE	Length	Colour
81 21 68	25 mtr	Grey
81 21 69	50 mtr	

Loctite® 5070 Pipe Repair Kits

Equipo de reparación de tuberías
パイプリペアーキット　管道维修套组

No tools required, cures in 30 minutes. Easy-to-use pipe repair kit. Use for temporary and medium term repair of leaking pipes, and reinforcement of weak areas. Urethane impregnated fiberglass tape, activated by water, for reliable, temporary repairs of metal, plastic, and composite pipes. Kit contains Fixmaster Metal Magic Steel epoxy stick, urethane impregnated fiberglass tape, and gloves. Cures in 30 minutes. The maximum temperature resistance is +121°C(+250°F). Yellow color is available. Typical application include sealing cracked castings, tanks, vessels, valves and pipes. It also repairs pipe joints and reinforces tanks, vessels, valves, joints and elbows.





Unit Per Set

CODE	Width×Length mm	CODE	Width×Length mm
81 21 73	50 mm × 1,800 mm	81 21 74	100 mm × 3,600 mm

Loctite® 5075 Insulating and Sealing Wraps

Envoltura de aislamiento y sellado　シーリングラップ　隔离 / 密封膜

Non-sticky, self fusing multipurpose wrap withstanding extreme conditions. When stretched and wrapped around a surface, it fuses to itself and instantly seals and protects the area against air leakage, water leakage, corrosion and scratches. This innovative wrap contains no adhesive.



Unit Per Rls.

CODE	Size	Colour
81 21 75	4.27 m (width: 2.5 cm)	Red

Loctite® MR Flex80 Putty

Masilla Loctite Fixmaster Flex80　フレックス 80 パテ　Flex80 结合剂

Combine the properties of rubber and urethane in a trowelable repair compound. It is ideal for repairing metal, rubber, and urethane surfaces that are subject to wear and impact. Typical applications include pipe elbows, pump liners, pulleys, conveyor belts, rubber and urethane parts or sheeting, and couplings. This product is typically used in applications with an maximum temperature +82°C (+180°F).



CODE	Contents	Colour	Unit
81 21 87	1 lb	Black	Set
81 21 88	6 lb		

Loctite® EA 9017 (Poxy Pak Fast Cure Epoxy)

Epoxi de cura rápida Loctite Fixmaster
即効エポキシー　速效环氧树脂胶

Two component, room temperature curing epoxy adhesive used for high strength, permanent bonding of metals, ceramics, concrete, wood, glass and most plastics. It will also fill or seal cracks and rebuild worn surfaces. Comes in a 1 oz. syringe with a built-in plunger for easy dispensing without equipment. This product can withstand temperatures up to +149°C (+300°F).



CODE	Content	Unit
81 21 98	1 oz	Pc.

ThistleBond Products

Productos "Thistlebond"　シスルボンド製品　ThistleBond 产品

ThistleBond Repair Kits

Containing all the necessary materials and accessories which enable an epoxide resin/glass fabric ThistleBond Resin Laminate to be produced.

Engineering "A" Kit
This kit contains a specially selected range of high performance laminate, adhesive and engineering repair products.



Contents

20	UPS 19000 RH Standard Resin & Hardener 225 gms
1	UPS 19003 A&B Cement 1 kg
2	UPS 120 XFF Fast Curing Metal Fluid 200 grm
1	UPS 19060 SG Stick Grade Metal 125 grm
1	UPS 19060 SGUW Underwater Stick Grade Metal 125 gm
1	UPS 19601 PR Pipe Repair Bandage 50 mm × 1.8 m
2	Glass Mat 0.5 m
2	Sealer Filler 50 grm
1	Fairing Compound 50 grm
1	Masking Tape Roll
1	Polyurethane Sheet 2 m²
2	UPS 19007 GT Glass Tape 50 mm × 50 m
1	Resin Removing Cream 100 grm
2	Cellophane 250 mm × 25 m
1	Green Contour Cloth 250 mm × 250 mm
3	Linen Scrim 0.5 m²
3	Glass Cloth 1 m²
10	Disposable Gloves
1	Scissors
3	Brush 1" Width
10	Stirring Tool
1	Metal Applicator Tool
10	UPS 9916 Plastic Spatula
1	Detailed Application Booklet

Top Up "C" Kit



This Kit contains a specially selected range of high performance laminate, adhesive and engineering repair products. Ideal for emergency repairs to leaking pipework.

Contents

5	UPS 19000 RH Standard Resin & Hardener 225 gms
1	UPS 19003 A&B Cement 1 kg
2	UPS 120 XFF Fast Curing Metal Fluid 200 grm
1	UPS 19060 SG Stick Grade Metal 125 grms
1	UPS 19060 SGUW Underwater Stick Grade Metal 125 grm
1	UPS 19601 PR Pipe Repair Bandage 5 0mm × 1.8 m
1	Glass Mat 0.5 m
1	Sealer Filler 50 grm
1	Fairing Compound 50 grm
1	Masking Tape Roll
1	Polyurethane Sheet 2 m²
1	UPS 19007 GT Glass Tape 50 mm × 50 m
1	Resin Removing Cream 100 grm
1	Cellophane 250 mm × 25 m
1	Green Contour Cloth 250 mm × 250 mm
1	Linen Scrim 0.5 m²
1	Glass Cloth 1 m²
1	Disposable Gloves Pair
1	Scissors Pair
1	Brush 1" Width
2	Stirring Tool
5	UPS 9916 Plastic Spatula
1	Metal Applicator Tool
1	Detailed Application Booklet

LBRK "Lifeboat" Kit



This kit contains high performance, low viscosity, 100% solids materials designed for use as a resin repairs for polyester laminated hulls of lifeboats and liferafts. The material is easy to use and because of its adhesion properties it can also be used to effectively repair metals, wood, glass and synthetic materials.

Contents

2	UPS 19000 RH Resin & Hardener 225 grm
1	Glass Mat 0.5 m²
1	Surface Tissue 0.35 m²
1	Cellophane 250 mm × 2.5 m
1	Sandpaper 280 mm
1	Brush 1"
2	Stirring Tool
1	Putty Knife
2	Disposable Gloves Pair
1	Resin Removing Cream 100 grm
1	Instruction Booklet

81 22 35	ThistleBond Engineering "A" Kit complete, UPS11000	Set
81 22 37	ThistleBond Top Up "C" Kit complete, UPS13000	"
33 02 87	ThistleBond LBRK Lifeboat Repair Kit complete UPS17000	"

Small Pipe Repair Kits

Kits de Reparación de Tuberías Pequeñas
パイプ補修キット　小型管道修理工具包



Designed to put all products required to carry out emergency repairs to leaking pipework. By utilizing Pipe Repair Bandage, immediate and cost effective repairs can be carried out, and surface preparation is at a minimum due to the surface tolerant characteristics of Bandage. The end result can offer long term protection at a working temperature of 270°C and at pressures ranging from 10 bar (150psi) through to 27 bar (400psi) if used in conjunction with "Stick Grade Metal(Code 812202) and a double wrap.

Contents :

5 units	"Pipe Repair Bandage" W50mm × L1.8mtr
1 unit	"Stick Grade Metal"
5 pairs	Disposable gloves
1 vol	Mixing and application instructions packaged in a robust plastic container (which serves as a water bucket)

81 23 67	ThistleBond Small Pipe Repair Kit UPS19500	Set

ThistleBond SG Stick Grade Metal

SG Stick Grade Metal
SG スティックグレードメタル　SG 棒级金属



A specially packaged rapid curing synthetic metal repair compound for onsite repairs to metal components such as leaking pipes, tanks, ducts, radiators, etc.

81 22 02	ThistleBond SG Stick Grade Metal, 125 grm × 10, UPS 19060 SG	Pc.

ThistleBond EG Metal Repair Paste

EG Pasta reparadora de metales
EG メタルリペアペースト　EG 金属修补膏



A high performance multi-purpose synthetic metal repair compound specially developed for metal repairs requiring excellent mechanical strength combined with easy machining properties.

81 22 11	ThistleBond EG Metal Repair Paste, 1 kgs / Unit UPS 105 EG	Set

ThistleBond RH Standard Resin & Hardener

Resina y Endurecedor Estándar RH
RH スタンダードレジン＆ハードナー
RH 标准树脂和固化剂



A high performance, solvent free epoxy system designed for onsite

repairs to metal, wood, glass and synthetic materials. Excellent adhesion to both blast cleaned and mechanically prepared surfaces, excellent corrosion resistance even under seawater, unaffected by short term contact with industrial chemicals. Suitable for use up to 100°C (212°F) dry heat.

81 22 16	ThistleBond RH Standard Resin & Hardener, 225 grm x 10, UPS19000 RH	Set

ThistleBond GT Glass Tapes

Cintas de Vidrio GT　ガラステープ
GT 玻璃纤维胶带



A high performance unique braided Glass Fibre Tape that, when used in conjunction with the UPS 19000 RH (Code 812216) offers the ultimate in both Leak Sealing and Pipe Protection.

81 22 23	ThistleBond GT Glass Tape, 50 mm x 50 mtr, UPS 19007 GT	Rls.
81 22 25	ThistleBond GT Glass Tape, 100 mm x 50 mtr, UPS 19009 GT	"

ThistleBond A & B Cement

Cemento A & B　A & B セメント　A & B 水泥公司



A high performance, two pack, solvent free epoxy repair system for use on metallic surfaces. Ideal for application where only minimal surface preparation can be carried out and is usually used in conjunction with RH Standard Resin & Hardener (Code 812216). Suitable for rebuilding corrosion pitting on metallic structures and in particular, as a fairing compound on pipework prior to wrapping with the RH Pipe Repair System.

81 22 31	ThistleBond A & B Cement, 1 kgs UPS 19003	Set

Devcon Products

Productos "Devcon"　デブコン製品　Devcon 产品

Precision Repair Epoxy

Devcon Titanium Putty

Masilla de Titanio
チタニウムパテ　钛油灰



Titanium-reinforced epoxy putty for making repairs that can be precision machined. Provides excellent temperature resistance, high compressive strength and unmatched resistance to a broad range of chemicals and acids.

- Resistance to chemicals and most acids, bases, solvents, and alkalis.
- Temperature resistance to 350°F.
- High compressive strength (18,800 psi).

81 22 41	Devcon Titanium putty, 1 lb / unit	Set
42	Devcon Titanium putty, 2 lb / unit	"

Devcon HR SUPER 3000

Devcon HR Super 3000　HR スーパー 3000
得复康 HR 超级 3000



Provides excellent temperature resistance with continuous service temperatures (200-220°C) and maximum temperature (300°C). Enhances strength when used with enclosed glass tape under high temperature and pressures. Ideal for emergency repairs as cures in a few minutes at over 100°C. Trowelable and bonds to most metals.

81 22 43	Devcon HR Super 3000, 500 grm / unit	Set

Emergency Repair Epoxy

Devcon Underwater Repair Putty (UW)

Devcon UW, Masilla Reparadora para Bajo Agua
ウェットサーフェイスリペア UW　水下修理用封泥 UW



For repairing, patching and rebuilding equipment in habitually wet environments, even underwater.

- Bonds to steel, iron, aluminium, brass, bronze, concrete, wood, and plastics.
- Penetrates moisture; eliminates the need to dry substrates thoroughly before repairs.
- Cures at temperatures down to 40°F.

81 22 46	Devcon Underwater repair putty UW, 1 lb/unit	Set

Rubber Repair and Casting Urethanes

Devcon Flexane 80 Putty or Liquid

Devcon Flexane 80, Masilla o líquido
デブコンフレクサン 80P　橡胶制品修理用封泥 80P



Putty:
Trowelable 100 % solid urethane compound. Easy to mix and cures to tough, medium-hard rubber for a broad range of lining and protection applications. Withstands continuous service temperatures up to 180°F (dry environments) and 120°F (wet environments). Bonds to metal, concrete, rubber, wood and fiberglass.

Liquid:
Castable, non-shrinking, medium-viscosity urethane compound for making rugged, flexible molds, forming dies, cast parts and non-scratching holding fixtures, as well as abrasion and noise-resistant linings and encapsulating parts. Mixes and pours easily and cures at room temperature to a semi-rigid rubber material.

- Mixes easily and trowels on smoothly.
- Cures to a tough medium-hard rubber (Shore A 87).
- Service temperatures to 180°F dry / 120°F wet.
- Flexane Primers are recommended for maximum adhesion to metal, rubber, and concrete surfaces.

81 22 48	Devcon Flexane 80 putty 1 lb / unit	Set
49	Devcon Flexane 80 Liquid 1 lb / unit	"

General Repair Epoxies

Devcon Plastic Steel Putty (A)

Devcon (A), Masilla para Plástico-Acero
プラスチックスチールパテ デブコン A　塑钢泥 (A)



Metal filled epoxy putty used for routine maintenance, production, and tooling applications.
Bonds to most metal, concrete and some plastics and is ideal for patching and repairing areas where welding would be undesirable or impossible.

- Bonds to most metals, concrete, and some plastics.
- Cures at room temperature.

- Can be drilled, tapped, machine, water, and chemicals.
- Ideal for patching and repairing areas where welding or brazing would be undesirable or impossible.

81 22 51	Devcon Plastic steel A, 1 lb/unit	Set
52	Devcon Plastic steel A, 4 lb/unit	"

Devcon Plastic Steel Liquid (B)

Devcon (B), Líquido para Plástico-Acero
プラスチックスチールリキッドデブコン B　塑料 钢铁 液体



Steel-filled liquid epoxy with the performance properties of Plastic Steel Putty (A). Can be cast over models for accurate detail reproduction when making holding fixtures, light-gauge forming dies and molds. Hardens in about an hour.Hardens in about an hour.

- Hardens in about an hour.
- High compressive strength.
- Machinable to close tolerances.
- Low viscosity makes it an ideal leveling compound for machinery and equipment.

81 22 56	Devcon Plastic steel B, 1 lb/unit	Set
57	Devcon Plastic steel B, 4 lb/unit	"

Devcon Plastic Steel 5-minute Putty (SF)

Devcon (SF), Masilla para Plástico-Acero 5 minutos
プラスチックスチール 5 ミニッツパテ SF　塑钢油灰 5 分钟



Fast-curing, steel-filled epoxy for dependable emergency repairs in less than 1 hour. Cures to a tough, steel-filled material that can be machined, drilled, tapped or sanded.

- Cure in less than 1 hour.
- Tough, steel-filled material can be machined, drilled, tapped, or sanded.

81 22 62	Devcon Plastic steel SF, 1 lb/unit	Set

Devcon Aluminium Putty (F)

Devcon (F), Masilla para Alumnio
アルミニウムパテデブコン F　铝灰泥 (F)



Aluminium-filled epoxy putty for dependable non-rusting repairs to aluminium castings, machinery and equipment. Bonds to aluminium and other metals. Can be machined, drilled or tapped.

- Repairs air conditioning system components.
- Excellent resistance to chlorofluorocarbons.
- Bonds to aluminium and many other metals.
- Fills porosity in aluminium castings.
- Can be machined, drilled or tapped using conventional metalworking tools.

81 22 66	Devcon Aluminium putty F, 1 lb/unit	Set
67	Devcon Aluminium putty F, 3 lb/unit	"

Devcon Aluminium Liquid (F-2)

Devcon (F-2), Líquido para Alumnio
アルミニウムリキッドデブコン F2　铝液 (F-2)



Aluminium-filled pourable epoxy for molds, patterns, holding fixtures and cosmetic casting repairs. Cures just over 1 hour.

- Can be machined, drilled, or tapped.
- Low viscosity provides accurate reproduction of mold details and of delicate or intricate parts.

81 22 71	Devcon Aluminium Liquid F-2, 1 lb/unit	Set

Devcon Wear Resistant Putty (WR)

Devcon (WR), Líquido Resistente al Desgaste
ウエアーレジスタントリキッドデブコン WR　耐磨腻子 WR



High wear-resistant, self-lubricating compound for repairs requiring smooth surfaces against sliding wear.
Non-shrinking liquid used for building up metal shafts and pumps, making bearings and general repairs. Also ideal for making metal-forming dies and duplicating masters. Cures to a smooth surface.

- Bonds to steel, iron, aluminium, ceramic, concrete, brass, and some plastics.
- Contains wear-resistant fillers for low-friction applications.

81 22 81	Devcon Wear Resistant WR, 500 g / unit	Set

Devcon Wear Resistant Putty (WR-2)

Devcon (WR2), Líquido Resistente al Desgaste
ウエアーレジスタントリキッドデブコン WR2　耐磨腻子 WR2



Smooth, non-rusting, all purpose epoxy putty for repairs requiring low friction finishes, excellent wear resistance and protection from bi-metallic corrosion.
Bonds to steel, iron, aluminium, ceramics, concrete, brass, and some plastics.

- Bonds to steel, iron, aluminium, ceramic, concrete, brass, and some plastics.
- Contains wear-resistant fillers for low-friction applications.

81 22 86	Devcon Wear Resistant WR-2, 1 lb/unit	Set

Devcon Bronze Putty (BR)

Devcon (BR), Masilla para Bronce
ブロンズパテデブコン BR　青铜泥 (BR)



Bronze-filled epoxy putty for repairing bronze and brass bushings, shafts, castings and equipment parts. Ideal for repairing and rebuilding areas where brazing would be undesirable or impossible.

- Repairs and rebuilds areas where brazing would be undesirable or impossible.
- Bonds securely to bronze alloys, brass, copper and ferrous metals.

81 22 90	Devcon Bronze putty BR, 1 lb/unit	Set

Devcon Stainless Steel Putty (ST)

Devcon (ST), Masilla para Acero Inoxidable
ステンレススチールパテデブコン ST
不锈钢油灰 (ST)



Stainless steel-filled epoxy putty, ideal for patching, repairing and rebuilding stainless steel food processing equipment. It is non-rusting and bonds to ferrous and non-ferrous metals.

- Bonds to ferrous and nonferrous metals.
- Nonrusting.
- NSF certified for potable water applications and acceptable for use in meat and poultry plants.

81 22 92	Devcon Stainless steel putty ST, 1 lb/unit	Set

Devcon Magic Bond (cures in 12 hours at 25°C)

Devcon Magic Bond (Pegamento Mágico)
デブコンマジックボンド　萬能膠

Devcon Fasstik (shows 85% of strength in 15 min. at 25°C)

Devcon Fasstik (Pegamento de Barra)
デブコンファススティック　萬能膠



Ideal for emergency repairs. Easy to carry and use: cut as you need, mix with fingers and patch.

For Magic Bond
- For plumbing repairs and marine use.
- Cures rock-hard in 30-40 minutes, seals permanently.
- Cure even under water.

For Fasstik
- NSF certified for use in potable water applications.

81 22 93	Devcon Magic Bond, 114 g / unit	Pc.
94	Devcon New Fasstik, 114 g / unit	"

Devcon Zip Patch

Devcon Zip Patch (Parche Potente)　ジップパッチ　修理胶带



Easy-to-use waterproof adhesive patch kit. Hardens in minutes at room temperature. Excellent adhesion to iron, steel, stainless steel, titanium, FRP, aluminium, wood, ceramics, composites, acrylics, PVC, and other plastics. Makes permanent, waterproof field repairs to pipes, tanks, and containers.

Contents: Glass fibre patch 100 mm × 230 mm, Activator spray, Spatula, Protective gloves.

81 22 98	Devcon Zip Patch	Kit

Cordobond Products

Productos "Cordobond"　コードボンド製品　Cordobond 产品

Cordobond Strong-Back Resin & Activator

Resina y Activador Strong-Back
コードボンド製品スタンダード　考特强力粘合剂



Liquids to be mixed together for use with glass cloth, glass mat and glass tape. The mixture hardens into a rigid mass that bonds with high tenacity to almost any surface to produce a tight seal which will not dissolve in water, oil or most chemicals and will resist elevated temperatures and pressures.

81 23 01	Cordobond Strong-back resin & activator, 453 grm/unit	Set
02	Cordobond Strong-back resin & activator, 906 grm/unit	Set

Cordobond Strong-Back Putty (Red)

Masilla (Roja) Strong-Back　パテ　考特强力粘合膏



A tough, dense compound which sets up hard and possesses high adhesive qualities. Used for plugging large holes before reinforcement with activated Cordobond strong-back resin and fiberglass cloth.

81 23 06	Cordobond Strong-back putty, 226 grm/unit	Set

Cordobond Strong-Back Sealer

Sellador Strong-Back
コードボンドシーラー　考特强力密封膏



Sticky material for sealing small holes, cracks and leaks around tank and pipe fittings where pressures are low. Can be applied by trowel or putty knife.

81 23 08	Cordobond Strong-back sealer, 113 grm/unit	Set

Cordobond Strong-Back Steel Putty

Masilla de Acero Strong-Back
コードボンドスティールパテ　考特铜质粘合膏



Combination of steel packed resin and activator for repairing cracks, holes, crevices, defects, etc. in steel and other metals. Steel putty can be drilled, threaded, machined, filed or hack-sawed.

81 23 10	Cordobond Strong-back steel putty, 453 grm/unit	Set

Cordobond Strong-Back Leveling Compounds (Yellow)

Compuestos (Amarillos) para Allanar
レベリングコンパウンド　强力备材

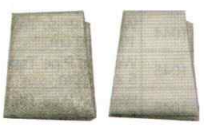


Trowel applied packed resin and activator used for building up corroded and pitted areas to a uniform surface.

81 23 12	Cordobond Strong-back leveling compound, 453 grm/unit	Set

Cordobond Glass Sheets

Plancha de Vidrio　ガラス シート　玻璃板



Cloth　Mat

Glass tape, cloth and reinforced mat. The tape and cloth are made of woven glass yarn. Provides the main strength of a patch when saturated with activated Cordobond strong-back resin. The mat is made of fibers which are felted together and reinforced. Due to its absorbing and reinforcing qualities, glass mat is used to speed up the curing and provides additional strength.

81 23 21	Cordobond glass cloth, 1,000 × 1,000 mm	Sht
22	Cordobond glass mat, 900 × 900 mm	"
23	Cordobond glass tape, 38 mm × 30 mtr	Rls.
24	Cordobond glass tape, 76 mm × 150 mtr	"
25	Cordobond glass tape, 100 mm × 150 mtr	"

Cordobond Repair Kits

Equipos para Reparación　リペアーキット　维修工具包



These repair kits are the commercial adaptation of the U.S. Navy kit, packed in suitable chests. The kit container size is 480 × 320 × 320 mm.

The Repair Kit contains the following:

20	Unit	226 grm	Cordobond Strong-Back Standard Resin & Activator
2	Unit	226 grm	Cordobond Strong-Back Putty (red)
2	Unit	113 grm	Cordobond Strong-Back Sealer
2	Unit	453 grm	Cordobond Strong-Back Steel Putty
2	Unit	453 grm	Cordobond Strong-Back Level Compound
1	Sht	1mtr×2.7 mtr	Cordobond Glass Cloth
3	Rolls	38mm×1mtr	Cordobond Glass Tapes
1	Sht	1mtr×90cm	Cordobond Glass Mat
1	Sht	3cm×1mtr	Cordobond Contour Cloth
2	Pair		Neoprene Gloves
1	Pair		Scissors
12	Pcs		Wood Stirring Tools
1	Sht	2.4mtr×30cm	Kraft Paper
1	Ball		Twine
12	Pcs		Paint Brushes
1	Roll		Pressure Sensitive Tape

81 23 30	Cordobond repair kit complete	Set

Wencon Products

Productos Wencon　ウェンコン製品　WENCON 产品

Wencon Repair Kit for Marine

Wencon Equipo de Reparación　補修キット　WENCON 修补用具



The mechanical first-aid kit for leaking pipes and tanks, for corroded cooler end covers, pump casings, valves, sea water filters, etc. Wencon repair kits are available in different sizes, depending on size and age of the vessel.
Covers most aspects of emergency repairs and long lasting maintenance. Suitable for all ships where repairs and maintenance are carried out frequently. Please select a suitable kit according to your vessel's size and age from the following range of kits.

Product No.	The 4 standard repair kit contains:	Kit 1 (812341)	Kit 2 (812331)	Kit 3 (812332)	Kit 4 (812333)	Tanker Kit (812326)
1010	Wencon Cream, 1 kg	1 set	-	-	-	-
1000	Wencon Rapid, 1 kg	1 set	1 set	-	-	-
1005	Wencon Rapid, 8 x 125 g	1 set	1 set	1 set	1 set	-
1020	Wencon Coating, white, 0.5 kg	2 set	1 set	1 set	-	-
1030	Wencon Coating, blue, 0.5 kg	2 set	1 set	1 set	-	-
1050	Wencon Hi-Temp, yellow, 0.5 kg	1 set	-	-	-	1 set
1060	Wencon Hi-Temp, green, 0.5 kg	1 set	1 set	1 set	-	1 set
1040	Wencon Putty, 8 x 125 g	1 set	1 set	1 set	1 set	-
1042	Wencon Putty, 4 x 125 g	-	-	-	-	1 set
1044	Wencon Pipe Tape 2 unit, 10 x 350 cm	-	-	-	-	-
1045	Wencon Pipe Tape 5 unit, 5 x 150 cm	1 box	1 box	1 box	1 box	-
1046	Wencon Pipe Tape 4 unit, 5 x 350 cm	1 box	1 box	-	-	1 box
1070	Wencon Exhaust Repair Kit, 2 x 250 g	1 box	1 box	1 box	1 box	-
1104	Wencon Bio Cleaner, 0.75ltr	-	-	-	-	-
1014	Wencon UW Cream, 0.5 kg	1 set	-	-	-	2 set
1035	Wencon UW Coating, orange, 0.5 kg	1 set	-	-	-	2 set
1036	Wencon UW Coating, brown, 0.5 kg	-	-	-	-	2 set
1016	Wencon Ceramic Cream, 1 kg	-	-	-	-	-
1017	Wencon Ceramic Coating, light grey, 0.5 kg	-	-	-	-	-
1018	Wencon Ceramic Coating, light green, 0.5 kg	-	-	-	-	1 set
1100	Wencon Cleaner, 0.5 ltr	3 set	2 set	1 set	1 set	-
1110	Wencon Release Agent, 50 g	1 box	1 box	1 box	1 box	-
1120	Wencon Reinforcement Tape, 5cm x 10 mtr	3 roll	2 roll	2 roll	1 roll	6 roll
1122	Wencon Reinforcement Tape, 10cm x 20 mtr	-	-	-	-	1 roll
1150	Wencon Aggregate No. 24, 1.5 kg	-	-	-	-	-
2805	Wencon Application Tools	1 set	1 set	1 set	1 set	1 set
2808	Wencon Fixation Tools					1 set
	Wencon Manual	1 pcs	1 pcs	1 pcs	1 pcs	1 pcs
1250	Rotating Blaster single	-	-	-	-	-
1252	Rotating Blaster duo	-	-	-	-	-
1254	Rotating Blaster triss	-	-	-	-	-
	Plywood Box	1 large	1 medium	1 small	1 small	1 small

CODE	Kit No.	Application	Model	Unit
81 23 41	1	For old & large vessels	8700	Set
81 23 31	2	For new & large vessels	8704	"
81 23 32	3	For medium & large vessels	8708	"
81 23 33	4	For small in domestic traffic	8712	"
81 23 26		For Tanker vessels	8710	"

Name of Mfr. Wencon Aps

Wencon Exhaust Repair Kit

Wencon Equipo de Reparación de Escape
排気システム用補修キット　WENCON 排气系统修补用具



One-component cold weld product for repair of cracks and leaks in exhaust systems exposed to high temperatures. The compound resist temperatures up to 1,300°C (2,400°F).

The kit contains;

2 × 250 grm	Exhaust repair compound
1 pc	Metal mesh for reinforcement purposes
1 pc	Spatula
1 pc	Application data sheet

81 23 40	Wencon exhaust repair kit, 2 × 250 grm product No. 1070	Set

Wencon Cream/Rapid

Wencon Crema de Reparación para Metales/Rápida
クリームラピッド　WENCON 修补膏



Repairing and refurbishing metal structures being deteriorated through corrosion, bimetallic corrosion or in other ways. Especially used for corroded tanks, pump housings, valves, filter housing and strainers, tubes, heat exchanger end covers, flange faces. Roller bearing seats, alignment of bushings, shafts, hydraulic rams, key ways, etc. "Cream" and "Rapid" are both paste consistency and easy applied even to vertical surfaces, and "Cream" is for slow curing and "Rapid" is quick curing.

CODE	Description	Products No.	Contents	Unit
81 23 35	Wencon cream	1010	1 kg	Set
81 23 43	Wencon rapid	1005	8 × 125 grm	Set
47	Wencon rapid	1000	1 kg	Set

Wencon UW Cream Wet Surface

Crema UW Wencon　水中補修用クリーム　WENCON 水下修补剂



A two component cream, to be applied on wet surfaces or under water. The UW Cream is excellent for filling up holes, dents and rebuilding of surfaces which, due to high humidity, have to be done in wet conditions. Typical applications are corroded hulls and all underwater parts of ships and structures, tanks, pipes, flange faces, etc. It is also excellent for filling up cavitation damages on hulls and rudders. Wencon UW Cream has a strong adhesion to all metal surfaces.

81 23 34	Wencon UW cream, wet surface, #1014, 0.5 kg	Can

Wencon Coating

Wencon Revestimiento　コーティング材　WENCON 高温保护材料



For protecting your machine parts against bi-metallic corrosion, erosion/ corrosion, impingement, entrainment, etc. The treatment will improve the flow characteristics in pumps and valves. Typical applications are coating of surfaces rebuild after deterioration, protection of tanks, pumps, valves, wet liners, cooler end covers etc. against corrosion and bi-metallic corrosion as well as a variety of small and large repair and maintenance jobs. Wencon Coating can be applied by spatula and is a double coat system in white and blue.

CODE	Description	Products No.	Contents	Unit
81 23 37	Wencon coating white	1020	0.5 kg	Set
38	Wencon coating blue	1030	"	"

Wencon Hi-Temp

Wencon Revestimiento para Alta Temperatura
高熱用コーティング材　WENCON 高温保护材料



The high performance coating product for repair and protection in high temperature and aggressive environments. The Hi-Temp offers temperature up to 160° C, provided the media is not boiling. Typical applications are coating of surfaces rebuild after deterioration including repair of lining on inert gas systems, fresh water generators, hot pipes and heating coils, protection of tanks, pumps and valves against chemical and mechanical aggression, corrosion and bi-metallic corrosion. Wencon Hi-Temp is supplied in a double coat system in yellow and green.

CODE	Description	Products No.	Contents	Unit
81 23 45	Wencon hi-temp yellow	1050	0.5 kg	Set
46	Wencon hi-temp green	1060	"	"

Wencon UW Coating Wet Surface

Capa UW Wencon　水中補修コート材　WENCON 水下修补剂



Excellent liquid coating for applying on wet surfaces or under water, with a very good adhesion to metal surfaces. Typical applications are coatings of steel surfaces rebuild with Wencon UW Cream, and coatings under water - like ships hulls and/or other submerged structures, tanks, pipes etc. Examples of repairs under extreme conditions could be: on-site repair of sea-water filter housings, unable to achieve a dry surface and coating of scratched painting on hulls in splash-zones and under water. Wencon UW Coating is a double coat system and is supplied in two different colours, orange and brown.

81 23 36	Wencon UW Coating, wet surface, orange #1035, 0.5 kg	Set
81 23 27	Wencon UW Coating, wet surface, brown, #1036, 0.5 kg	"

Wencon Bio Cleaner

WENCON Bio Cleaner　生分解性クリーナー　WENCON 清洗剂



A water based alkaline degreaser, used for cleaning purposes prior to application of Wencon products, in order to ensure best possible adhesion. An environmentally friendly product and is classified as Non Dangerous Goods. Applied on wet and dry surfaces. For application on wet surface, Wencon UW Coating is needed as a primer before application of any further products. Supplied with a separate spray, which is set for foam spray when delivered. Recommend using foam spray, due to the efficiency.

81 25 97	Wencon Bio Cleaner, spray, #1104, 0.75 ltr/btl	Btl.

Wencon Pipe Tape

Wencon Cinta para Reparación de Tubeías
パイプテープ　WENCON 管道胶带



A fast curing pipe repair bandage especially formulated to make quick and effective repairs of cracks, leaks, fractures, and corrosion porosity in piping carrying water, oil, steam, most gases and even solvents. Wencon Pipe Tape has good pressure, temperature and chemical resistance. Available in 3 sizes.

CODE	Description	Product No.	Unit
81 23 28	Wencon pipe tape, 2 unit pack 10 cm x 350 cm	1044	Set
44	Wencon pipe tape, 5 unit pack 5 cm x 150 cm	1045	"
48	Wencon pipe tape, 4 unit pack 5 cm x 350 cm	1046	"

Wencon Putty

Wendon Masilla　パテ　WENCON 密封料



The quick curing, ready to use, mouldable, epoxy repair paste. This multipurpose epoxy paste is ideal for a wide range of emergency repairs where an ultra quick curing and mouldable compound is required. Typical applications are patching sealing and filling of cracks, leakages and holes in pipes, on flanges, in tanks etc. Used in combination with Wencon Pipe Tape.

81 23 42	Wencon putty, 8 x 125 grm, product no. 1040	Set
81 23 29	Wencon putty, 4 x 125 grm, product no. 1042	"

Wencon UW Putty

Wendon UW Masilla　水中補修パテ　WENCON UW 密封料



Wencon UW Putty is a two-component compound, to be applied on wet surfaces or under water. The UW Putty is excellent for filling up holes, dents and rebuilding of surfaces which, due to high humidity, have to be done in wet conditions. Wencon UW Putty is developed for applications, where bigger quantities are needed in one process.

81 23 54	Wencon UW putty, 1 kg, product No. 1012	Set

Wencon Cleaner

Wencon Limpiador　クリーナー

WENCON 清洗剂



Trichlorethylene based non-flammable degreasing agent, which is used for cleaning purposes prior to application of the Wencon products.

81 23 49	Wencon cleaner, 0.5 ltr	Can

Wencon Release Agent

Wencon Agente para Despegar　剥離材　WENCON 分离剂



Used in applications where you want to prevent adhesion between Wencon and the substrate. The release agent is applied in a thin layer and left for drying in ten minutes. Remove excess material using a cloth.

81 23 50	Wencon release agent, 50 grm	Pc.

Wencon Ceramic Cream

Crema Cerámica Wencon　セラミッククリーム　威康陶瓷乳剂



The epoxy compound for repair and rebuilding of deteriorated metal parts, exposed to excessive wear. Typical applications are corroded tanks, pump housings, impellers, valves, pipes, flange faces, roller bearing seats, worn shafts, hydraulic rams and heat exchangers. Wencon Ceramic Cream is also excellent as a filling compound.

Wencon Ceramic Cream can be machined, drilled and worked like metal after curing. The compound has a paste consistency and is easily applied by spatula also to vertical surfaces.

81 25 92	Wencon ceramic cream, No.1016, 1 kg	Set

Wencon Ceramic Coating

Revestimiento Cerámico Wencon
セラミックコーティング　威康陶瓷涂层



The versatile and cost effective two-component coating product for general repair, maintenance and protection of surfaces, exposed to excessive wear. Typical applications are coating of surfaces rebuild after deterioration, protection of tanks, pumps, valves, wet liners, cooler end covers etc. against wear, corrosion and bi-metallic corrosion as well as a variety of small and large repair and maintenance jobs.
Wencon Ceramic Coating is a double coat system and is consequently supplied in two different colours, light grey and light green. The product is liquid and is applied by brush, roller or spatula.

81 25 93	Wencon ceramic coating, Light Grey, No.1017, 0.5 kg	Set
94	Wencon ceramic coating, Light Green, No.1018, 0.5 kg	"

Wencon Application Tools

Utensilios de aplicación Wencon
アプリケーションツール　威康应用工具



Wencon Application Tools are quality products regularly used in connection with mixing and application of Wencon repair products.
The kit contains:
- 4 spatulas for application of compounds and coatings.
- 4 brushes for application of coatings.
- 4 mixing knives for mixing of Wencon two component.
- 1 pair of scissors for cutting Wencon Reinforcement Tape, Pipe Tape and other soft material.
- 4 pairs of nitrile-gloves.

81 25 95	Wencon application tools, No.2805	Set

Wencon Fixation Tools

Herramientas de fijación Wencon　固定・補修ツール　维修工具包



Used for repair of cracks and corrosion in tanks, leaking pittings and welding seams. The Fixation Tools help to support and secure Wencon products to the damaged part.

81 25 96	Wencon Fixation Tools, No.2808	Set

Belzona Polymerics

1111 Super Metal

Super Metal de Belzona Polimérica
ベルゾナポリメリックススーパーメタル　高级金属修理膏



A general-purpose engineering compound for fully machinable repairs.

Belzona 1111 Super Metal has outstanding mechanical strength combined with excellent chemical resistance. The unique properties of 1111 Super Metal make it ideal for application to hydraulic rams, worn shafts, oversize housings, worn keyways, damaged engine blocks, distorted flanges, and also to repair pinholes and fractures in pipe work, particularly on T-pieces and elbows. Repairs tracked and eroded flange faces. Each unit contains basic resin and hardener.

Suitable for contact with potable water as it is certified to NSF/ANSI Standard 61 and satisfies the UK Drinking Water Inspectorate.

Unit Per Set

CODE	81 23 51	81 23 52	81 23 53
Size	1 kg/unit	2 kg/unit	5 kg/unit

Water Activated Tapes

for Pipe Repair

Cintas de plástico reforzado con vidrio hidroactivas para reparación de tuberías
配管修理用水発泡テープ　管道修理用水发泡胶带



Designed and recommended for stopping leaks in pipe which may occur due to corrosion or other reasons. Composed of a quality knitted fiberglass cloth coated with a special poly-urethane resin which is activated by a 5 second immersion in water. Once activated by water the tape will transform from a wet adhesive into a rigid plastic state in minutes. Bonds to most common plastic or metallic pipe materials such as steel, iron, copper, PVC, fiberglass, and others. Recommended for leaks not exceeding 1/8" in diameter and pipe size 2" in diameter. May be used with good results on pipe with a temperature range from –29°C to 121°C. Each roll of products is individually packaged with gloves for handling.

Unit Per Rls.

CODE	Size	Weight grm
81 23 61	5 cm × 1.2 mtr	130
64	5 cm × 1.5 mtr	100
62	5 cm × 3.6 mtr	205
81 23 65	7.5 cm × 1.2 mtr	160
81 23 63	10 cm × 1.2 mtr	307

Pipe Repair Kit

Water Activated Fiberglass Tapes

Cintas de plástico reforzado con vidrio hidroactivas para reparación de tuberías
水活性テープ配管修理キットト　管路修理用水发泡胶带



Ideal for the emergency repair of defective and damaged pipes and pipelines. It comprises one WEICON Repair Stick Multi-Purpose, a special repair tape made of fibreglass-reinforced plastic, assembly instructions and one pair of protective gloves. The repair tape is soaked with a special resin and is activated by contact with water. Can be processed without additional tools and provides reliable long-term sealing of cracks and leaks. It is very easy and fast to apply and shows excellent adhesive properties, high resistance to pressure and chemicals as well as high temperature resistance up to 150°C. Certified to NSF/ANSI 61 as drinking water approval.

81 24 31	Pipe Repair Kit, Water Activated Fiberglass Reinforced Plastic Tape	Set

Name of Mfr.: Weicon GmbH & Co. KG

High Pressure Leak Sealant Kits STOPIT® HP™

Equipo para sellado de fugas de alta presión
高圧配管修理用水発砲テープキット
高压管道修理用水发泡胶带配套工具



A multi-component epoxy composite repair system designed for high-pressure sealing applications with working pressures up to 2,000 PSI (140 kg/cm²) and operating temperatures up to 165°F (74°C). The repair system provides a built in 5:1 safety margin.

Repair applications can be made regardless of pipe orientation and results in a durable coating approximately 5mm thick. The repair epoxy system has a working time of approximately 8 – 10 minutes and will allow return to service in as little as 4 hours.

Supplied in a kit with all the necessary components for field installation*. Standard kits for repair of pipes up to 4" in diameter are available; non-standard kits can be custom made to order with short delivery times.



* Installation requires no special training and involves minimal surface preparation.

Physical Properties of Sealant:

Shelf Life:	6 months from date of purchase when stored at 40° to 83°F (5° to 28°C).
Colour:	Component 1-Clear/Component 2- Straw/Fiber-yellow.
Mixing Ratio:	As supplied, dual cartridge dispenser.
Pot Life:	8 min. @72°F (22°C), after mixing for films less than 1/2" thick.
Glass Transition Temperature:	216°F (102°C), cured and annealed.
Cure Time:	- 4 hour @72°F (22°C) at 1/8" film thickness.
Sealant Viscosity:	Gel-like before cure.

Kit Contents

1 x Pre-filled dispensing cartridge(s) 2 x Static mixers with retainer 1 x Composite fabrics 1 x Instruction manual	1 x Mixing tray 1 x Safety gloves 1 x Clean-up supplies

Unit Per Set

CODE	For Nom. Pipe Size	CODE	For Nom. Pipe Size
81 24 61	1 Inch (25 mm)	**81 24 63**	3 Inch (75 mm)
81 24 62	2 Inch (50 mm)	**81 24 64**	4 Inch (100 mm)

Name of Mfr.: InduMar Products Inc.

Adjustable Pipe Repair Clamps

Abrazaderas Ajustables para la Reparación de Tuberías
調整式パイプ補修クランプ　　可调式管路维修夹钳

Adjustable Type 301 Stainless Steel repair clamps repair splits, pin holes or punctures in pipe or tubing. This handy tool is uniquely faced with expanded PTFE which is the most effective seal for all common chemicals and is food grade acceptable. The clamp conforms to most irregular surfaces and controls most pressures with simple hand-tightening. Adjustable to fit pipe and tube sizes from 1/2" to 6". Combine clamps to fit larger sizes. 10 clamps per case.







81 23 66	Stop-It® Pipe Repair Clamp for pipe size 1/2" to 6", 10 clamps per case	C/S

Leak Repair Kits

InduMar - First Response™

Equipos para Reparación de Fugas
漏洩補修キット　洩漏维修成套工具

Quickly repair most common leaks in pipes, tanks and drums with a variety of sealing devices and materials. Designed with first responders in mind. The kit has the tools to respond to pipe leaks and surface holes of all shapes, as well as cracks and gashes - includes the following:



No.	Items	Q'ty
1.	Stop It® Pipe Repair System – small/medium/large	1
2.	Epoxy Fix Stix™	5
3.	Assorted wooden plugs	18
4.	Rubber hammer	1
5.	Plug rugs "Plug-N-Dike"	2
6.	Plug patties "Plug-N-Dike"	3
7.	Lead wool filler pack	1
8.	Hot/cold hose repair tape	1

81 23 68	Leak repair kit, First Response™	Set

Emergency Pipe Repair Systems

Sistema de reparación de emergencia para tuberías
緊急パイプ補修クランプシステム　应急管道修补带

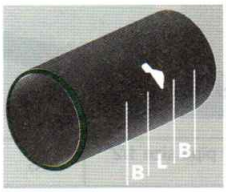


The fastest and easiest way to temporarily repair pipe leaks and bursts. Taking less than 60 seconds to install and featuring a fully self-contained design, which does not require the use of tools. Made from 316 stainless steel, the rapid response clamp system covers 10 bar, 20 bar and 40 bar faults and features a Nitrile or Viton lip-seal, making it suitable for water, gas and petroleum liquids.

Designed under contract by the Australian Government Defence Science and Technology Organisation (DSTO) for use by the Royal Australian Navy, and is suited to a wide range of commercial uses, including: marine, oil and gas, mining, emergency services and plumbing applications.

Selecting the correct clamp length;
When repairing a damaged pipe, it is important to ensure sufficient rubber gasket contact between the edge of the damaged area (refer to "L") and the edge of the clamp. The table below provides a guide to clamp selection, where "B" is the minimum recommended sealing width between the damaged area (L=width) and the end of the clamp.

Nom. Diameter (DN)	Min. Seal Length B (mm)
38 mm - 930 mm	15 mm



Minimum Recommended Clamp Length = L + 2B
Example; If the damaged area measures 20 mm, then a 60 mm Single Clamp should be used.
(L = 20; 20 + [2 x 15] = 50 mm)

How to order: CODE

Emergency Pipe Repair System, SUS 316 Single or Dual or Triple or Quad lever clamp, SIZE OF PIPE OD and PART NO.

Unit Per Pc.

CODE	81 24 66	81 24 67	81 24 68	81 24 69
Pipe Diameter	Single Lever Clamp 70 mm Wide	Dual Lever Clamp 148 mm Wide	Triple Lever Clamp 210 mm Wide	Quad Lever Clamp 272 mm Wide
Version	Milspec (Up to 20 Bar)			
38-75	VPG-SC-S-4-38-75	VPG-DC-S-4-38-75	VPG-TC-S-4-38-75	VPG-QC-S-4-38-75
75-100	VPG-SC-S-4-75-100	VPG-DC-S-4-75-100	VPG-TC-S-4-75-100	VPG-QC-S-4-75-100
100-220	VPG-SC-S-4-100-220	VPG-DC-S-4-100-220	VPG-TC-S-4-100-220	VPG-QC-S-4-100-220
220-350	VPG-SC-S-4-220-350	VPG-DC-S-4-220-350	VPG-TC-S-4-220-350	VPG-QC-S-4-220-350
350-500	VPG-SC-S-4-350-500	VPG-DC-S-4-350-500	VPG-TC-S-4-350-500	VPG-QC-S-4-350-500
500-650	VPG-SC-S-4-500-650	VPG-DC-S-4-500-650	VPG-TC-S-4-500-650	VPG-QC-S-4-500-650
650-800	VPG-SC-S-4-650-800	VPG-DC-S-4-650-800	VPG-TC-S-4-650-800	VPG-QC-S-4-650-800
800-930	VPG-SC-S-4-800-930	VPG-DC-S-4-800-930	VPG-TC-S-4-800-930	VPG-QC-S-4-800-930

Remark: Commercial Type (Up to 10 bar) is also available on request.
Name of Mfr.: Valley Precise Global Pty Ltd.

Metal Repair and Protection Systems

Reparación de Metal y Sistemas de Protección
金属修理・保護システム　金属修理・保护系统

The polymer composites provide the ultimate solution for erosion, corrosion, wear or chemical attack which create problems in fluid flow systems.

The systems exhibit outstanding compressive and flexural strengths as well as phenomenal adhesion, producing the most advanced polymer claddings available for rebuilding, resurfacing and protecting virtually all fluid flow components.

Metalclad Duralloy

Multipurpose paste material, can be drilled, tapped, turned on a lathe, sanded and polished. Can be used to repair worn shafts, cracked casings and engine blocks, etc. Trowelable, requires no heat.

81 23 71	Metalclad Duralloy, 1 kg	Set
72	" 2 kg	

Metalclad Speedalloy

The leak stopper paste material. Fast, easy, non-slump ; can be used to repair just about any leak in minutes. Bonds to virtually any rigid surface.

81 23 75	Metalclad Speedalloy, 167 grm × 10's	Set

Metalclad Ceramalloy CP+

Outstanding wear resistant paste material. Trowelable system for repairing and rebuilding metal damaged by erosion and corrosion: pumps, valves, heat exchangers, etc.

81 23 77	Metalclad Ceramalloy CP+,1 kg	Set
78	" , 2 kg	"

Metalclad Ceramalloy CL+

The ultimate resurfacing system for protecting fluid flow equipment. Brushable, self-leveling, castable thixotropic liquid for pumps, valves, water boxes, tube sheets, tanks, propellers, etc. Two colours (blue and grey) are provided.

81 23 81	Metalclad Ceramalloy CL+, Blue, 1 kg	Set
82	" , Grey, 1 kg	"

Flexiclad Dura Tough

These systems provide exceptional protection to equipment prone to cavitation attack and subsequent damage. Also ideal for creating or repairing flexible seals on machinery and equipment such as on heat exchangers, pumps, valves and piping systems.

Dura Tough DP: Epoxy urethane paste
Dura Tough DL: Thixotropic liquid, blue or green

81 23 85	Flexiclad Dura Tough DP, 500 grm	Set
81 23 86	Flexiclad Dura Tough DL, blue, 500 grm	Set
87	" , green, 500 grm	"

Chemclad XC

Epoxy system liquid resistant to a very wide variety of organic and inorganic acids, alcohol, alkalis, ester, ether, hydrocarbon, ketone, oil, salt, etc. Can be easily and safely applied by brush, roller, squeegee or airless spray. Two colours (light grey and dark grey) are provided.

81 23 91	Chemclad XC, light grey, 5 kg	Set
92	" , dark grey, 5 kg	"

Eneseal HR

To provide maintenance and facilities engineers to protect insulation from water and oil impregnation, impact and chemical attack; to seal and protect concrete containment walls ; to provide a heat refractive surface to reduce the heat envelope around the equipment and structures —especially metal decks, increasing energy efficiency; and to waterproof just about any porous surface. Can be easily and safely applied by roller, brush or spray.

81 23 95	Eneseal HR, 15 ltr	Can

DIAMANT Products

Productos DIAMANT　ディアマント製品　DIAMANT 产品

Ultrametal Ceramic Steel Putty

Masilla de acero cerámico Ultrametal
ウルトラメタル・セラミック・スティール・パティ
超金属陶瓷钢腻子



Ultrametal ceramic steel is suitable for extreme loads when maintaining industries and crafts. The highly wear resistant polymer provides an extended pot life in combination with a shortened curing time (<2 hours) which allows best results on medium as well as large-scale repairs e.g. pipe coatings, wear protection coatings, pump repairs, slides, shafts etc.

Product Benefits:
- Increased wear resistance.
- High chemical resistance.
- General purpose compound in engineering.
- Short curing epoxy (2 hours).

81 23 88	DIAMANT Ultrametal ceramic steel putty 1kg/set	Set

DIAMANT Ship Repair Set

Conjunto de reparación para barcos DIAMANT
緊急パイプ補修キット　应急管道修补套组



The "must have" solution kit for general maintenance as well as emergency repairs. The ship repair set provides solutions from simple leak repairs up to emergency repairs of pipes, pumps, tanks and other equipment in the open sea.

The set consist of:

1 x 500 grm	Plasticmetal cast-iron WF 0062
2 x 500 grm	RR-Metal 0316
1 x 500 grm	Ultrametal ceramic rapid 1685
1 x 500 grm	Ultrametal ceramic-steel 1683
1 x 500 grm	Diagum putty 0373
1 x 200 ml	DIAMANT cleaner liquid 1417
div.	Application and mixing tools, reinforcement materials, clamps and technical documentation

81 23 89	DIAMANT ship repair set	Set

DIAMANT Diagum

Agente endurecedor de baja temperatura　低温硬化剂　低温硬化剂



Cold-curing 2-component elastomer for reliable repairs which cures to a tough medium-hard rubber (Shore A85). After curing the product is extremely elastic and resistant against chemical and physical loads up to 160°C. The elastomer perfectly adheres to all metals, natural and synthetic rubbers, nitrile, butyl, concrete, fiberglass and wood. Diagum is commonly used on pipes, pipe bends, clutch parts, polishing drums, rubber hoses, rubber rolls, rubber wheels, surface seals, conveyor belts and many other parts. Diagum is available in putty and liquid viscosity.

CODE	Description	Unit
81 23 93	DIAMANT diagum liquid, 500 grm/set	Set
94	DIAMANT diagum putty, 500 grm/set	"

DIAMANT RR Metal

Agente de reparación de metales DIAMANT RR
金属補修剤　金属修补剂



Quick and reliable repair material for metal parts even on WET SURFACES or UNDERWATER. Two component type rapid repair system for voids, cracks, dents and holes in all kind of machine elements, castings, pipes, tanks, pumps and engines. It adheres to nearly all surfaces and offers a wide range of protection against corrosion, erosion, chemical, thermal and physical attacks. Permanent temperature resistant up to 160 °C / 320 °F and a free mixing ratio gives you the possibility to adjust the viscosity from liquid to putty to fulfill your needs during the application.
Product Benefits :

- Applicable on wet surfaces.
- Fast curing (Even underwater).
- Resistant up to 160°C.
- Free mixing ratio (Liquid & putty in one product).

Unit Per Set

CODE	Description	Contents	
		Powder	Hardener
81 23 98	Industrial Pack	650 grm	350 grm

DIAMANT Plasticmetal WF

Masilla de metal DIAMANT de alta temperatura
高温用金属補修剤　高温金属修补剂



Quick and reliable repair material for metal parts even at HIGH TEMPERATURES. Two component type rapid repair system for voids, cracks, dents and holes in all kind of machine elements, castings, pipes, tanks, pumps and engines. It adheres to nearly all surfaces and offers a wide range of protection against corrosion, erosion, chemical, thermal and physical loads. Permanent temperature resistant up to 250 °C / 480 °F and a free mixing ratio provides you the possibility to adjust the viscosity from liquid to putty to fulfill your needs during the application. Plasticmetal has been developed for an outstanding ease of use compatible with superior technical properties.

Product Benefits:

- Temperature resistant up to 250 °C.
- Very high proportion of metallic fillers.
- Excellent technical characteristics.
- Fast curing.
- Machinable like metal.
- Variable viscosity.

Unit Per Set

CODE	Description	Contents	
		Powder	Hardener
81 23 99	Industrial Pack	650 grm	350 grm

DIAMANT Ultrametal Putty

Masilla para metales de uso general
汎用金属補修剤　通用金属修补剂



The general purpose compound in engineering. The polymer metal is highly resistant against chemical and physical loads and is machinable like metal: file, mill, turn, and bore, thread cutting and polishing. Up to 90% metallic filters allow best metal properties and guarantee a long-lasting repair. Ultrametal has been developed especially for large-scale repairs with an ineffectual shrinkage.

Product Benefits:

- General purpose compound in engineering.
- Preferred choice for large-scale repairs.
- Deliverable in service boxes.
- Mixing ratio 1:1 eases the application.

81 23 96	DIAMANT Ultrametal putty, 1,000 grm	Set

DIAMANT UM1250

Equipo de reparación rápida DIAMANT UM1250
緊急補修キット　应急修补套组



The quick repair solution for emergency situations. Very good adhesion to any kind of metal even on OILY SURFACES. Short curing times make DIAMANT UM1250 the first choice to repair parts at sea. Whether housings, pumps, containers, engine blocks, cylinder heads, gear boxes, bearing seats, coolers, propellers, impellers, tubes or pipes, UM1250 is your solution to fix the problem within a couple of minutes. Suitable for small areas with good resistance to wear, abrasion and

extremely resistant to aggressive chemicals. Machinable like metal. Mixing ratio 1:1 by volume, delivered in a complete box with all needed tools in one set.

Product Benefits:
- Applicable on oily surfaces.
- Emergency repairs / first curing.
- Perfect adhesion on metal parts.

81 23 97	DIAMANT UM1250, 500 grm	Set

Weicon Emergency Repair Kit

Equipo de reparación rápida
ウェイコン緊急補修キット　应急修补套组



For emergency repairs and maintenance works on board of ships, equipped with many different products that support you in various cases, cover most cases of offshore emergency repairs and maintenance works during long ways.

Repair Kit 1 covers the most common emergency and maintenance cases, Repair Kit 2 and 3 covers a lot of different applications on board. The Repair Kits are suitable for all ships, where repairs and maintenance have to be done frequently.

The 3 standard repair kit contains:	Kit 1 (812907)	Kit 2 (812908)	Kit 3 (812909)
Weicon A, 0.5 kg	2 set	2 set	2 set
Weicon SF, 0.5 kg	2 set	2 set	2 set
Weicon BR, 0.5 kg	-	-	1 set
Weicon WR, 0.5 kg	-	-	1 set
Weicon HB 300, 1.0 kg	-	1 set	2 set
Weicon Ceramik BL, 0.5 kg	-	-	1 set
Weicon UW, 0.5 kg	2 set	2 set	2 set
Repair Stick Aqua 115 g	2 set	3 set	4 set
Repair Stick Steel 115 g	2 set	3 set	4 set
Urethan 80, 0.5 kg	-	-	1 set
AN 302-43, 50 ml	-	1 set	1 set
AN 302-60, 50 ml	-	1 set	1 set
AN 305-77, 50 ml	-	-	1 set
AN 306-38, 50 ml	-	-	1 set
Thread Sealing Cord DF 175	-	-	1 set
Plast-o-Seal, 90 ml	-	-	1 set
VA 8312, 30 g	-	1 set	1 set
VM 120, 30 g	-	1 set	1 set
GMK 2410, 700 g	-	1 set	2 set
Black-Seal, 310 ml	-	1 set	2 set
Cleaner Spray S, 500ml	-	2 set	2 set
Gasket Remover, 400 ml	-	-	1 set
W 44 T, 400 ml	-	1 set	2 set
Rust Shock, 400 ml	-	1 set	2 set
Mould Release Agent, 400 ml	-	-	1 set
Starter-Spray, 400 ml	-	1 set	1 set
Contact Spray, 400 ml	-	1 set	1 set
AS 500, 500 g	-	-	2 set
Application Kit	1 set	1 set	2 set

CODE	Description	Model	Unit
81 29 07	Weicon Emergency Repair Kit 1	10851001	Set
81 29 08	Weicon Emergency Repair Kit 2	10851002	"
81 29 09	Weicon Emergency Repair Kit 3	10851003	"

Name of Mfr.: Weicon GmbH & Co. KG

WEICON Plastic Metals

Epoxy Resins for Repair, Casting and Bonding

Weicon Plásticos/Metales　ウェイコン補修製品　WEICON 塑胶制品



High-quality, two-component epoxy resin systems for fast, cost-effective and durable repairs of many types of material. Ideal for rebuilding of shafts, repairing leaking pipes and tanks, repair of pumps and valves damaged by erosion and/or corrosion and many other cases. Temperature resistant from –35°C to +120°C. After curing, the material is machinable with normal working tools and equipment.

Unit Per Set

CODE	Product	Content	Description
81 29 01 02	WEICON A	0.5 kg 2.0 kg	Pasty, steel-filled, certified by DNV. Especially suitable for the elimination of corrosion damages and pitting on tanks, repairs on pipes and castings, housings and machine parts.
81 29 05 06	WEICON B	0.5 kg 2.0 kg	Flowable, steel-filled, long pot life. Making of moulds and models, tools, templates, gauges and fixtures. Also for filling blowholes and microporosities on castings as well as for general repair works where a castable compound is advantageous.
81 29 10 11	WEICON BR	0.5 kg 2.0 kg	Pasty, bronze-filled, non-corrosive. For filling blowholes and rebuilding bronze equipment parts (e.g. propellers of ships).
81 29 03 04	WEICON C	0.5 kg 2.0 kg	Flowable, aluminium-filled. High temperature resistant from -35°C up to +220°C. Non-corrosive, anti-magnetic and cures practically without shrinkage. Suitable for pouring out moulds (e.g. vacuum and foam moulds), making fixing devices and tools, (e.g. injection dies) which are exposed to high temperatures.
81 29 21 22	WEICON F	0.5 kg 2.0 kg	Pasty, aluminium-filled, non-corrosive. Temperature resistant from -35°C up to +120°C. Filling blowholes and reconditioning of parts (e.g. injection moulded parts, holding devices).
81 29 33 34	WEICON F2	0.5 kg 2.0 kg	Flowable, aluminium-filled, non-corrosive. Temperature resistant from -35°C up to +120°C. Making of castings, moulds and templates, predotypes and fixing devices. Ideal for pouring out swages to test their exactness or for pouring out fixing devices in ultrasonic welding machines.
81 29 51	WEICON HB 300	1.0 kg	Pasty, steel-filled, high-temperature-resistant briefly up to +280°C. For applications on vertical surfaces for the repair and bonding of cast and metal parts, for filling in blow holes, for repairing damage on containers, carriages and machine parts and for sealing pumps and pipes.

(to be continued)

Unit Per Set

CODE	Product	Content	Description
81 29 37 38	WEICON Ceramic BL	0.5 kg 2.0 kg	Flowable, brushable, mineral (carborundum and zircon)- filled , extremely wear resistant. Temperature resistant from -35°C (-31°F) up to +180°C (+356°F). Brushable surface prediction with extremely high wear and abrasion resistance. As a preventive coating or applied after repair, it reduces abrasion on castings, valves, blower vans and in many other applications.
81 29 41 42	WEICON Ceramic W	0.5 kg 2.0 kg	Pasty, mineral-filled. Temperature resistant from -35°C (-31°F) up to +150°C (+302°F), briefly up to +260°C (+500°F). Brushable surface prediction with extremely high wear and abrasion resistance. As a preventive coating or applied after repair, it reduces abrasion on castings, valves, blower vans and in many other applications.
81 29 31 32	WEICON SF	0.5 kg 2.0 kg	Pasty, steel-filled, fast curing. Temperature resistant from -35°C (-31°F) up to +90°C (+194°F). For quick repairs and bondings (e.g. on leaky pipes, housings and gears) as well as for making anchorages and fixing devices. Certified by DNV.
81 29 43 44	WEICON ST	0.5 kg 2.0 kg	Viscous, can be applied with a spatula, metal-filled, anti-corrosive. For versatile repairs and maintenance works on stainless steel machine parts and components such as tanks, pipelines, containers, funnels and flanges.
81 29 45 46	WEICON TI	0.5 kg 2.0 kg	Pasty, titanium-filled. Temperature resistant from -35°C up to +150°C, briefly up to +260°C. Repair of pumps, valves, wearing plates, ball bearing seats, shafts, centrifugal pumps and propellers.
81 29 35 36	WEICON UW	0.5 kg 2.0 kg	Pasty, mineral-filled-resistant, cures even under water. Temperature resistant from -35°C up to +160°C. Particularly suitable for repair and maintenance work at marine and off-shore sector, wherever dampness and wetness lead to bonding problems.
81 29 57 58	WEICON WP	2.0 kg 10.0 kg	Pasty, high strength, ceramic-filled, extremely wear-resistant, viscoplastic and impact-resistant. Prevents metal loss and replaces previously applied wear-resistant alloys, ceramic tiles and rubber linings as well as welded metal coatings.
81 29 47 48	WEICON WR	0.5 kg 2.0 kg	Liquid, steel-filled, wear resistant. Temperature resistant from -35°C up to +120°. Repair of shafts, pouring out bearings, cutting and punching tools, making of castings, drawing moulds, underpouring machines and foundations.
81 29 49 50	WEICON WR2	0.5 kg 2.0 kg	Pasty, mineral-filled, wear-resistant, highly abrasion-resistant. For repairs on conveyors, guides and sliding ways where rolling or sliding movements cause wear. Also for lining pump housings and extruders and for the repair of worn-out flanges.

(to be continued)

Unit Per Set

CODE	Product	Content	Description
81 29 55 56	WEICON CBC	3.0 kg 10.0 kg	Flowable, vibration-resistant, shock-resistant. self-levelling, long pot life of 30 minutes, almost no shrinkage, permanent high static strength, high resistance to ageing, chemical-resistant. Certified by ABS.
81 29 85	Casting Resin MS 1000	1.0 kg	Liquid, unfilled, low viscosity. A transparent and very flowable epoxy resin system with high mechanical strength. For metal, wood, rigid foam and many plastics.
81 29 52 53 54	Epoxy Resin Putty	0.1 kg 0.4 kg 0.8 kg	Putty (kneadable), high-strength, versatile, temperature-resistant up to +200 °C. Used for fast repairs and maintenance works such as fixing screws, anchors and plugs, repairing leaky tanks and pipes, reconditioning castings, repairing shafts, bearings, pumps and housings, reconditioning defective threads.
81 29 59 60	Mould Release Agent Liquid F 1000	250 ml 1 ltr	Liquid, solvent-containing release agent on a waxy basis for epoxy resins and polyurethanes. It is especially suitable for release processes from smooth and non-absorbing surfaces.
81 29 64 79	Mould Release Agent Wax P500	150 g 0.5 kg	Putty, solvent-containing release agent on a waxy basis for epoxy resins and polyurethanes. It is especially suitable for release processes from smooth and/or porous surfaces.

Name of Mfr. : Weicon GmbH & Co. KG

Liquid Polyurethane

Poliuretano líquido　リキッドポリウレタン　液体聚氨酯

Flexible casting and coating resin with high impact strength and abrasion resistance.



Unit Per Pc.

CODE	Name	Description	Content
81 29 61	Weicon Urethane 45 (Shore hardness 45)	2-component polyurethanes that cure at room temperature to a rubber-like material, remaining flexible at temperatures down to even -60°C. Adhere to a variety of materials such as metals, concrete, rubber, wood, or fibre glass.	0.5 kg
62	Weicon Urethane 60 (Shore Hardness 60)		0.5 kg
63	Weicon Urethane 80 (Shore Hardness 80)		0.5 kg
81 29 82	Primer M 100	For pre-treating non-absorbent metal surfaces (aluminium, steel, stainless steel, brass, copper, zinc, tinplate), plastics (ABS, rigid PVC, PA 6.6, FRP, SMC, PUR), lacquered surfaces, enamel, ceramics, and glass.	250 ml
81 29 83	Primer S 300	For pretreating of porous and absorbing surfaces.	250 ml

(to be continued)

Unit Per Pc.

CODE	Name	Description	Content
81 29 84	Colour Paste – black -	Special colour paste on the basis of finely dispersed pigments for colouring WEICON Urethanes and WEICON Casting Resin MS 1000.	250 g
81 29 86	Easy-Mix PU-90	Structural Adhesive is a high-strength, extremely fast-curing, highly viscous adhesive, which can be sanded and painted over after approx. 30 minutes. It is weather-resistant, resistant to chemicals and temperature-resistant from -55°C to +125°C.	50 ml
81 29 87	Easy-Mix PU-240	Structural Adhesive is a high-strength, extremely fast-curing, highly viscous adhesive, which can be sanded and painted over after approx. 30 minutes. It is weather-resistant, resistant to chemicals and temperature-resistant from -55°C to +125°C.	50 ml

Name of Mfr.: Weicon GmbH & Co. KG

Accessories

Unit Per Set

81 29 88	Processing Kit	Includes: Processing spatula, short Wire mesh 138 x 210 mm, Butyl tape, Paint brush, Box cutter.

Name of Mfr. : Weicon GmbH & Co. KG

Repair Sticks

Barras de reparación
スティック型補修剤　棒形修补剂

The easy solution for all repair and maintenance works. Temperature resistant from -50°C (-58°F) up to +120°C (+248°F), briefly up to +150°C (+302°F).



Unit Per Pc.

CODE	Product	Content	Description
81 29 65 66	Repair Stick Aluminium	57 grm 115 grm	Putty (kneadable), aluminium-filled. For quick non-rusting repairs and bonds of metal parts. Patches and seals cracks, holes, leakages and surface damages.
81 29 23 24	Repair Stick Aqua	57 grm 115 grm	Putty (kneadable), ceramic-filled. Ideal for quick repairs on damp and wet surfaces and for underwater applications.
81 29 67 68	Repair Stick Concrete	57 grm 115 grm	Putty (kneadable), ceramic-filled. Especially for quick repairs and reconditioning of all concrete, stone and ceramic surfaces.
81 29 69 70	Repair Stick Stainless-Steel NSF	57 grm 115 grm	Putty (kneadable), stainless steel-filled. For non-corroding repairs and reconditioning of stainless steel and other rust-proof metals.
81 29 71 72	Repair Stick Wood	28 grm 56 grm	Putty (kneadable), mineral-filled. For permanent and elastic, non-shrink repairs of wooden parts.
81 29 73 74	Repair Stick Plastic NSF	57 grm 115 grm	Putty (kneadable), plastic-filled. Especially for durable repairs of plastic parts (except for plastics such as PE, PP, PTFE, etc.).
81 29 75 76	Repair Plastic Copper NSF	57 grm 115 grm	Putty (kneadable), copper-filled. For very quick repairs of cracks, holes and leakages even on damp and wet surfaces.
81 29 25 26	Repair Stick Steel NSF	57 grm 115 grm	Putty (kneadable), steel-filled. Preferably used for quick and high strength repairs and bonds of metal parts.
81 29 77 78	Repair Stick Titanium	57 grm 115 grm	Putty (kneadable), titanium-filled. Temperature resistant from -50°C (-58°F) up to +280°C (+536°F), briefly up to +300°C (+572°F). For permanent, high temperature and wear resistant repairs and bonds of metal parts.

Name of Mfr. : Weicon GmbH & Co. KG

(to be continued)

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Comparison Table of the Resin Based Maintenance Products

Description	**ThistleBond** (U.K.)	**Weicon** (Germany)	**DIAMANT** (Germnany)	**Wencon** (Denmark)	**Devcon** (U.S.A.)	**Cordobond** (U.S.A.)	**RedDot** (Singapore)	**Kansai Putty** Mfg. (Japan)
CODE	**81 22 16**	**81 29 85**			**81 22 47**	**81 23 01 / 02**		
Liquid Epoxide Resin & Hardener	UPS 19000 RH Standard Resin & Hardener (Formally TRK 19000) 225gm Unit	Casting Resin MS 1000, 1 kg (Set)	Ultrametal Steel FL 1kg & 0.5 kg (Set)		5 Minutes Epoxy 500 grm	Resin & Activator 453 grm, 906 grm (Set)	GlobalBond 201 A/B	
CODE	**81 22 02**	**81 29 01 / 02**		**81 23 35 / 47**	**81 22 51 / 52**	**81 23 10**		
Steel Filled Epoxy Putty	UPS 19060 SG Stick Grade Metal (Formally TRK 19060) 125gm Unit	Plastic Metal A 500grm, 2 kg (Set)	Ultrametal Steel P 1 kg & 0.5 kg (Set)	Cream / Rapid 1 kg (Set)	Plastic Steel A, 500 grm, 1 kg, (Set)	Strong Back Steel Putty, 453 grm (Set)	GlobalBond Plastic Steel Putty A/B	MS-Iron Steel Epoxy Putty 500 gm & 1 kg (Set)
CODE		**81 29 10 / 11**			**81 22 90**			
Bronze Filled Epoxy Putty		Plastic Metal BR 500grm, 2 kg (Set)	Ultrametal Bronze P 1 kg & 0.5 kg (Set)	Rapid 1 kg (Set)	Bronze Putty BR, 500 grm (Set)			
CODE		**81 29 21 / 22**	**81 23 96**		**81 22 66 / 67**			
Aluminium Filled Epoxy Putty		Plastic Metal F 500grm, 2 kg (Set)	Ultrametal putty 1 kg (Set) Mixing Ratio 1:1	Rapid 1 kg (Set)	Aluminium Putty F 500 grm 1 kg (Set)		GlobalBond 633 A/B	MS-Aluminium Epoxy Putty 500 gm & 1 kg (Set)
CODE	**81 22 11**	**81 29 05 / 06**		**81 23 37 / 38**	**81 22 56**			
Steel Filled Epoxy Liquid	UPS 105 EG Metal Repair Paste (Formally TR 105, TRK 19063) 1 kg Unit	Plastic Metal B 500grm, 2 kg (Set)	Ultrametal Steel FL 1 kg & 0.5 kg (Set)	Coating white + blue 0.5 kg (Set)	Plastic steel B, 500 grm (Set)			MS-Iron Steel Epoxy Liquid, 1 kg (Set)
CODE								
Bronze Filled Epoxy Liquid			Ultrametal Bronze FL 1 kg & 0.5 kg (Set)	Coating White + Blue 0.5 kg (Set)				
CODE						**81 23 08**		
Non-asbestos Filler in Powder Form						Strong Back Sealer, 113 grm (Set)		
CODE	**81 22 23 / 25**			**81 23 39**		**81 23 23/24/25**		
Glass Fiber Fabric	UPS 19007 GT 50mm x 50m Glass Tape (Formally TRK 19007) Each UPS 19009 GT 100mm x 50m Glass Tape (Formally TRK 19009) Each			Reinforcement Tape, W: 5cm x10m + W: 10cm x 20m (Rls.)		Glass Tape, W:38mm, 76mm, 100mm (Rls.)		

(to be continued)

Description	**ThistleBond** (U.K.)	**Weicon** (Germany)	**DIAMANT** (Germnany)	**Wencon** (Denmark)	**Devcon** (U.S.A.)	**Cordobond** (U.S.A.)	**RedDot** (Singapore)	**Kansai Putty** Mfg. (Japan)
CODE	**81 22 31**		**81 23 96**					
Epoxide Compound	UPS 19003 A&B Cement (Formally TRK 19002/3) 1 kg Unit		Ultrametal Putty 1 kg (Set) Mixing Ratio 1:1					
CODE	**81 22 35 / 37**		**81 23 89**	**81 23 41/31/32 /33/26**	**81 22 98**	**81 23 30**		
Repair Kit	UPS 11000 A Kit (Formally TRK 11000) Each UPS 13000 C Top Up Kit (Formally TRK 13000) Each		Ship Repair Set (1150 / 1744)	Repair Kits 1,2,3,4 & for tanker vessels	Zip Patch (Set)	Repair Kits (Set)		
CODE		**81 29 31 / 32 / 81**	**81 23 97**	**81 23 42 / 29 / 28 / 44 / 48**	**81 22 62 / 93**			
Quick Curing	UPS 125 XFP Fast Curing Metal Paste 200gm Unit 500gm Unit	Plastic Metal SF 500grm, 2 kg (Set) Fast Metal 24 ml	Ultrametal 1250 0.5 kg (Set) Mixing Ratio 1:1 Also usable for oily surfaces	Putty: 5-minutes curing 8 x 125 grm + 4 x 125grm (Rls.) Rapid: 8 x 125grm (Set) Pipe Tape, Water Activated Pipe Repair Tape, 3 sizes (Set)	Plastic Steel 5-minute Putty SF 500 grm (Set) / Magic Bond, 114 grm Stick		GlobalBond 202 A/B	MS-Iron Steel Ultra Curability Epoxy Putty, 300 gm (Set) MS-Iron Steel Fast Curability Epoxy Putty, 500 gm (Set)
CODE		**81 29 51**	**81 23 99**	**81 25 92/93/94 81 23 45 / 46**	**81 22 43**			
High Temperature	UPS 225 HT High Temperature Ceramic 1 kg Unit 3 kg Unit	Plastic Metal HB 300 1kg (Set), Mixing Ratio 1:1	Plasticmetal WF 1 kg (Set) Free Mixing Ratio Liquid & Putty	Ceramic Cream 1kg (set) Ceramic Coating Grey + Green, 0.5 kg (Set) Hi-temp Yellow + Green, 0.5 kg (Set)	HR-Super-3000, 500 grm (Set)		GlobalBond 203 A/B	MS-Heat & Wear Resistant Metal Epoxy Putty 500 gm (Set)
CODE		**81 29 35 / 36**	**81 23 98**	**81 23 34 / 36 / 27 / 54**	**81 22 46**	**81 23 15**		
Under Water	UPS 250 UW UnderWater Ceramic 4ltr Unit	UW, 0.5 kg, 2 kg (Set)	RR Metal 1 kg (Set) FREE Mixing Ratio Liquid & Putty	UW Cream 0.5 kg (Set) UW Coating Orange + brown 0.5 kg (Set) UW Putty, 1kg	UW, 500 grm (Set)	Underwater, 454 grm (Set)	GlobalBond 207 A/B	

Graphite Powder

Polvo de Grafito　グラファイトパウダー　石墨粉



Powdered graphite-mir-floated. Extra finely powdered graphite for precision equipment, etc. It is more adhesive than ordinary flake graphite.

81 24 01	Graphite powder, 0.5 kg	Tin
02	" " 2.0 "	"
03	" " 5.0 "	"

Graphite Flakes

Grafito en Escamas　グラファイトフレーク　石墨片



A standard lubricating graphite, particularly useful for engines, compressors, etc. Graphited surfaces improve lubrication and help oil and grease to last longer. These graphite flakes are also used as paint pigment for heat resistant and protective coats. Furnished in tins of 1, 2.5 and 5 kg.

81 24 06	Graphite flake, 1.0 kg	Tin
07	" " 2.5 "	"
08	" " 5.0 "	"

Graphite Paste

Pasta de Grafito　グラファイトペースト　石墨膏



An outstanding product for high temperature application such as on cylinder head studs, face plate studs, boiler and manhead gaskets, gas burner connections, studded and threaded connections, etc. Will keep joints leakproof against oil, acids and gases which might penetrate ordinary oil mixed compounds.

81 24 11	Graphite paste, 0.5 kg	Tin
12	" " 2.0 "	"
13	" " 5.0 "	"

Pipe Joint Compounds

Compuestos para Sellado de Uniones Roscadas
パイプジョイントコンパウンド　管子螺纹密封膏



For sealing threaded joints in iron, stainless steel, brass, copper and plastic pipes used for gas, water, steam, compressed air, etc. Withstands most corrosive liquids and gases. This filler also acts as a lubricant. Furnished in a 2.5 kg tin only.

81 24 20	Compound, pipe joint, 2.5 kg	Tin

Rock Wool
(Mineral Glass Fiber)

Lana Mineral　岩綿　石棉



For building insulation, ovens, ducts, etc. of temperatures up to 600°C (1,112°F). Furnished 25 kg per bag.

Unit Per Bag

Sheet		Granulated	
CODE	Size mm	CODE	Weight
81 24 32	25 × 605 × 1,820	81 24 34	25 kg
33	50 × 605 × 1,820		

Fire Clay Powder

Polvo de arcilla Refractaria
ファイヤークレーパウダー　耐火土粉面



Dry milled powder for boiler brick work, anti-fire walls, etc. Will withstand up to 1,200°C. 30 kg in a sack.

81 24 35	Fire clay powder, 30 kg	Bag

Refractory Products

Productos Refractarios　AGC プライブリコ製品　耐火材料产品



Plastic refractories are firebricks in plastic putty-like form which can be installed by ramming the plastics with a wooden hammer or air rammer into any shapes required. After installation, it is baked with operation temperature of the furnace itself (over 1,000°C) to form the tough walls.

Castables are refractory cements which are mixed with the proper amount of water for installation. May be poured into frames or trowelled as is the case with ordinary cement. After installation by whichever method, it hardens to a sufficient strength.

From among various types of products, the most common products are listed below.

THERVEK RM (Ramming) – Plastic refractories
Clay bonded ramming refractory with superior resistance to thermal spalling (Ramming). Plastic refractories does not require mixing, and can be rammed as they are. Clay bonded plastic refractories offer superior resistance to thermal palling.

THERVEK C (Casting / Trowelling) - Cement castables
Easy installation and excellent general-purpose characteristics. Enables easy application of refractory lining walls with superior refractoriness. Has low thermal conductivity in comparison with shaped refractories, and can contribute to energy saving. Also offers greater resistance to thermal spalling than shaped refractories. Offers an extensive lineup of products with maximum service temperatures ranging between,1,350°C and 1,800°C, and can be used for all manner of equipment.

THERVEK PAT (Patching) - Plastic refractories
Patching repair material with superior adhesive properties. These refractories are affixed firmly to the repair area by the strong adhesive power of phosphate. After heating, patching refractories display extremely strong adhesive strength in their adhesion to the base material. Patching in this way enables you to prolong the service life of your refractories by performing easy repairs.

THERVEK PX-BD - Other monolithic refractories
High-strength joint packing and bond. A paste-type product consisting of refractory aggregate and water glass binder. Can be used to fill joints by inserting a tube into the open space between brick joints and filling them directly with the product. When performing patching repairs, a thin underlay coating of PX-BD can be applied to the surface of the base material using a trowel or similar tool. Doing so increases the adhesive strength of the bond between the base material and the patching material, increasing the effectiveness of the repair. When PX-BD is heated to temperatures in excess of 500°C, chemical bonding occurs, increasing the strength of the refractory (i.e. heat setting).

CODE	Product Name	Type	Packaged in
< THERVEK RM (Ramming) >			
81 24 41	THERVEK RM-ALXAB	High Alumina Plastic Refractories	25 kg/Ctn
81 24 42	THERVEK RM-AB	Fireclay Plastic Refractories	
< THERVEK C (Casting/Trowelling) >			
81 24 45	THERVEK C-40	Dense Castable Refractories (Casting)	25 kg/Bag
81 24 48	THERVEK C-31		
81 24 49	THERVEK C-KLMIX		
81 24 38	THERVEK C-TPMIX-T	Dense Castable Refractories (trowelling)	
< THERVEK PAT (Patching) >			
81 24 39	THERVEK PAT-515	Patching repair material	20 kg/Ctn
< THERVEK PX-BD >			
81 24 40	THERVEK PX-BD-KT	Other monolithic refractories	700 g plastic bat tube×16 pcs/Ctn

Name of Mtr.: AGC Plibrico Co.,Ltd.

Anticorrosive Tapes

Cintas Anti-corrosivas　防蝕テープ　防腐蚀带



Uses:
For protection against corrosion and the waterproofing of pipes, flanges and valves for marine use.

Compound:
A neutral compound based on saturated petroleum hydro carbons (petrolatum) with inert fillers.

Fabric:
Fabric carrier free from chemical impurities, fully impregnated and coated on both sides.

Characteristics:
Unalterable in composition and plasticity over a wide range of temperatures. Slight superficial oxidation occurs in atmospheric application and renders the surface less tacky. Has a very high degree of impermeability to water. Won't crack or harden. Unaffected by vibration and highly resistant to mineral acids, alkalis and salt. Basically no VOC's (Volatile Organic Compounds) contains so it is friendly to the environment.

Specifications	
Thickness	1.2 mm
Weight	1.4 kg/m²
Elongation	20%
Temperature	For applicable 5°C to 55°C

Unit Per Rls.

CODE	Width	Length	CODE	Width	Length
81 24 71	50 mm	10 mtr	**81 24 73**	150 mm	10 mtr
77	75 mm		**74**	200 mm	
72	100 mm		**75**	300 mm	

Sub-Materials for Anticorrosive Tape

Sub-materiales para Cinta Anti-corrosiva BC
防蝕テープ用補助材　辅助材料





Paste
A primer for increasing the adhesion of anticorrosive tapes.

Mastic
Filler or sealer on the uneven surfaces (same composition as anticorrosive tapes).

Unit Per Box

CODE	Brand	Contents	Per Box	Weight kg
81 24 81	Paste	3 kg/can	3 cans	9
81 24 83	Mastic	0.88 kgs/bar	25 bar	22

Anti-corrosive Tapes

SeaSeal™ Sealants

Cinta anticorrosión sin VOC
VOC 对策防蝕テープ　VOC 对策防腐蚀胶带

SeaSeal™ products utilize the latest viscous-elastic technology to gain superior performance in anti-corrosion or water proofing situations such as pipe, pipe joint and flange corrosion protection as well as hatch sealing, and conduit box packing. Since it has no VOC's (Volatile Organic Compounds) it is friendlier to the environment.

Properties
Impermeable to moisture and gases
Immediate adhesion to substrates
Never will crack or become brittle
Non-carcinogenic, no VOCs
Non-toxic, nonflammable
Inert material, no deterioration
NO primer needed

SeaSeal™ Tape





It is available as a quick wrap or paintable product. In the quick wrap from it has a removable backing and a clear overlay on the topside for sealing, pipe spans, coating transitions, elbows & tees or pipe coating rehabilitation in salty and humid environments.

The paintable version has all the qualities of the quick wrap and it has a white polymer topcoat that can be painted after application.

Unit Per Rls.

CODE	Size Width × Length	CODE	Size Width × Length
Quik Wrap		**Paintable**	
81 24 85	100 mm × 7.2 mtr	**81 24 87**	100 mm × 10 mtr
86	150 mm × 7.2 mtr	**88**	150 mm × 10 mtr

Name of Mfr.: InduMar Products, Inc.

SeaSeal™ Overwrap Tape



Overwraps provide additional mechanical protection to the SeaSeal tape and paste in environments where physical damage from impact or abrasion can occur. They can be PE, Vinyl or Urethane tapes.

81 24 89	Tape, Overwrap, SeaSeal™, 100 mm × 30 mtr	Rls.
90	Tape, Overwrap, Yellow/Black Non-Skid 100 mm × 18 mtr	

Usage Guide for SeaSeal Tape and Overwrap Tape

Nom. Pipe Dia	SeaSeal Quick Wrap Tape	Over Wrap Tape	Nom. Pipe Dia	SeaSeal Quick Wrap Tape	Over Wrap Tape
2	100mmx7.2mtr	100mmx30mtr	16	150mmx7.2mtr	100mmx30mtr
4	100mmx7.2mtr	100mmx30mtr	20	150mmx7.2mtr	100mmx30mtr
6	100mmx7.2mtr	100mmx30mtr	24	150mmx7.2mtr	100mmx30mtr
8	100mmx7.2mtr	100mmx30mtr	26	150mmx7.2mtr	100mmx30mtr
10	100mmx7.2mtr	100mmx30mtr	28	150mmx7.2mtr	100mmx30mtr
12	100mmx7.2mtr	100mmx30mtr			

SeaSeal™ Paste



Anti-corrosion paste ideal for submerged items such as nuts or any situations requiring an extra measure of protection.

81 24 95	Paste, anti-corrosive, SeaSeal™, 30 mm x 30 mm x 2.7 mtr	Pc.

SeaSeal™ Sealant



Available in 30 oz tube, and allows SeaSeal to be pumped into void spaces.

- Fills voids and spaces for corrosion prevention.
- Flange and valve protection.
- Waterproofs conduits and junction boxes.

81 24 96	Sealant, anti-corrosive, SeaSeal™, 30 oz	Tub

Flat Patch Leak Sealant Kits

STOP IT® Flat Patch

Kits de sellado de fugas Flat Patch
修理用水発泡テープキット　平面补漏密封胶套件



A leak sealant product designed for applications where localized repair is needed or full pipe wraps are impractical. The carbon fiber composite repair system safely and quickly restores operations up to 1,000 psi, and provides localized corrosion inhibition.

Applications can be made regardless of surface orientation (i.e., vertical or horizontal) and will result in a durable repair that will not shatter or crack, even under extreme operating conditions. Operations may resume in as little as 4 hours following application and cure under ambient conditions. Supplied in a kit with all the necessary components for field installation*.

* Installation requires no special training and involves minimal surface preparation.

Applications:
Tanks • Vessels • Large Diameter Pipes • Valve and Pump Casings • Welded Seams Rail Cars • Roofs • Drums • and More.

Shelf Life:
6 months from date of purchase when stored at 40° to 83°F (5° to 28°C).

Unit Per Set

CODE	Kit Size	CODE	Kit Size
81 24 65	4 Inch × 4 Inch (100 mm × 100 mm) Kit, yield for 2 Repairs	**81 24 70**	6 Inch × 6 Inch (150 mm × 150 mm) Kit, yield for 1 Repair

Dispensing Guns for Leak Repair Kit STOPIT® HP/Flat Patch

Dispensing gun is not included in leak repair kit and available separately on request.

81 24 76	Dispensing Gun, 200 ml for STOPIT HP/ Flat Patch	Pc.

Rapid Self Fusing Repair Tapes

for Leakage, Heat Resistance

Cintas de reparación autofusibles rápidas para fugas, resistentes al calor
漏水、耐熱用速融着補修テープ
用于防漏、耐热的快速自熔修补胶带



Specially formulated silicone rubber tapes, bond irreversibly to itself providing an insulative barrier resistant to moisture, sea water, steam water over wide temperature range from -50 to 200°C. By strongly tensing while taping, the tape will be self-bonding to each other and tightly adhere to the leaking part on pipes or hoses, even for spouting water.

Meets MIL-I-46852C and can be applied to drinking water pipes.

Specification and Characteristic

Material	Silicon Rubber
Heat Resistance	-50°C to 200°C
Tensile Strength	8.0 Mpa
Expansion (%)	600%
Pressure Resistance (kgf/cm²)	Approx. 10 kgf/cm² (Overlap depends on required pressure)

CODE	Width × Length	Unit
81 24 78	25 mm × 2 mtr	Rls.
79	25 mm × 5 mtr	
80	25 mm × 11 mtr	
82	25 mm × 6 mtr	

Anti-Corrosive Silicone Adhesive Sheets - Catpad

Láminas adhesivas de silicona anticorrosiva
防錆・防蝕シリコーン粘着シート　防腐蚀硅胶粘合片





An anti-corrosive silicone adhesive sheet suitable for any repair works for long-lasting rust prevention. Very easy application, simply cut and patch the sheet on the surface of any materials without primer and it will last rust prevention for 10-20 years. Suitable for rust repairing or reinforcing the corrosion resistance on the finished surface. Available in gray or transparent color, sheet or roll type.

- Excellent durability and weather resistance.
- Excellent airtightness and waterproofing performance.
- Excellent heat/cold resistance, and flame resistance.
- Excellent insulation up to 33.6 kV.
- Excellent anti-vibration.

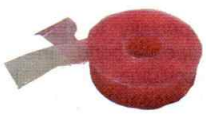
Specification and Characteristic

Material	Silicone Rubber
Thickness	1.8 mm
Operating temperature range	-40°C to 180°C
Tensile Strength	10 MPa
Elongation at break (%)	800%

CODE	Color	Type	Size	Unit
81 24 36	Grey	Sheet type	300 × 1,000 mm	Sht.
50	"	"	400 × 1,000 mm	Sht.
60	"	Roll type	50 × 3,000 mm	Rls.
84	"	"	100 × 3,000 mm	Rls.
81 24 94	Transparent	Sheet type	300 × 1,000 mm	Sht.
97	"	"	400 × 1,000 mm	Sht.
98	"	Roll type	50 × 3,000 mm	Rls.
99	"	"	100 × 3,000 mm	Rls.

Cat-Tape Clear

Cat-Tape Transparente　キャットテープ　透明 Cat-Tape



Putty-like adhesive tape to patch any corrosion area. It can also be used to finish the edges or jointing sections of Catpad to increase the durability of waterproofing and rust prevention. It cures and bonds in 24 hours after application and bonds strongly to both Catpad sheets and any surfaces.

Specification and Characteristic

Material	Silicone Rubber
Colour	Pink (Separator film) Transparent (Tape body)
Tensile Strength	5.4 MPa
Elongation at break (%)	730%
Tear strength Angle type	16 kN/m
Adhesive (between mortar)	22 N/cm
Adhesive (Catpad)	47 N/cm

81 25 00	Cat Tape Clear, 25 mm × 3,000 mm, 10's/pkt	Pkt.

Tapes for Prevention of Leakage and Corrosion, and for Insulation

Cinta para Prevención de Filtración y Corrosión, y para Aislamiento
漏洩防止用、防食用及び電気絶縁用テープ　防漏，防腐绝缘带



Leak None Tape #117

Excellent workability and fitting many kinds of piping or winding materials. High close-adhesiveness and self-adhesiveness.

- **Good Workability**
  Since Leak None Tape is self-adhesiveness type, it has good workability without sticking to the hands or any goods surrounding the working space. The tape, slightly tensed while taping, will adhere within 20 to 30 minutes by overlapping about every half width of tape to the material. It is not necessary to fasten by any hose band over the wrapped tape.

- **Applicable of Underwater Taping**
  Able to stop the liquid leaking (about 2 to 3 kgf/cm²) and also able to tape even in water. In this case the tape must be winded, pressing over by hand, to the material to avoid the water and trash permeating between the layer of tapes.

- **Applicable to Various Materials/Uses**
  This tape is applicable not only for protecting the leakage but also preventing the damage by salt and for electric insulation. This tape can be applied to various kinds of material, such as metal, gum, plastic resin including PVC, piping stick materials or line materials, etc.

Specification and Characteristic

Thickness and Colour	0.5 mm, Black
Expansion (%)	450
Peel Adhesion (N)	30 (20mm width)
Pressure Resistance (kgf/cm²)	1 – 5 (4 ply) 5 – 10 (7 ply)
Weatherability	No extraordinary in 200h. by Weathermeter
Water Resistance	No extraordinary in no leak, no swelling
Ozone Resistance	No cracks, no peeling No extraordinary
Tracking Resistance OA	Liquid of Stain

* Data in the above table is actual test data, not guaranteed data.

CODE	Width × Length	Unit
81 24 91	25 mm × 10 mtr	Rls.
92	38 mm × 10 mtr	"
93	50 mm × 10 mtr	"

Name of Mfr. : Tokyo Nisshin Jabara

High-Adhesive Butyl Sealing Tapes

Cintas de sellado de butil de alta adhesividad
強接着ブチルシーリングテープ　强粘力丁基密封胶带



A self-adhesive sealing tape made of a butyl rubber compound, protected by a reinforced aluminium film, making it highly resistant to ageing and oxidizing caused by atmospheric and chemical agents. Highly adhesive to all materials and especially to plastic, glass, steel, polycarbonate and wood. Especially used to repair small leaks and water infiltrations, for example around windows.

Characteristics:
Cold applied/Waterproof and self-sealing/Resistant to ageing and UV-rays/Excellent adhesion at low temperatures.

Compound color: Grey
Application temperature: 0°C/+40°C
Service temperature: -30°C/+90°C. up to 160°C for max. 24h.

Unit Per Rls.

CODE	Width × Th mm	Length mtr	CODE	Width × Th mm	Length mtr
81 28 81	50 × 0.6		**81 28 91**	50 × 1.0	
82	100 × 0.6		**92**	100 × 1.0	
83	200 × 0.6		**93**	200 × 1.0	
84	300 × 0.6	10	**94**	300 × 1.0	10
85	450 × 0.6		**95**	450 × 1.0	
81 28 86	500 × 0.6		**81 28 96**	500 × 1.0	
87	600 × 0.6		**97**	600 × 1.0	

Name of Mfr.: Isoltema s.p.a.

Aluminium Glass Cloth Tapes

Cinta de aluminio　アルミガラスクロステープ　铝带



Suitable for taping flexible duct and for jointing insulation board.

Thickness : 0.28 mm.
Tensile strength : 4. Elongation: 15%.

Unit Per Rls.

CODE	Width x Length	CODE	Width x Length
81 25 04	50 mm x 25 mtr	**81 25 05**	100 mm x 25 mtr
81 26 38	75 mm x 25 mtr		

Teflon Seal Tapes (PTFE Tapes)

Cintas de Sello Teflón　テフロンシールテープ　特氟龙密封胶带

A teflon made tasteless, odourless ribbon which effectively seals a joint. Ribbon dope will withstand temperature from –100°C to +260°C. Unaffected by acids, solvents, steam, etc.



Unit Per Pc.

CODE	Width mm	Thick mm	mtr per roll	Packed in box
81 25 03	12	0.75	10	10
01	13	0.1	5	10
02	20	0.1	10	10

Teflon Rounds

Redondos de Teflón　テフロン丸棒　特氟龙圆棒

Processing material for teflon rounds. Standard length is 1,000 mm, up to 50 mm in diameter, and 300 mm from 60 mm to 200 mm diameter.



Unit Per Lgh.

CODE	Diam mm	CODE	Diam mm	CODE	Diam mm
81 25 06	2	**81 25 18**	15	**81 25 30**	70
07	3	**19**	18	**40**	75
08	4	**20**	20	**50**	80
09	5	**21**	22	**55**	90
10	6	**22**	25	**60**	100
81 25 11	7	**81 25 23**	30	**81 25 79**	120
12	8	**24**	35	**80**	125
13	9	**25**	40	**90**	130
14	10	**26**	45	**98**	150
15	11	**27**	50	**99**	180
81 25 16	12	**81 25 28**	60	**81 26 00**	200
17	13	**29**	65		

Nylon Round Bars

Barras redondas de nailon　ナイロン丸棒　尼龙圆棒

Made of extruded Polyamide.
Maximum temperature : –70°C to 140°C
Specific gravity : 1
Length : 1 mtr



Unit Per Lgh.

CODE	Diam mm	CODE	Diam mm
81 26 06	10	**81 26 17**	60
07	15	**18**	70
08	20	**19**	80
09	25	**20**	90
10	30	**33**	100
81 26 15	40	**81 26 34**	150
16	50		

Teflon Sheets

Plancha (Lámina) de Teflón　テフロンシート　特氟龙板

Gasket material which will withstand temperature from –100°C to +260°C and is unaffected by acids, solvents, etc. and provides excellent electrical insulation. When ordering, specify the sheet thickness required.



Unit Per Sht.

CODE	Thick mm	Size mm	CODE	Thick mm	Size mm
81 25 31	1.0		**81 25 41**	1.0	
38	1.5		**48**	1.5	
32	2.0	300 x 300	**42**	2.0	1,000 x 1,000
33	3.0		**43**	3.0	
39	4.0		**49**	4.0	
81 25 34	5.0		**81 25 44**	5.0	
35	6.0	300 x 300	**45**	6.0	1,000 x 1,000
36	8.0		**46**	8.0	
37	10.0		**47**	10.0	

Teflon Cords

Cordón de Teflón　テフロンコード　特氟龙线

100% Teflon material sealing which never adheres and hardens. Can be used as a free-size packing for all sizes of valve stems and tightening down glands, pipe flanges, cover gaskets and other similar applications.



81 25 51	Teflоncord, 2.4 mmΦ × 12 mtrs	Spl
52	Teflоncord, 4.0 mmΦ × 6 mtrs	Spl
53	Teflоncord, 6.0 mmΦ × 2.5 mtrs	Spl
54	Teflоncord, 8.0 mmΦ × 3 mtrs	Spl

Gore Joint Sealants

Sellador de juntas Gore　ゴアジョイントシーラント　戈尔接缝密封胶

Pillar No.3300



A rope-shaped gasket made of stretched 100% PTFE with double-sided tape attached to one side. Its shape and the marshmallow-like structure make this sealant a great choice for use with flanged that have large surface areas, complex shapes, or rough surfaces.

Features & Performance:
- Inert to almost all chemicals.
- Reliable sealing performance (max 3.3 MPaG).
- Thermally resistant.

Applications
Extremely flexible and compressible, and can not only be used as a gasket but for numerous other purposes.

Unit Per Rls.

CODE	Nominal Size	Size W × Th × Length
81 25 61	3	1.9 × 3.6 mm × 30 mtr
62	5	2.4 × 5.0 mm × 15 mtr
81 26 37	7	2.5 × 6.6 mm × 15 mtr
81 25 63	10	2.9 × 10.4 mm × 8 mtr
64	14	5.8 × 13.9 mm × 5 mtr
65	17	7.2 × 17.2 mm × 5 mtr
66	20	4.6 × 18.8 mm × 5 mtr

PTFE Joint Sealant Tapes

CORDSEAL™ <Soft>

Cintas selladoras de juntas de PTFE
PTFE ジョイントシーラントテープ
聚四氟乙烯（PTFE）接缝密封胶带



A marshmallow-shaped free-size sealing material, which has been modified to be flexible and very tough, while maintaining the PTFE's excellent chemical resistance and heat resistance properties. These are for the temporary repairs.

Features:
- Excellent chemical resistance.
- Heat resistance.
- Good workability.

Temperature	Pressure (MPa)
-240 to 260°C/-400 to 500°F	Max 2.0 (gas), Max 5.0 (liquid)

Suitable fluids: General fluids (water, steam, oil, etc.), solvents, corrosive liquids.

Applications: Large diameter equipment (rough finished flange, strained flange, insufficient tightening force), tanks, heat exchangers, pressure vessels, duct flanges, pipe flanges, gland packing for valves.

Oval type

VALQUA® No. 7GS66A
String shaped product with an oval cross-section [string type] and adhesive to improve workability.


Cross section

Unit Per Rls.

CODE	Size (mm)		Length (m)
	Width	Thickness	
81 25 71	3	1.5	30
72	6	3.0	15
73	9	4.0	8
81 25 74	12	5.0	5
81 25 75	16	6.0	
76	20		

Tape type

VALQUA® No. 7GS62A
Adhesive belt-shaped product (1 to 3 mm thick) with a flat cross-section (tape type).


Cross section

Unit Per Rls..

CODE	Size (mm)		Length (m)
	Width	Thickness	
81 25 81	20	1	15
82		2	5
83		3	5
81 25 84	30	1	15
85		2	5
86		3	5
81 25 87	50	1	15
88		2	5
89		3	5

Rope type

VALQUA® No. 7GS64N
Non-adhesive rope-shaped products with a round cross-section (rope type).


Cross section

Unit Per Rls..

CODE	Diam. mm	Length (mtr)	CODE	Diam. mm	Length (mtr)
81 25 67	2	40	**81 25 70**	8	7
68	4	20	**77**	10	5
69	6	10	**78**	12	5

Silicone Sealants

Sellador de Silicona　シリコンシーラント　玻璃胶



When extruded, reacts with humidity in the air, curing inwards from the surface and becoming silicone rubber. Has outstanding adhesion to glass, ceramic, aluminium, and many plastics. Resists sunlight, weathering, water, and most chemicals. An excellent insulator, its dielectric strength is unaffected by electrical cycling or stress. Uses include potting electronic components, insulating electrical boxes, fabricating and repairing gaskets, and making expansion and contraction seals in bridges and tunnels. It is also used for general maintenance, caulking and sealing, and for production bonding. Available in 100 grm and 350 grm weight tubes.

CODE	Colour	Contents grm	Unit
81 26 01	Clear	100	Tube
02		350	
81 26 04	White (or Coloured)	100	Tube
05		350	
81 26 03	Gun for silicone sealant, 350 grm		Pc.

Sealing Agents

Permatex Form-a-Gasket

Agentes Selladores　液状パッキン　密封剂



Available in many types of gaskets, but the 3 most common types are described below:

1. Form-a-Gasket No. 1
   Hard-setting sealant. A fast-drying, hard-setting, heavy bodied sealant ideal for repairing gaskets, etc.
2. Form-a-Gasket No. 2
   Pliable-setting sealant. A non-hardening, heavy bodied pliable sealant for semi permanent assemblies.
3. Aviation Form-a-Gasket No. 3
   A non-hardening, liquid, brushable sealant.

Unit Per Tub or Can.

CODE	No.	Size	Container
81 26 11	1	11 oz	Tube
81 26 12	2	11 oz	Tube
14	2	1.5 oz	Tube
81 26 13	3	16 oz	Brush-top Can

Sealing Agents

ThreeBond 1100 Series

Agentes selladores
液状パッキン　密封剂





These are series of liquid gaskets that have been developed based on a new concept and leak prevention theory that differs drastically from the ones from which conventional solid sheet gaskets have been developed. It is incorporated by being applied to the seal surfaces of the machine to prevent leaks.

CODE	No.	Feature	Size	Unit
81 26 21	1101	Non-solvent and harmless	200 grm	Tub
22			1 kg	Can
81 26 23	1102	All round use, non-drying, easy application	200 grm	Tub
24			1 kg	Can
81 26 25	1103B	For small precision parts	150 grm	Tub
26			1 kg	Can
81 26 27	1184	All round use, for large clearance application	200 grm	Tub
28			1 kg	Can
81 26 29	1105	Vibration resistance	150 grm	Tub
30			1 kg	Can
81 26 31	1141G	Water soluble and harmless	1 kg	Can
81 26 32	1107D	For high temperature application	1 kg	Can

High Temperature Resistance Inorganic Adhesives

ThreeBond No.3732

Adhesivo Inorgánico Resistente para Alta Temperatura
耐熱性無機接着剤　耐热无机粘接剂



Made of alumina, and high temperature resistance inorganic adhesive for temperature up to 1,400°C. Suitable for use as adhesives for ceramic, glass and other metals. Also used as the putty for electrical parts where possibly exposed to extreme high temperature.

Unit Per Pkt.

CODE	Width x Length	CODE	Width x Length
81 26 35	200 grm/pkt	**81 26 36**	1 kg/pkt

Pipe-Seals

Sellador Tuberias　パイプシール　管封



Compounded with teflon to lubricate joint assemblies. Resistant to chemicals and can be used on pipes larger than 3/4" diam. to seal kerosenes, LP gas, oils, water, weak caustics, mild acids and low pressure steam. Performs to 500°F at moderately high pressure, will not run, drip or separate. Service temperature up to 500°F.

Unit Per Btl.

CODE	Type	Contents
81 26 51	PSBT- 8	8 oz/btl with brush top
52	PSBT-16	16 oz/btl with brush top

Name of Mfr. : SAF-T-LOK Corporation

Ferryl Pipe Sealants

Sellador de tuberías Ferryl
フェリルパイプシーラント　Ferryl 管道密封剂



A multi-purpose pipe sealant designed for marine use.

Unit Per Tub.

CODE	Product No./ Unit	Application
45 04 19	Ferryl Armacit Pipe Sealant 150 grm/tube	Paste-like packing that dries hard for permanent sealing of threaded pipes and flanges. Resistant to oil, petrol, most gases. Temperature and pressure-resistant.

Name of Mfr.: Ferryl Sales Limited.

Liquid-Rubber Kits

Estuches (Juego) Goma Líquida
リキッドラバーキット　液体—橡胶工具包



Formulated for on-the-spot rubber part repair. Available in liquid or paste. Dries in 2 hours at room temperature. Provides excellent flexibility, wear and abrasion resistance.

Unit Per Pkt.

CODE	Type	Contents
81 26 61	LR-5 Liquid	5 oz/pkt
62	LR-5 Paste	5 oz/pkt

Name of Mfr. : SAF-T-LOK Corporation

Polyurethane Foam Spray

Espuma de poliuretano en spray
発泡ウレタンスプレー　聚氨酯泡沫喷雾



A spray also known as Pu-Foam or construction foam. Polyurethane foam reacts rapidly with moisture in the air and expands after application, high curing and bonds extremely well to the surface due to its high adhesion power. Mainly used for assembly of doors and windows, sound and heat insulations, infilling applications, waterproof barriers etc.

81 26 63	Polyurethane Foam Spray, 400 ml	Can

Silicone Gaskets

"Formador de Junta" Silicona para Juntas
液状シリコンガスケット　橡胶垫圈



Paste type sealing gaskets to apply to any shape of flanges, casing or cover. Due to oil resistance and anti-freeze performance, it can be applied to Oil pump, Water pump, Valve cover, Crankshaft end, Transmission case, etc. Will be tack-free within 15 minutes.

Unit Per Tub.

CODE	Contents	CODE	Contents
81 26 71	70 cc	**81 26 72**	300 cc

Gasket Paste

Pasta para juntas　ガスケットペースト　垫圈膏

Gasket Paste is an agent employed to enhance the sealing effect of gasket contact surfaces and to facilitate peeling off gaskets when disassembling joints. Please select the optimum type from the variety of products listed below.



Unit Per Can/Tube

CODE	Product Name	Applicable Temper-ature	Description
81 26 91	No. 5 2.5 kg/can	-200 to 200°C (-328 to 392°F)	Black paste containing special oil-soluble adhesive compounded with fine graphite particles. Suitable fluids: Water-based fluids (steam, hot water, water, seawater, acid, alkali, salt solutions and alcohol).
81 26 92	No. 5M 2.5 kg/can	-200 to 200°C (-328 to 392°F)	White paste containing special oil-soluble adhesive compounded with fine mica particles. Suitable fluids: Water-based fluids (hot water, water, seawater, acid, alkali and salt solutions), where white paste is specifically required.
81 26 93	No. 6 2.5 kg/can	-200 to 900°C (-328 to 1,652°F)	Black paste containing special water-soluble adhesive, with high oil and solvent resistance, compounded with fine graphite particles. Suitable fluids: Hydrocarbon-based fluids (petroleum-based oil, oil gas, solvents, solvent vapor, animal & vegetable oil, LNG and general gases).
81 26 94	No. 6M 2.5 kg/can	-200 to 900°C (-328 to 1,652°F)	White paste containing special water-soluble adhesive, with high oil and solvent resistance, compounded with fine mica particles. Suitable fluids : Hydrocarbon-based fluids (petroleum-based oil, oil gas, solvents, solvent vapor, animal & vegetable oil, LNG and general gases) where white paste is specifically required.
81 26 95	Sealpaste™ 800 grm/can with brush	-50 to 300°C (-58 to 572°F)	Light brown paste containing a special non-drying oil adhesive, compounded with inorganic filler material and a small amount of solvent. Suitable fluids: When handling water, air and hydrocarbons (gasoline, kerosene, lubricating oil, natural gas, LPG, refrigerants, hydrogen sulfide, ethylene, butane, and thane), and also when it is necessary to prevent crevice corrosion on the flange surface.
81 26 96 **97**	New Valflon™ Paste 100 grm/ Tube 1 kg/can	-200 to 300°C (-328 to 572°F)	Fluororesin powder that is water-dispersed using surfactant agents. Suitable fluids: When handling highly corrosive fluids (strong acids, alkalis, or halogens and when handling oxygen) when noncombustible materials are required.

Applicable Valqua® Gasket Type

Gasket Paste	Valqua® GF300	Valqua® 6500/6509	Valqua® N7030	Valqua® Metallic
No. 5	△	△	×	△
No. 5M	△	△	×	△
No. 6	×	△	×	△
No. 6M	×	△	×	◎
New Valflon™ Paste	◎	△	◎	△
Sealpaste™	○	◎	×	△

General Purpose Glues

Cola Contacto　一般用万能ボンド　一般用途胶水



A general purpose adhesive of the synthetic rubber type used for bonding all sorts of materials including metals, concrete, glass, wood, plastics, paper, leather, rubber and sail cloth.

CODE	Contents	Unit
81 27 01	100 grm	Tub
02	150 grm	"
81 27 03	1.0 kg	Can
04	1.5 kg	"
05	3.0 kg	"

Wood Glues

Cola para Madera　木工用ボンド　木工用胶水



Has superior adhesion and is designed exclusively for use in general wood working. Available in many sizes, but the 1 kg tin is coded as below :

81 27 11	Glue for wood, 1 kg	Tin

Quick Bonding Adhesives

Adhesivos Instantáneos　瞬間接着剤　迅速粘合剂



A unique adhesive which forms a strong bond instantly with almost all materials such as rubber, plastic, and metal to metal. Does not require solvents or any other special treatment. Mainly composed of alpha cyanoacrylate monomer. Harmful to the skin.

Unit Per Tub.

CODE	Grade No.	Cont. Tube Size	Remark	Apply For
81 27 21	101	20 g	Low Viscosity & Ultra Quick Setting	Metal to Metal
22		50 g		
81 27 23	102	20 g	Medium Viscosity & Quick Setting	"
24		50 g		
81 27 25	201	10 g (2g×5)	Low Viscosity & Ultra Quick Setting	Rubber, Plastic Metals
26		20 g		
27		50 g		
81 27 28	202	10 g (2g×5)	Medium Viscosity & Quick Setting	"
29		20 g		
30		50 g		

Hot Melt Glue Guns

Pistolas de cola caliente　ホットメルトガン　热熔胶枪



A handy adhesive device that melts and bonds materials by applying heat (80 - 100°C). Commonly supplied with solid cylindrical sticks of various diameters, made of ethylene vinyl acetate (EVA), and heated nozzle will melt them for use. It is widely used for the materials such as Acrylic, ABS resin, metal, tile, wood, leather, natural rubber, paper, cloth, etc. When using, make sure to ventilate the working area.

81 27 31	Hot melt glue gun for 10mm stick, 110V	Pc.
32	Hot melt glue gun for 10mm stick, 220V	"
33	Stick cartridge for hot melt glue gun, 10 mm	"

Glue Araldite

Pegamento - Aradite　アラルダイト　胶水



Epoxy type, strong adhesive, liquid glue for use with almost all materials such as metal, ceramic, glass, stone, wood, paper, leather, rubber, plastic and styro-foam, etc. This is an epoxy resin. When cured, it becomes a firm, clear, transparent gel. 10 minutes quick hardening type and 12 hours hardening standard type are available. This glue is supplied with the hardener.

Unit Per Set.

CODE	Description
81 27 41	Glue Araldite, quick, 30 cc w/hardener
42	Glue Araldite, quick, 180 cc w/hardener
43	Glue Araldite, standard, 30 cc w/hardener
44	Glue Araldite, standard, 180 cc w/hardener

Loctite® Engineering Adhesives

Adhesivos industriales Loctite　ロックタイト接着剤　乐泰胶水



Loctite® technology strengthens the assembly of two or more parts by filling all the space between mating surfaces with a single-component liquid which chemically self-hardens at room temperature into a tough heat-and-solvent-resistant structural solid. From among the various types of products, the most common products are listed below.

Unit Per Btl.

CODE	Type No.	Size	Characteristics
Threadlocker（ねじゆるめ止め用嫌気性接着剤）			
81 27 51	222	50 ml	**Low Strength/Small Screw** Ideal for fastener diameters of 1/4"(6 mm) and smaller. Controlled lubricity for accurate clamp loads. Parts can be separated using hand tools.
81		250 ml	
81 27 52	242	50 ml	**Medium Strength** A general-purpose, removable threadlocker for fasteners between 1/4" and 3/4"(M6 to M20) diameters. Controlled lubricity for accurate clamp loads. Parts can be separated using hand tools.
81 28 44	243 (Thread locker, Blue)	50 ml	**Medium Strength/Primerless** A general-purpose, medium strength threadlocker with improved temperature resistance and oil tolerance. Does not require most fasteners to be pre-cleaned or primed before use. Suitable for fasteners up to 1 1/2" (M36).
45		250 ml	

(to be continued)

Unit Per Btl.

CODE	Type No.	Size	Characteristics
81 28 11	248 (Thread locker, Blue)	19 ml	**Semi-Solid - Medium Strength** General-purpose threadlocker for all nut and bolt applications, especially fasteners up to 2" (M50). Removal with handtools. The semisolid formula also means it won't spill or leak.
81 28 46 47	263 (Thread locker, Red)	50 ml 250 ml	**High Strength/Primerless** A general-purpose, high strength threadlocker with improved temperature resistance and oil tolerance. Does not require most fasteners to be pre-cleaned or primed before use. Locks fasteners up to 3/4" (M20).
81 28 12	268	19 ml	**Semi-Solid - High Strength** Semi-solid stick is high strength prevents loosening of threaded fasteners. Well suited for fasteners up to 3/4" (M20) and is removable with heat and hand tools. Red colour is available.
81 27 46 64	270 (Thread locker, Green)	50 ml 250 ml	**High Strength/Primerless** A general-purpose, high strength threadlocker with improved temperature resistance. Does not require most fasteners to be pre-cleaned or primed before use. Locks fasteners up to 3/4" (M20).
81 27 56 86	290	50 ml 250 ml	**Wicking Grade** A medium to high-strength threadlocker for pre-assembled bolts up to 1/2"(M12). Penetrates threads by capillary action. Secures set screws and other assemblies after settings are completed. Seals welds and porous metal parts. Protects threads from rust and corrosion. Localized heating and hand tools are needed for disassembly.
Thread Sealant （金属配管用シール剤）			
81 28 48 49	55	50 ml 150 ml	**Thread sealing cord for metal and plastic pipes** Non curing, immediate, full pressure seal for a quick, easy and reliable seal. For pipes up to 4 in. and temperatures up to 150°C.
81 27 48	542	50 ml	**Fine Threads** A liquid sealant recommended for sealing the fine threads of hydraulic and pneumatic connectors.
81 28 21 22	545	50 ml 250 ml	**Hydraulic/ Pneumatic Fittings** Contains no fillers of particles that could contaminate system fluids, foul valves, or clog fine filters and screens. Suitable for fittings up to 2" (M50) in diameter. Excellent solvent resistance.
81 28 23 24 25	567	50 ml 250 ml 350 ml	**PST Thread Sealants High Temperature** Excellent solvent resistance, allows easy assembly, prevents galling, and can withstand temperatures up to 400°F (200°C). Excellent for high pressure applications, it locks and seals tapered metal, pipe threads and fittings. Ideal for stainless steel, aluminium, galvanized metal, and other inert metals. Disassembles with hand tools.
81 27 62 94	572	50 ml 250 ml	**Low Strength** Low strength sealant with moderate fixture speed for use on coarse threads.
81 27 49 95	577	50 ml 250 ml	**Coarse Threads** Medium strength, general-purpose sealant for use on coarse, threaded components.
Flange Sealant （フランジシール剤）			
81 27 61	504	250 ml	**Gasket Eliminator Gap Filing Flange Sealant** A single-component, instant, low-pressure seal that fills gaps to 0.762mm (0.030").
81 27 90 91	515	50 ml 300 ml	**Gasket Eliminator Flange Sealant** Makers flexible gaskets for rigid machined flanges with less than .1.27mm (0.050" gap). Flexes with flanges that move in service.
81 28 13 14 19	518	25 ml 50 ml 300 ml	Semi-flexible gasketing product for machined metal flanges. Ideal for use on rigid iron, steel and aluminium flanges.
81 28 35 81 27 47	574	50 ml 250 ml	**Rigid Assembly Gasketing Products** Anaerobic, fast curing (unprimed 1-12hrs, primed 15min. to 2hrs), thixotropic, can fill gap until 0.254mm (0.01") without prime and 0.508mm (0.02") with prime. Suitable for gasket sealing within temperature range –54°C to 150°C (–65°F to 300°F). The products cures when confined in the absence of air between close fitting metal surfaces. Orange colour is available.
81 28 20 34	5188	50 ml 300 ml	Gasketing product for sealing rigid flanges, especially aluminium flanges; excellent chemical resistance; superior adhesion, can tolerate slight oil contamination on the flange surface.
81 28 37 38 39	587	70 ml 190 ml 300 ml	**Blue, High Performance RTV Silicone Gasket Maker** Forms tough, flexible gaskets directly on the flange. Offers excellent adhesion to oily surfaces. Low odor, non-corrosive, low volatility. Withstands temperatures to 260°C (500°F) intermittent. Resistant to most chemicals and solvents. Fill gaps to 6.35mm (0.25"). Typical applications include valve covers, rocker covers, oil pans, water pumps, end seals, intake manifolds, and rear axle housings. Excellent adhesive for bonding and repairing fabricated silicone gaskets.
81 28 41 42 43	598	70 ml 190 ml 300 ml	**Black, High Performance RTV Silicone Gasket Maker** Retains high flexibility and oil resistance for longer gasket life. Temperature range is –59°C to 329°C (–75°F to 625°F) intermittent. Low odor, non-corrosive, low volatility. Resistant to most chemicals and solvents. Fill gaps to 6.35mm (0.25"). Typical applications include oil pans, transmission pans, valve covers, valves and guides, timing gear covers, and differential covers.

(to be continued)

(to be continued)

Unit Per Btl.

CODE	Type No.	Size	Characteristics
81 27 92 93	5699	95 grm 300 ml	**Grey High Performance RTV Silicone Gasket Maker** For flexible flange assemblies. Excellent fluid resistance. Easy to dispense, non-corrosive. Low odor, low volatility.
Retaining Compound （はめ合い用嫌気性接着剤）			
81 27 96 97	603	50 ml 250 ml	**Press Fit/Oil Tolerant** A retaining compound tolerant of oil and other contamination. Seals and secures cylindrical assemblies up to 0.127 mm (0.005") radial clearance. Fixtures in 10 minutes. Prevents fretting and corrosion of metal assemblies. Good for close-fitting parts.
81 28 26 27	620	50 ml 250 ml	**Slip Fit/High Temperature** A high temperature (450°F), high viscosity liquid retaining compound. Provides shear strength of over 3,800 psi on steel. Locks and secures metal cylindrical assemblies up to 0.381 mm (0.015") diametral clearance. Prevents metal fretting and corrosion. Seals against leakage. Typical applications include locating pins in radiator assemblies, sleeves into pump housings and bearings in auto transmissions.
81 28 28 29	638	50 ml 250 ml	**Slip Fit/Maximum Strength** A maximum strength retaining compound for use where high dynamic force or cyclic loading is expected. Locks cylindrical assemblies up to 0.010 in. Diametral clearance. Fixtures in 5 minutes.
81 27 50 98	648	50 ml 250 ml	**High Strength/Rapid Cure** A retaining compound recommended for continuous working temperatures up to 149°C (300°F). Fills gaps up to 0.1524 mm (0.006") diameter clearance. Fixtures in 5 minutes. Good for close-fitting parts.
81 28 30	660	50 ml	**Quick Metal Retaining Compound** A creamy, non-running gel that is applied onto cylindrical parts to fill surface imperfections and repair worn areas. It contains no metal, but once assembled hardens to a strength that often doubles that of a press fit. Used for repairing worn coaxial parts without remachining; enables reuse of worn bearing seats, keys, splines, tapers or for retaining shims.
81 28 31 32	680	50 ml 250 ml	**Slip Fit/ High Strength** A high strength, high viscosity room-temperature- curing adhesive used to join fitted cylindrical parts. It fixtures in 10 minutes and provides a shear strength of 4,000 psi after 24 hours. Capable of filling diametral gaps up to 0.27mm (0.015"). Allows relaxed machining tolerances and replaces clamp rings, set screws, and snap rings.

(to be continued)

Toolboxes & Specialty Kits（スペシャルボックスキット）			
81 28 33	-	12.9 ml	**Form-A-Thread Stripped Thread Repair Kit** Permanently repairs stripped threads and fasteners in 5 minutes (up to SAE Grade 5 English and 8.8 metric). Allows up to 1.538 in. lbs. torque (on M25 bolt) and 300°F. Resists most shop fluids. Grey colour is available.

Loctite® Marine Maintenance & Emergency Repair Kits

Equipo de mantenimiento y de　緊急補修キット　应急修补套组



A "must have" solution kit for general maintenance and emergency repair for every vessel. The Marine Maintenance & Emergency Repair Kit provides solutions from simple vibration-proof bolt fastening to emergency pipe repair in open sea. Applications include thread locking, thread sealing, retaining, flange sealing & gasketing, emergency metal rebuilding & pipe repair, anti seize and bonding. The kit contains the following products.

Contents

1 btl	Thread locker	, No.222, 50 ml
1 btl	Same	, No.242, 50 ml
1 btl	Same	, No.243, 50 ml
1 btl	Same	, No.262, 50 ml
1 btl	Same	, No.271, 50 ml
1 btl	Same	, No.277, 50 ml
1 btl	Same	, No.290, 50 ml
1 btl	Cyanoacrylate adhesive	, No.401, 20 grm
1 tub	Same	, No.454, 20 grm
1 btl	Same	, No.495, 20 grm
1 pc	Metal Magic (Stick)	, 4 oz
1 pc	Underwater repair (Stick)	, 4 oz
1 set	Pipe repair kit (Tape), W 50 mm × L1,800 mm/W100 mm × L 3,600 mm	
1 set	Foam A Thread	, 4.8 ml
1 tub	Flange sealant	, No.515, 50 ml
1 tub	Same	, No.574, 50 ml
1 tub	Same	, No.5699, 70 ml
1 btl	Thread sealant	, No.542, 50 ml
1 tub	Same	, No.577, 50 ml
1 can	Marine anti seize	, 8 oz
1 btl	Retaining compound	, No.603, 50 ml
1 btl	Same	, No.648, 50 ml

81 21 71	Marine maintenance & emergency repair kit, Loctite® 1068255	Set

Instant Adhesives

(Cyanoacrylates) Loctite®

Adhesivos instantáneos　瞬間接着剤　瞬间粘合剂



Loctite® instant adhesives cure very quickly when confined between surfaces, triggered by the humidity on the surfaces. Cyanoacrylates are chosen for bonding small parts to achieve extremely fast fixturing. They are clean and easy to apply and join a wide variety of dissimilar materials. From among the various types of products, the most common products are listed below.

Unit Per Btl.

CODE	Type No.	Size	Characteristics
81 27 87 88	401	20 grm 50 grm	**PRISM Surface Insensitive Instant Adhesive** A general-purpose surface insensitive adhesive for difficult-to-bond surfaces.
81 28 15 16	404	4 oz 1 lb	**Quick Set Instant Adhesive** For general maintenance and repair. Designed for bonding of plastics and elastomeric materials where very fast fixturing is required.
81 28 17 40	406	20 grm 50 grm	**Wicking Grade** Designed for bonding plastics and electrometric materials where very fast fixturing is required.
81 27 79 89	454	3 grm 20 grm	**PRISM Surface Insensitive Instant Adhesive Gel** Designed for the assembly of difficult-to-bond materials that require uniform stress distribution. Particularly suited for bonding porous or absorbent materials. Also formulated for faster cure speeds on dry or acidic surfaces and substrates.
81 28 18	480	20 grm	**Rubber-toughened Instant Adhesive** Low viscosity, elastomer-modified instant adhesive. Bonds metals and rubbers. Excellent peel, impact and shear strength. NSF/ANSI 61 certified for potable water.
81 27 58	495	20 grm	**Super Bonder Instant Adhesive** A general purpose adhesive designed to bond rubber, metal, and plastic parts with gaps to 0.1016mm (0.004").
81 27 59	496	20 grm	General Purpose Rubber Bonding.
81 28 00	3090	10 grm	Gap filling general purpose 2K instant adhesive; for gaps up to 5mm.
81 28 02	HY4060GY	25 grm	**Repair Structural Hybrid Adhesives** Excellent environmental and temperature resistance. Outstanding substrate versatility. Simple hand mix solution.

Cleaner and Activators

Loctite

Limpiador y activadores　洗浄活性剤　洗滌活性剤

Before bonding surface cleaners.



Unit Per Can

CODE	Contents	Description
Loctite® SF7063 Universal Cleaner & Degreaser Before Bonding		
81 27 36 37	400 ml 10 ltr	General Purpose Cleaner & Degreaser Solvent-based, removes most greases, oils and lubrication fluids from all surfaces, leaves no residues; ideal for use prior to bonding and sealing applications.
Loctite® SF7649 Activator		
81 27 38 39	150 ml 500 ml	Activator to speed up cure on passive and inactive surfaces; suitable for threadlocking, pipe and threadsealing, gasketing and retaining applications; solvent-based; on-part life of up to 30 days.

Adhesives SAF-T-LOK

Adhesivo - SAF-T-LOK　サフ・ティー・ロック接着剤　粘合剤



SAF-T-LOK anaerobic adhesive/sealants reliably lock, retain and seal metal assemblies in a wide range of applications. By eliminating the loosening of assembled components, costly breakdown is prevented and damage to equipment from vibration and shock is avoided. From among the various types of products, the most common products are listed below.

Unit Per Btl.

CODE	Type No.	Size cc	Characteristics
81 27 65	T22	50	Low strength, holds screws, but allows adjustment.
81 27 66	T42	50	Medium strength, locking & sealing screws & bolts.
81 27 67	T70	50	High strength, locking & sealing screws & studs to 1/2" diameter.
81 27 68	T77	50	High strength, locking & sealing studs over 1/2" diameter, sealing flanges.
81 27 69	S90	50	Medium strength, sealing porosity (Weld beads /Castings).
81 27 70	SA5	50	Bonds metal, plastic & wood.
81 27 71	IB45	20	Bonds in second, bonding rubber or plastic parts.
81 27 72	IBM100	20	Bonds in second, bonding metal parts. Excellent for nameplating.
81 27 73 74	PFS	50 250	Sealing metal flanges. Any size or shape gaskets.
81 27 75 76	TPS	50 250	Instantly seals tapered threads hydraulic pipe, etc.
81 27 77	R01	50	Retaining bearing / bushing, gears and pulleys, sealing porosity.
81 27 78	Primer	6 pz	Primer to accelerate, cure, or cure at temperature below 0°C.

WEICON Epoxy Adhesives

Adhesivos epóxicos WEICON　エポキシ系接着剤　环氧树脂粘合剂



WEICON Epoxy Adhesives are cold-curing, solvent-free two-component systems with extremely strong bonding properties. They enable material bonds with high tensile and impact strength and are thus ideal for assembly, repairs and production.

Unit Per Pc.

CODE	Product	Content	Description
81 29 80	Epoxy Minute-Adhesive	24 ml	Viscous, self-levelling, very short pot life, fast-curing, transparent. Produces residually elastic bonds with high impact strength on metal, plastic, fibre-reinforced materials, ceramics, glass, stone and wood.
81 29 81	Fast-Metal Minute-Adhesive	24 ml	Highly filled, pasty, very short pot life, fast-curing, gap-filling. Ideal for repairs and bondings with larger bonding gaps or bigger tolerances.

Name of Mfr.: WEICON GmbH & Co. KG

WEICON
RK-Construction-Adhesives

Methacrylate-based Adhesives

Adhesivos con base de metacrilato
メタクリレート系接着剤　甲基丙烯酸脂粘合剂



Used in many bonding applications in the marine industry – especially in environments where epoxy adhesive are not strong enough (for example due to high temperature, vibration, shocks and structural demands).

- Quick and high initial bonding strength (mechanical durability after 8 – 9 min.).
- Residual elasticity and impact resistance.

Typical Applications;

- Bonding name plates, controls, instruments, consoles for machines.
- Bonding galvanized profile sheets for cabins.
- Magnet bonding.
- Bonding metal and plastic laminates, sandwich elements for ship construction.

Unit Per Pc.

CODE	Product	Content	Description
81 29 91	RK-1300	60 g	Pasty, high-strength, fast-curing 2-component adhesive with high impact, peel and shear strength. For bonding large surfaces of many different materials such as metals, ferrites and rigid plastics.
81 29 92	RK-1500	60 g	2-component adhesive, liquid, high-strength, fast-curing. For bonding glass, metal and ceramics.
81 29 94	RK-7000	50 g	Slow-curing, high-strength, impact-resistant, residual elasticity. For bonding plastics, metals and ceramics with high tensile, shear and peel strength. It is particularly suitable for structural bondings where high strength connections are required.
81 29 95	Easy-Mix Hand Dispenser D 50	-	Very robust, break-proof, and made of fibreglass-reinforced plastic (polyamide). The dispenser is equipped with a metal transport lever. Suitable for all Easy-Mix types except PE-PP.
81 29 96	Quadro Mixing Nozzle	-	Suitable for RK-7000/-7100/-7200, Easy-Mix types S 50, N 50, N 5000, Epoxy Minute Adhesive, Easy-Mix PU-90/PU-240.

Name of Mfr.: WEICON GmbH & Co. KG

WEICONLOCK®

Anaerobic Adhesives and Sealants

Adhesivos y selladores anaerobios
嫌気性接着剤、及びシール材　厌气性粘合剂，及密封胶材料



The ideal solution for construction, production and maintenance: WEICONLOCK® products are high quality anaerobic adhesives and sealants on the basis of special methacrylate resins, especially made for economical threadlocking, retaining and sealing of threaded, cylindrical and pipe assemblies. The Pen-System packaging offers easy dosing and application.

Unit Per Pc.

CODE	Product	Content	Description
81 52 01 **02** **03**	AN 302-22	20 ml 50 ml 200 ml	Threadlocking, vibration-proof, medium viscosity, low strength, easy to disassemble, classified as non-hazardous
81 29 12 **13** **14**	AN 302-43	20 ml 50 ml 200 ml	Threadlocking, approved to DVGW2 and KTW1, higher viscosity, medium strength, normal to disassemble.
81 52 04 **05** **06**	AN 302-60	20 ml 50 ml 200 ml	Threadlocking for passive materials medium viscosity , high strength, hard to disassemble, drinking water approval
81 29 15 **16** **17**	AN 302-70	20 ml 50 ml 200 ml	Threadlocking, medium viscosity, high strength, hard to disassemble, drinking water and DVGW approval.
81 52 07 **08** **09**	AN 302-90	20 ml 50 ml 200 m	Threadlocking, for locking after mounting and sealing of hairline cracks, extremely low viscosity, high strength, hard to disassemble.
81 29 18 **19** **20**	AN 305-42	20 ml 50 ml 200 ml	Sealing of hydraulic and pneumatic systems. DVGW2 certified, medium viscosity, medium strength. Gap filling capacity max. 0.15 mm.
81 52 10 **11**	AN 305-72	50ml 200 ml	Pipe and flange sealing (with PTFE), DVGW2 certified, high viscosity • medium strength.
81 52 12 **13**	AN 305-74	50 ml 200 ml	Gasketing of flanges, gear boxes and motor housings, high viscosity, high strength, hard to disassemble.
81 52 14 **15**	AN 305-77	50 ml 200 ml	Universal type for pipes and fittings, drinking water and DVGW approval | BAM, high viscosity, medium strength, disassembly with normal tools
81 52 16 **17** **18**	AN 306-01	20 ml 50 ml 200 m	Retaining cylindrical assemblies for bearings, shafts and bushings, low viscosity • high strength • hard to disassemble.
81 52 19 **20** **21**	AN 306-30	20 ml 50 ml 200 ml	Retaining cylindrical assemblies for passive materials, BAM3 certified, drinking water approval, higher viscosity, high strength, hard to disassemble.
81 52 22 **23** **24**	AN 306-38	20 ml 50 ml 200 ml	Retaining cylindrical assemblies for bearings, gear wheels and bolts, fast cure, drinking water approval, medium viscosity, high strength, hard to disassemble
81 52 25 **26** **27**	AN 306-41	20 ml 50 ml 200 ml	Retaining cylindrical assemblies for bearings, shafts and bushings, medium viscosity, medium strength, disassembly with normal tools.

Name of Mfr.: WEICON GmbH & Co. KG

WEICON Plast-o-Seal®

Silicone Free Universal Sealant

Sellador universal sin silicona
シリコンフリー万能シーラント　　无硅胶万能密封剂

Permanently plastic, non-dripping and silicone-free universal sealant (max. gap filling capacity up to 0.1 mm). For bigger gaps in combination with a mechanical seal.



Solvent-free.

Unit Per Pc.

CODE	Product	Content	Container	Colour
81 52 31	Plast-o-Seal®	90 g	Tube	Blue
32		120 g	Brush Top Can	
33		300 g	Cartridge	

Name of Mfr.: WEICON GmbH & Co. KG

WEICON Contact Adhesives

Pegamento de contacto WEICON
コンタクト型接着剤
WEICON 接触型胶粘剂



Unit Per Can

CODE	Product	Content	Description
81 52 37	GMK 2410	350 g Brush top can	A solvent-based Polychloroprene (CR) contact adhesive. Used for strong and flexible full-surface bonding of rubber to rubber and rubber to metal. It also bonds cellular rubber (e. g. neoprene), leather, felt, insulating material, textiles, wood, and many plastics. After curing, the joint is resistant to humidity.
38		700 g	
81 52 39	GMK 2510	324 g	2-component adhesive based on polychloroprene for full-surface and permanently elastic bonding of parts which are continuously exposed to dynamic loads. It bonds rubber, metal, textiles, leather, sponge rubber (neoprene), CSM (Hypalon), insulating materials, PU materials with an adhesive coating, wood and many plastics, to themselves and among each other. After curing the bonding is moisture-proof.
40		690 g	

Name of Mfr.: WEICON GmbH & Co. KG

WEICON Contact Cyanoacrylate Adhesives

Adhesivos instantáneos de contacto de cianoacrilato WEICON
瞬間接着剤　瞬间粘合剂

Cold-curing one-component adhesives, free of solvents. They quickly polymerize by reacting with moisture and cure under light pressure. They will bond within seconds almost all materials to and among each other, such as: metals, plastics, glass, ceramics, wood, leather, natural and synthetic rubber.



Unit Per Pc.

CODE	Product	Content	Description
81 52 41	VA 8312	12 g	Cyanoacrylate adhesive for rubber and plastic,low viscosity, very fast curing, ISEGA-certified.
42		30 g	
43		60 g	
44		500 g	
81 29 27	VA 100	12 g	Cyanoacrylate adhesive for rubber and plastic, medium viscosity, slightly longer cure time, ISEGA-certified.
28		30 g	
29		60 g	
30		500 g	
81 52 45	VA 1401	12g	Cyanoacrylate adhesive for rubber and plastic, low viscosity, very fast curing, NSF registration.
46		30 g	
47		60 g	
48		500 g	
81 52 49	VA 2500 HT	12g	Cyanoacrylate adhesive for special requirements, high-temperature-resistant, high viscosity, slow curing, cures with residual elasticity, high peel and impact strength.
50		30 g	
51		60 g	
52		500 g	
81 52 53	VA 30 Black	12 g	Cyanoacrylate adhesive for special requirements, rubber-filled, high-temperature-resistant, medium viscosity, longer curing, cures with residual elasticity, high peel and impact strength.
54		30 g	
55		60 g	
56		500 g	
81 52 57	VA 250 Black	12 g	Cyanoacrylate adhesive for special requirements, rubber-filled, high-temperature-resistant, high viscosity, slow curing, cures with residual elasticity, high peel and impact strength.
58		30 g	
59		60 g	
60		500 g	
81 52 61	Contact GEL	30 g	Thixotropic (pasty), slow curing, for application on vertical surfaces. Allows re-alignment of the parts after contact.

Name of Mfr.: WEICON GmbH & Co. KG

WEICON One-component Adhesives and Sealants

Adhesivos y selladores WEICON de un componente
一成分性接着剤・密閉材　　单组分粘合剂密封材料

Elastic adhesives and sealants are used in many areas of industrial production and assembly. They combine the advantages of adhesive bonding and sealing technology and are used wherever the elasticity and the sealing of a joint are the most important requirements.



Unit Per Pc.

CODE	Product	Colour	Content	Description
81 52 71	Flex 310 M Classic ISEGA MS-Polymer base	White	310 ml	For versatile use. Very good adhesion without primer on aluminium, stainless steel and many other surfaces. Immediately overpaintable (wet in wet). Excellent aging and UV stability. Sandable after curing.
72		Black		
73		Grey		

(to be continued)

Unit Per Pc.

CODE	Product	Colour	Content	Description
81 52 74	Flex 310 M Stainless Steel SEGA MS-Polymer base	Stainless steel	310 ml	Suitable for various applications. Especially for applications where the colour of the sealant should be close to the colour of material (e.g. stainless steel, aluminium, etc.) Non-corrosive.
81 52 75 76	Flex 310 M Super-Tack MS-Polymer base	White Grey	290 ml	Very high initial strength. For metals, plastics and many other materials. In particular suitable for bonding on vertical surfaces, indoor and outdoor. Replaces screws, pegs, rivets, and other traditional fixings.
81 52 78	Flex 310 M HT 200 MS-Polymer base	Grey	310 ml	High temperature resistant. Very good adhesion on metal and most plastics. Allows bonding and sealing of parts before thermal coating (e.g. powder coating).
81 52 88	Flex 310 M FireSeal	Grey	310 ml	A permanently elastic adhesive and sealant based on SMP with a fire resistance up to 120 minutes. Tested and classified for all joint structures according to EN 1366-4.
81 52 89	Flex 310 m ProSeal	Grey	310 ml	Multi-purpose, permanently elastic, fast-curing and high-strength 1-C adhesive and sealant based on SMP. Neutral curing, entirely weather-resistant, very low emissions and odour as well as free of silicone, isocyanate and solvents.
81 52 79 80 81	Aqua-Flex SEGA MS-Polymer bae	White Black Grey	310 ml	Special adhesive and sealant for a variety of applications, also on wet and humid surfaces. Free of isocyanate and solvents.
81 52 82 83	Silicone HT 300	Red	85 ml 310 ml	Temperature resistant up to +230°C (+446°F), briefly up to 300°C (+572°F).
81 52 84 85 86	Black Seal Special Silicone	Black	85 ml 200 ml* 310 ml *Pressure-pack	Solvent-free special silicone sealant. Temperature resistant from -60°C (-76°F) up to +280°C (+536°F) (briefly up to +300°C (+572°F)).

(to be continued)

81 52 87	Flex + Bond SEGA	Grey	85 ml	Strong, permanently elastic, temperature-resistant from -40°C to +90°C (-40°F to +194°F), weather-resistant, resistant to UV rays, ageing and salt water, paintable (wet-on-wet), sandable. It is free of silicone, isocyanate, halogens and solvents.

Name of Mfr.: WEICON GmbH & Co. KG

Gasket Removers

Spray Quita-junta　ガスケットリムーバー　垫圈清洗液



Removes gaskets from any type of assembly in 10 to 15 minutes. Prepares metal parts for new gaskets, eliminating scraping and sanding.

Works on wood; non-corrosive on aluminium.

Not for use on plastics, linoleum or synthetic fibers.

81 28 01	Gasket remover spray, 400 ml	Tin

"O" Rings

Junta Tórica Neopreno　O リング　O 型密封圈



Made from synthetic or natural rubber or teflon. When ordering, specify the material, outer and inner diameter as well as thickness. Since there are thousands of sizes available, only a basic illustration is given here.

81 30 01	"O" ring, material, outer diam × inner diam x thickness	Pc.

Rubber Strings

Cordón Tórico Neopreno　ゴムひも　橡皮带



Synthetic rubber made round string for forming "O" rings with glue, etc. Any length is furnishable upon request.

Unit per Mtr.

CODE	Diam mm	CODE	Diam mm	CODE	Diam mm
81 30 51	1.5	**81 30 56**	4.0	**81 30 61**	6.5
52	2.0	**57**	4.5	**62**	7.0
53	2.5	**58**	5.0	**63**	8.0
54	3.0	**59**	5.5	**64**	9.0
55	3.5	**60**	6.0	**65**	10.0

O-Ring Splicing Kits

Estuches para Articular O-Ring　O リング作成キット　O 形环接头工具



Saves the need for complete disassembly. Eliminates the need for an inventory of different sized O-rings. Joints resist water/oil and are as strong as the rubber itself.

Kit contains:

1. 5.48 meter (3 ft.) lengths of common diameters of Buna N cord
2. 1 of Loctite 404 Quick Set Instant Adhesive
3. 1 of o-ring fixture.
4. 1 of blade.
5. 1 each of water-proofing solution and cleanup solution

81 30 70	O-Ring splicing kit	Set

Loctite Product No.00112 (480166 for U.K.)

O-Ring Kits

Estuche Juna Tórica Pulgadas　O リングキット　0 型密封圈工具包

Specially designed for marine use, containing 17 sizes/222 pieces. Packed in a transparent sturdy- hinged acrylic case. Details of the sizes are as follows:



Width × I.D. × O.D. inch

1/16×5/32×9/32	1/16×7/32×11/32	1/16×5/16×7/16
3/32×3/8×9/16	3/32×7/16×5/8	3/32×1/2×11/16
3/32×9/16×3/4	3/32×5/8×13/16	3/32×11/16×7/8
3/32×3/4×15/16	1/8×3/4×1	1/8×13/16×1-1/16
1/8×7/8×1-1/8	1/8×15/16×1-3/16	1/8×1-1/16×1-5/16
1/8×1-3/16×1-7/16	1/8×1-3/8×1-5/8	

81 30 72	O-Ring kit, 17 sizes/222 pcs with acryl case	Set

Copper Ring Kits

Estuche Arandela Cobre　コッパーリングキット　铜圈工具包

Specially designed for marine use. Contains 30 sizes/568 pieces packed in a transparent sturdy-hinged acrylic case. Details of the sizes are as follows:



I.D. × O.D. × TH mm

5×9×1	6×10×1	6×12×1	8×12×1	8×14×1
8×14×1.5	9×14×1	10×14×1	10×14×1.5	10×16×1
12×16×1	12×16×1.5	12×18×1.5	13×18×1	14×18×1.5
14×20×1.5	14×20×2	16×20×1.5	16×22×1.5	18×22×1.5
18×24×1.5	20×24.5×1.5	20×24.5×0.8	19×26×2	22×27×1.5
22×29×1.5	24×29×1.5	24×32×2	26×34×2	28×36×2

81 30 80	Copper ring kit, 30 sizes/568 pcs with acryl case	Set

Raised Face PTFE Rings

Aros de PTFE de cara saliente　PTFE リング　PTFE 环

Made of PTFE (Polytetrafluoroethylene), and used for gasket ring with chemical resistance property.



PO 850 - PN 16

Unit Per Pc.

CODE	Nominal Size	Size mm OD × ID × TH	Article No.
81 34 01	10	45 × 18 × 2	PO850010
02	15	50 × 22 × 2	PO850015
03	20	60 × 28 × 2	PO850020
04	25	70 × 35 × 2	PO850025
05	32	82 × 43 × 2	PO850032
81 34 06	40	92 × 49 × 2	PO850040
07	50	107 × 61 × 2	PO850050
08	65	127 × 77 × 2	PO850065
09	80	142 × 90 × 2	PO850080
10	100	162 × 115 × 2	PO850100
81 34 11	125	192 x 141 x 2	PO850125
12	150	218 x 169 x 2	PO850150
13	200	273 x 220 x 2	PO850200
14	250	330 x 274 x 2	PO850250
15	300	385 x 325 x 2	PO850300
81 34 16	350	438 x 368 x 2	PO850350
17	400	490 x 420 x 2	PO850400
18	600	775 x 645 x 2	PO850600

PO 860 - PN 16

Unit Per Pc.

CODE	Nominal Size	Size mm OD × ID × TH	Article No.
81 34 21	10	45 × 18 × 3	PO860010
22	15	50 × 22 × 3	PO860015
23	20	60 × 28 × 3	PO860020
24	25	70 × 35 × 3	PO860025
25	32	82 × 43 × 3	PO860032
81 34 26	40	92 × 49 × 3	PO860040
27	50	107 × 61 × 3	PO860050
28	65	127 × 77 × 3	PO860065
29	80	142 × 90 × 3	PO860080
30	100	162 × 115 × 3	PO860100
81 34 31	125	192 x 141 x 3	PO860125
32	150	218 x 169 x 3	PO860150
33	200	273 x 220 x 3	PO860200
34	250	330 x 274 x 3	PO860250
35	300	385 x 325 x 3	PO860300
81 34 36	350	438 x 368 x 3	PO860350
37	400	490 x 420 x 3	PO860400
38	600	775 x 645 x 3	PO860600

PO 870 – ASA 150 lbs

Unit Per Pc.

CODE	Nominal Size	Size mm OD × ID × TH	Article No.
81 34 41	15	47 x 21 x 2	PO870015
42	20	57 x 27 x 2	PO870020
43	25	66 x 33 x 2	PO870025
44	32	76 x 42 x 2	PO870032
45	40	85 x 48 x 2	PO870040
81 34 46	50	104 x 60 x 2	PO870050
47	65	123 x 73 x 2	PO870065
48	80	136 x 89 x 2	PO870080
49	100	174 x 114 x 2	PO870100
50	125	196 x 141 x 2	PO870125
81 34 51	150	222 x 168 x 2	PO870150
52	200	279 x 219 x 2	PO870200
53	250	339 x 273 x 2	PO870250
54	300	409 x 324 x 2	PO870300

PO 880 – ASA 150 lbs

Unit Per Pc.

CODE	Nominal Size	Size mm OD × ID × TH	Article No.
81 34 61	15	47 x 21 x 3	PO880015
62	20	57 x 27 x 3	PO880020
63	25	66 x 33 x 3	PO880025
64	32	76 x 42 x 3	PO880032
65	40	85 x 48 x 3	PO880040
81 34 66	50	104 x 60 x 3	PO880050
67	65	123 x 73 x 3	PO880065
68	80	136 x 89 x 3	PO880080
69	100	174 x 114 x 3	PO880100
70	125	196 x 141 x 3	PO880125
81 34 71	150	222 x 168 x 3	PO880150
72	200	279 x 219 x 3	PO880200
73	250	339 x 273 x 3	PO880250
74	300	409 x 324 x 3	PO880300

Air Filters

Filtros para Aire　エアーフィルター　空气过滤垫

So called vileoon filter made by combining tetoron and nylon into filter form. Usually used as an air conditioning intake filter. Will be furnished in sizes 10 to 20 mm thick.



Unit Per Mtr.

CODE	Size mm		CODE	Size mm	
	T	W		T	W
81 31 01	10	1,600	**81 31 03**	20	2,000
02	15	1,600			

Terry Cloth

Tejido de rizo　麻・綿フィルター生地　棕色过滤布

For straining or filtering water, oil, etc. Specify the width and type required, towel or brown filter cloth, when ordering. Furnished in rolls.


Brown Cloth


Towel Cloth

How to order: CODE

KIND of CLOTH, WIDTH mm × LENGTH mtr

Unit Per Rls.

CODE	Description	Size	
		W mm	L mtrs
81 31 11	Brown Cloth	760	20
12	Towel Cloth	760	33
13	"	910	33

Vinyl Acetate Sponge Water Sheet Filters

Wet Type

Plancha Esponja de Vinilo para Filtro

酢酸ビニールスポンジシート　海棉（湿型）



Synthetic made sponge filter ideal for immersion in any cascade tank or sump for filtering of hydraulic systems, coolant fluids, etc. Size is 1,000 × 1,000 mm and 10 mm thick. Colour is milky white.

81 31 20	Filter, water, vinyl acetate spone sheet, 10 × 1,000 × 1,000 mm	Sht

Vinyl Acetate Sponge Piece Filters

Wet Type

Piezas Esponja de Acetato de Vinilo para Filtro

酢酸ビニールピース　碎海棉（湿型）



Same as the above filter but in pieces packed 1 kg in polythene bag.

81 31 22	Filter, water, vinyl acetate spone piece, 1 kg	Bag

Vinyl Acetate Sponge Oil Filters

Dry Type

Esponja de Acetato de Vinilo para Filtro de Aceites

酢酸ビニールスポンジフィルター　滤油海棉（干型）



Specially designed for filtering lubricating oil, etc. Size furnished 2 mm thickness, 1,000 × 1,000 mm (39" × 39") of width and length.

81 31 24	Filter, oil, vinyl acetate spone, 1,000 × 1,000 mm	Sht

Coco Fiber

Fibra de Coco　ココファイバー　椰子纤维



For filtering waterm, oil, etc.
Made from coco and packed 30 kg in a carton.

81 31 26	Coco fiber	Kgs

Loofah Sponges

Esponjas para Filtro, Lufa　ヘチマ　丝瓜布



Used forr oil straining or filtering.
Each sponge is approoximately 40 cm in length Furnished in pieces only.

81 31 28	Loofah sponge	Pc.

Copper Wool Filters

(Copper Net Filters)

Malla Filtrante de Cobre　コッパーウール　铜滤网



Made of wool-like fine copper and woven into flat tubes. Finely meshed net can strain out and refine lubricating oil or any other liquid. Furnished in a width of 100 mm and coiled approximately 5 kgs per roll.

81 31 30	Filter, copper wool	Kgs

Reflex Flat Gauge Glasses

Cristal Nivel Caldera Extriado

リフレックスゲージガラス　液位表反射平玻璃板

"Klinger" type boiler gauge glasses. Available in pressure capacity of 2.0 MPa (20 kgs/cm²) and 3.9 MPa (40 kgf/cm²).


Reflex Type

How to order : CODE

Reflex flat gauge glass, PRESSURE CAPACITY, OVERALL SIZE mm

Unit Per Pc.

CODE	No.	Overall Size mm	CODE	No.	Overall Size mm
Pressure Capacity 20 kgf/cm²			**Pressure Capacity 40 kgf/cm²**		
81 32 01	1	34×17×115	**81 32 11**	1	34×17×115
02	2	34×17×140	**12**	2	34×17×140
03	3	34×17×165	**13**	3	34×17×165
04	4	34×17×190	**14**	4	34×17×190
05	5	34×17×220	**15**	5	34×17×220
81 32 06	6	34×17×250	**81 32 16**	6	34×17×250
07	7	34×17×280	**17**	7	34×17×280
08	300	34×17×300	**18**	300	34×17×300
09	8	34×17×320	**19**	8	34×17×320
10	9	34×17×340	**20**	9	34×17×340

Plain Flat Gauge Glasses

Cristal Nivel Caldera Liso　プレーンゲージガラス　水位錶平玻璃

Plain type gauge glasses for boiler use. Available in pressure capacity of 2.0 MPa (20 kgf/cm²) or 7.8 MPa (80 kgf/cm²). Specify pressure when ordering and if mica sheet or non-asbestos packing is required.


Plain Type

How to order: CODE

Plain flat gauge glass, PRESSURE CAPACITY, OVERALL SIZE mm

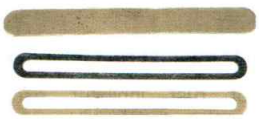
Unit Per Pc.

CODE	No.	Overall Size mm	CODE	No.	Flow Rate
Pressure Capacity 20 kgf/cm²			**Pressure Capacity 80 kgf/cm²**		
81 32 31	1	34×17×115	**81 32 41**	1	34×17×115
32	2	34×17×140	**42**	2	34×17×140
33	3	34×17×165	**43**	3	34×17×165
34	4	34×17×190	**44**	4	34×17×190
35	5	34×17×220	**45**	5	34×17×220
81 32 36	6	34×17×250	**81 32 46**	6	34×17×250
37	7	34×17×280	**47**	7	34×17×280
38	300	34×17×300	**48**	300	34×17×300
39	8	34×17×320	**49**	8	34×17×320
40	9	34×17×340	**50**	9	34×17×340

Gauge Glass Mica & Packing

Junta Nivel Mica
ゲージガラス用マイカ＆パッキング　液位表云母片盼更

For the heat insulation and protection of glass, mica is generally used. The mica is generally furnished in a thickness of 0.2 mm. The packing and mica are furnished separately.



... Mica
... Non-asbestos Cushion
... Fibre Gasket

CODE	No.	Overall Size mm	CODE	No.	Overall Size mm
	Unit Per Sht.			Unit Per Set	
Mica			Non-asbestos & Cushion & Fibre Gasket Set		
81 32 61	1	0.2×34×115	**81 32 81**	1	34×115
62	2	0.2×34×140	**82**	2	34×140
63	3	0.2×34×165	**83**	3	34×165
64	4	0.2×34×190	**84**	4	34×190
65	5	0.2×34×220	**85**	5	34×220
81 32 66	6	0.2×34×250	**81 32 86**	6	34×250
67	7	0.2×34×280	**87**	7	34×280
68	300	0.2×34×300	**88**	300	34×300
69	8	0.2×34×320	**89**	8	34×320
70	9	0.2×34×340	**90**	9	34×340

Round Gauge Glasses

Tubos Nivel Pyrex　丸ゲージガラス　玻璃管



For moderate pressure service on boilers, vats and tanks. Furnishable in round gauge glass or acrylic gauge "Plexy" glass supplied on request. Specify whether glass or acrylic is required when ordering. Standard length for both in 1,000 mm but it is furnishable in up to 2,000 mm if required.

How to order: CODE

Gauge glass, round, KIND of MATERIAL, OUTER DIAM × THICKNESS × LENGTH mm

CODE	Outer Diam. mm	Thickness × Lgth mm	CODE	Outer Diam. mm	Thickness × Lgth mm
		Unit Per Lgh.			Unit Per Lgh.
Glass			Acrylic		
81 33 01	9	2 × 1,000	**81 33 10**	9	2 × 1,000
02	12	2 × 1,000	**11**	12	3 × 1,000
03	14	2 × 1,000	**12**	16	4 × 1,000
04	16	2 × 1,000	**13**	19	4 × 1,000
05	17	2.5 × 1,000	**14**	22	4 × 1,000
81 33 06	19	2.5 × 1,000	**81 33 15**	25	5 × 1,000
07	20	2.5 × 1,000	**16**	60	6 × 1,000
08	22	3 × 1,000	**17**	70	6 × 1,000
09	25	3 × 1,000	**18**	95	7 × 1,000

Rubber Gauge Glass Washers

Junta Goma para TuboNivel
ゲージガラスワッシャー　液位玻璃橡皮垫圈



Rubber ring washer packing for round gauge glasses. A square pattern is also available if required.

CODE	Size OD inch × Thick mm	CODE	Size OD inch × Thick mm
	Unit Per Pc.		Unit Per Pc.
81 33 31	1/2 × 3	**81 33 33**	3/4 × 3
32	5/8 × 3	**34**	1 × 3

Oil Seals

Retenes　オイルシール　油封



The Oil Seal stops oil leakage and prevents water, dust and other harmful particles from getting into the workings of bearings. It keeps the bearing clean and lubricated for smooth rotation. Besides stopping leakage effectively, the oil seal is of compact size and is easy to install and remove. Made of highly flexible synthetic rubber to match the motion of the shafts and act as an efficient sealant in simultaneous motion with the springs.

There are so many types of materials and sizes of oil seals, it is impossible to code them all. For this reason, the items described below are only the standard seal designs commonly used for a variety of applications and they are not coded.

Lip materials of the synthetic rubber are:
- Nitrile Rubber
- Polyacrylate Rubber
- Silicone Rubber
- Fluoroelast Rubber

When ordering, please specify the following points:
1. Name of the machine and place of application.
2. Detailed information of the lubricating oil used and the ambient temperature.
3. R.P.M. of shaft.
4. Oil Seal Type /Name / No.
   Size: Shaft diameter × Outer diameter × Width

Type	Features
 S Type	General non-pressure fluid sealing applications and severe grease sealing conditions. It is a single lip oil seal with a garter spring to provide a consistent radial load against the shaft. General limited working capacity : SMPS 12 m/sec. Temperature 120°C Pressure 0.3 kgf/cm²G.
 T Type	General non-pressure fluid sealing applications with light duty exclusion of foreign materials. This design uses the primary lip configuration, with an auxiliary dust lip to provide effective light duty dust exclusion. General limited working capacity : SMPS 10 m/sec. Temperature 120°C Pressure 0.3 kgf/cm²G.
 V Type	Economical design for grease retention or sealing viscous fluid. It is a single lip seal. General limited working capacity : SMPS 8 m/sec. Temperature 120°C Pressure 0 kgf/cm²G.
 K Type	Economical design for grease retention or sealing viscous fluid with light duty exclusion of foreign materials. This type has an auxiliary lip for light dust exclusion. General limited working capacity : SMPS 5 m/sec. Temperature 120°C Pressure 0 kgf/cm²G.
 D Type	The application which requires separating two fluids from each other should use two garter spring loaded lips. The "D" style incorporates the two lips into one design. General limited working capacity : SMPS 5 m/sec. Temperature 120°C Pressure 0.3 kgf/cm²G.

* SMPS denotes Surface Meter Per Second.

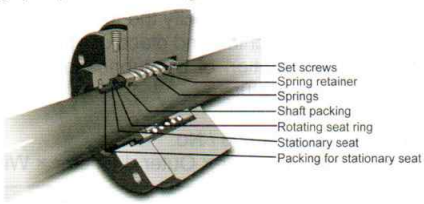
81 35 01	Oil seal, TYPE INNER DIAM or SHAFT DIAM, OUTER DIAM, WIDTH	Pc.

Mechanical Seals

Cierres Mecánicos メカニカルシール 机械密封

The Mechanical Seal has two flat seal faces at right angles to the axis of the rotating shaft, preventing shaft wear. One is the seal face of the rotating seal ring and the other is the seal face of the stationary seal ring (stationary, seat or floating seat). One seal face (rotating seal ring) is allowed axial motion to permit the seal faces to remain in contact with each other despite endplay of the shaft, wear or runout of the seal faces. The seal ring is flexibly mounted on the shaft and rotates against the stationary seal ring.

The seal ring has a resilient packing, called shaft packing (O-ring or V-ring assembly) that allows the seal ring to slide back and forth along the shaft and at the same time prevent leakage between it and the shaft or sleeve as a secondary seal. The stationary seat is backed against the gaskets (mostly O-rings) to prevent leakage around its back.



Standard for Marine Pump Mechanical Seals

1. Scope of application

This standard is applied to the mechanical seal of the unbalanced single spring type (hereinafter referred to as mechanical seals). The mechanical seals are among those used for marine centrifugal pumps, gear pumps, and screw pumps, driven by electric motors, for pumping fresh water, seawater, fuel oil and lubricating oil, with shaft diameters in the range from 20 to 140 mm. However, special seals are excluded with operating conditions which exceed values stipulated in Section 2 "Criteria for Application" of this standard.

2. Criteria for application

2-1. Limited temperature

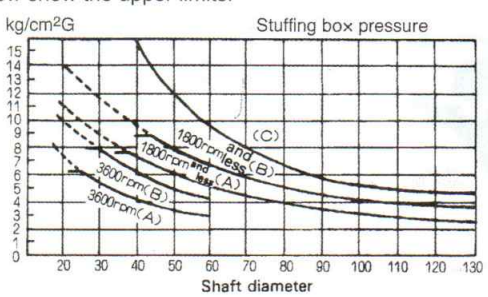
In using the mechanical seals, liquid temperature is restricted within values shown in the table.

Kind of Liquid	Temperature Limit (max.)
Fresh water	90°C
Sea water	40°C
Fuel oil and lubricating oil	100°C

Use cooler with the mechanical seal when the working temperature is higher than the recommended one.

2-2. Limit of pressure and peripheral speed

Pressure for the mechanical seal (stuffing box pressure) and peripheral speed are limited differently depending upon the face material combination. As a rule, the lines in the figure below show the upper limits.



(A) Ceramic vs Carbon
(B) Tungsten Carbide vs Carbon
(C) Silicone Carbide vs Carbon

1. For a pressure and peripheral speed located in the ranges shown by the dotted lines, use balance type mechanical seals.
2. If stuffing box pressure should be negative, please consult us beforehand.

3. Restriction of face materials against rust inhibiter

When the concentration of rust inhibiter exceeds 1,000 ppm, its effect on the seal materials often appears rapidly. Therefore, consult with a dealer before using a mechanical seal with concentrations of rust inhibiter of 1,000 ppm and over.

4. Cooling of the seal face

The normal practice is to require sufficient flushing shown in Fig. A near the seal face for the purpose of cooling, washing, and lubrication. Examples of flushing are shown in Fig. B and Fig. C.

Flow rate for flushing

Fig. A

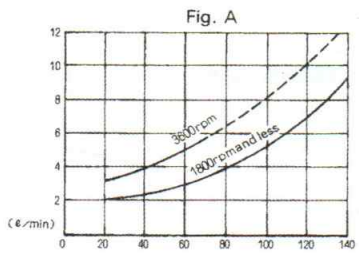


Fig. B

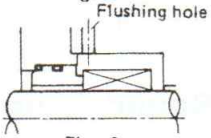
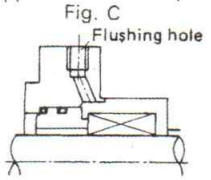


Fig. C



5. Axial movement, run out and squareness of shaft

Table

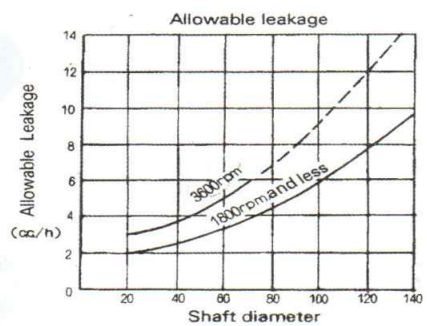
Unit mm

	Allowable Limits
Axial movement	0.5 and under
Shaft run out Squareness	From 20 to 80 include, in shaft diameter "d" not more than $\frac{\sqrt{d}}{120}$ Over 80 to 140 includ, nott more than 0.075

* d: Shaft or shaft sleeve diameter at the part where the mechanical seal is fixed.

6. Allowable leakage

In using mechanical seals, the allowable leakage during initial operation is shown in the figure in the next page.



Application of Mechanical Seals

Appli-caton	Service	Machine	(MAX) Operating Condition °C Temper-ature	kgf/cm² G Pressure	m/S Velocity
Pump	Sea water	Main cooling sea water pump Ballast pump Sanitary pump Fire & G.S. pump Sea water service pump	Nitrile -20 - 80 Viton 0 - 150	10	20
	Fresh water	Drinking water pump Drain pump Condensate pump Piston cooling fresh water pump Auxiliary machinery cooling fresh water pump Jacket cooling fresh water pump	Nitrile -20 - 80 Viton 0 - 150	10	20
	Hot water	Boiler feed pump Boiler water circulating pump	220 with cooler	25	20
	Oil	Lubricating oil pump Fuel oil transfer pump Fuel oil booster pump Fuel oil burning pump Cargo oil pump	Nitrile -20 - 80 Viton 0 - 150	10	20
	Chemi-cal	Chemical cargo & transfer pump	90	5	14
Rudder Post	Sea water	Rudder Post	-10 - 60	2	6
Stern Tube		Stern Tube	-10 - 60	2	6

Guide of how to order

When ordering, please specify the following points:

1. Name of Manufacturer
2. Manufacturer's Model No. & Type
3. Application
   - A. Machine
   - B. Service point
4. Size
   - A. Shaft diameter
   - B. Outside diameter
   - C. Overall length
5. Operating Condition
   - A. Temperature
   - B. Working pressure
   - C. Velocity
6. Matting Face Material
7. etc.

81 36 01	Mechanical Seal Model × type × size × mating material	Set

Non-combustible Divisions

(Compartimientos) Incombustibles 不燃性仕切り 不燃性壁材



Non-combustible divisions are a material made from silicic acid calcium which neither burns or gives off flammable vapors in sufficient quantity for ignition when heated up to 750°C. All exposed surfaces of a ships bulkheads, linings, and ceilings are required to be covered with this material. The material listed below has a density of 0.65 gm/cm³, which satisfies the requirements for class B divisions according to the 1983 SOLAS regulations.

Unit Per Sht

CODE	Thickness	Width × Length
81 39 11	16 mm	910 × 2,420
12	19	
13	22	
14	25	

Heat Insulation Pipe Covers

Cubiertas para Conducto contra Calor

保温断熱用パイプカバー 保温管盖

Rockwool



Rockwool material for insulating pipes from heat and moisture. It is easy to install with slit tube form, and durable with robust molded structure. Please choice size corresponding to nominal pipe size to be applied and preferable thickness of insulation cover. Service temperature reaches up to 650°C. Standard length is 1,000 mm.

How to order: CODE

Heat insulation pipe cover,rockwool NOMINAL PIPE SIZE, WALL THICKNESS mm

Unit Per Pc.

CODE	Nom. Pipe Size A (mm)	Nom. Pipe Size B (Inch)	Inner Diam. mm	Thickness mm
81 38 01	15	1/2	22	20
02	20	3/4	27	
03	25	1	34	
04	32	1-1/4	43	
05	40	1-1/2	49	
81 38 06	50	2	61	
07	65	2-1/2	76	
08	80	3	89	
81 38 11	15	1/2	22	25
12	20	3/4	27	
13	25	1	34	
14	32	1-1/4	43	
15	40	1-1/2	49	
81 38 16	50	2	61	
17	65	2-1/2	76	
18	80	3	89	
19	100	4	114	
20	125	5	140	
81 38 21	150	6	165	
81 38 25	15	1/2	22	30
26	20	3/4	27	
27	25	1	34	
28	32	1-1/4	43	
29	40	1-1/2	49	
81 38 30	50	2	61	
31	65	2-1/2	76	
32	80	3	89	
33	100	4	114	
34	125	5	140	
81 38 35	150	6	165	
81 38 41	32	1-1/4	43	40
42	40	1-1/2	49	
43	50	2	61	
44	65	2-1/2	76	
45	80	3	89	
81 38 46	100	4	114	
47	125	5	140	
48	150	6	165	
49	200	8	216	
50	250	10	267	
81 38 51	300	12	319	
52	350	14	356	
81 38 55	100	4	114	50
56	125	5	140	
57	150	6	165	
58	200	8	216	
59	250	10	267	
81 38 60	300	12	319	
61	350	14	356	
62	400	16	406	

Calcium Silicate



These are non-asbestos calcium silicate heat insulators reinforced by fiber. They feature high heat insulation with extremely low thermal conductivity and high heat resistance. Lightweight and easy to install. Service temperature reaches up to 650°C. Standard length is 610 mm split in 2 pieces.

How to order: CODE

Heat insulation pipe cover, calcium silicate NOMINAL PIPE SIZE, WALL THICKNESS mm

Unit Per Pc.

CODE	Applicable Pipe Nominal Size		Wall Thickness mm	Length mm
81 39 51	15A	1/2	25	610
52	20A	3/4		
53	25A	1		
81 39 54	32A	1-1/4	30	
55	40A	1-1/2		
56	50A	2		
81 39 57	65A	2-1/2	40	
58	80A	3		
59	90A	3-1/2		
81 39 60	100A	4	50	
61	125A	5		
62	150A	6		

Armaflex Insulation Tubes



A closed cell elastomeric nitrile rubber foam designed to provide a highly efficient method of insulating pipework, ducting and vessels. It is CFC (Chlorofluorocarbon) free and ideal for both hot and cold water services. Heat resistance temperature : -40°C to 105°C. Standard coil length: 2 mtr.

Unit Per Lgh.

CODE	Size mm O.D.	Size mm Thick	Item No.	CODE	Size mm O.D.	Size mm Thick	Item No.
81 38 09	10	13	IS81001013	**81 38 79**	54	13	IS81005413
81 38 10	12	13	IS81001213	**81 38 80**	57	9	IS8090579
81 38 22	15	9	IS8090159	**81**		13	IS81005713
23		13	IS81001513	**81 38 82**	60	13	IS81006013
24		19	IS81101519	**83**		19	IS81106019
81 38 36	18	9	IS8090189	**81 38 84**	64	13	IS81006313
37		13	IS81001813	**85**	70	13	IS81007013
81 38 38	22	9	IS8090229	**81 38 86**	76	9.5	IS8090769
39		13	IS81002213	**87**		13	IS81007613
40		19	IS81102219	**88**		19	IS81107619
81 38 53	25	13	IS81002513	**81 38 89**	80	9.5	IS8090809
54		19	IS81102519	**90**		13	IS81008013
81 38 63	28	9	IS8090289	**81 38 91**	88	19	IS81108819
64		13	IS81002813	**81 38 92**	89	9.5	IS8090899
65		19	IS81102819	**93**		13	IS81008813
81 38 66	30	13	IS81003013	**81 38 94**	102	13	IS81010113
81 38 67	35	9	IS8090359	**81 38 95**	108	13	IS81010813
68		13	IS81003513	**96**		19	IS81110819
69		19	IS81103519	**81 38 97**	114	9.5	IS8091149
81 38 70	42	13	IS81004213	**98**		13	IS81011413
75		19	IS81104219	**99**		19	IS81111519
81 38 76	45	9	IS8090459	**81 39 00**	140	10	IS8091409
81 38 77	48	13	IS81004813	**15**		13	IS81013913
78		19	IS81104819	**16**		19	IS81113919

Name of Mfr.: Alligator

Adhesive Glues for Armaflex Insulation Tube

For gluing Armaflex insulation tubes.



81 39 17	Glue adhesive for Armaflex insulation tube, 1,000 grm, item no. UN 1133 510	Pc.

Name of Mfr.: Alligator

Armaflex Insulation Sheets

Láminas de aislamiento Armaflex
アルマフレックス耐熱シート　福乐斯绝热片



A closed cell elastomeric nitrile rubber foam designed to provide a highly efficient method of insulating pipework, ducting and vessels. It is CFC (Chlorofluorocarbon) free and ideal for both hot and cold water services. Heat resistance temperature: -40°C to 105°C. Standard size: 500 x 2,000 mm.

Unit Per Sht.

CODE	Thickness mm	Item No.	CODE	Thickness mm	Item No.
81 39 18	6	IS817006	**81 39 22**	19	IS817019
19	10	IS817010	**23**	25	IS817025
20	13	IS817013	**24**	32	IS817032
21	16	IS817016	**25**	50	IS817050

NName of Mfr.: Alligator

Armaflex Insulation Tapes

Cinta aislante Armaflex
隙間カバー用アルマフレックス耐熱テープ
覆盖接缝用福乐斯绝热胶带



To be used between gaps for Armaflex sheet. Heat resistance temperature: -40°C to 105°C.

81 39 26	Tape, Armaflex, Thick:3mm × Width: 50mm, length: 15mtr	Rls.

Name of Mfr.: Alligator

Central Heating Pipe Sections

Tramos de tubería de calefacción central
アルミ補強断熱シート　铝强化隔热片



The central heating pipe sections have a special reinforced aluminium sandwich foil facing. The self sealing tape allows installation under conditions of high relative humidity and temperatures down to -15°C. Length of a section is 1 metre. Maximum service temperature: 250°C . Limiting temperature of outer facing: 80°C.

Unit Per Sht.

CODE	Inner Diam × Thick mm	Length mtr	Pruduct No.
81 39 27	17 × 25	30	IS84501725
28	17 × 30	25	IS84501730
29	21 × 25	30	IS84502125
30	21 × 40	13	IS84502140
31	27 × 25	25	IS84502725
81 39 32	27 × 40	12	IS84502740
33	33 × 25	20	IS84503325
34	33 × 40	9	IS84503340
35	42 × 25	16	IS84504225
36	42 × 40	9	IS84504240
81 39 37	48 × 25	15	IS84504825
38	48 × 40	9	IS84504840
39	57 × 25	12	IS84505725
40	57 × 40	6	IS84505740
41	60 × 25	11	IS84506025
81 39 42	60 × 40	6	IS84506040
43	60 × 60	4	IS84506060
44	64 × 25	9	IS84506425
45	64 × 40	6	IS84506440
46	70 × 25	9	IS84507025
81 39 47	70 × 40	5	IS84507040
48	76 × 25	9	IS84507625
49	76 × 40	5	IS84507640
50	83 × 25	7	IS84508325
63	83 × 40	4	IS84508340
81 39 64	89 × 25	6	IS84508925
65	89 × 40	4	IS84508940
66	89 × 60	1	IS84508960
67	102 × 25	5	IS84510225
68	102 × 40	4	IS84510240

(to be continued)

Unit Per Sht.

CODE	Inner Diam × Thick mm	Length mtr	Pruduct No.
81 39 69	108 × 25	5	IS84510825
70	108 × 40	1	IS84510840
71	114 × 25	4	IS84511425
72	114 × 40	1	IS84511440
73	114 × 60	1	IS84511460
81 39 74	121 × 30	1	IS84512130
75	121 × 50	1	IS84512150
76	127 × 25	4	IS84512725
77	127 × 50	1	IS84512750
78	133 × 30	1	IS84513330
81 39 79	133 × 50	1	IS84513350
80	140 × 30	1	IS84514030
81	140 × 50	1	IS84514050
82	159 × 30	1	IS84515930
83	159 × 50	1	IS84515950
81 39 84	169 × 30	1	IS84516930
85	169 × 50	1	IS84516950
86	194 × 30	1	IS84519430
87	194 × 50	1	IS84519450
88	219 × 30	1	IS84521930
81 39 89	219 × 50	1	IS84521950

Name of Mfr. : Alligator

Wired Insulation Mats

Alfombrillas de aislamiento cableadas
ワイヤー入り断熱マット　内含钢丝隔热垫



Suitable for the thermal and acoustic insulation of pipework.
Service temperature: 750°C.

Unit Per Sht.

CODE	T × W × L mm	CODE	T × W × L mm
81 39 90	60 × 500 × 4,000	**81 39 92**	80 × 500 × 3,000
91	70 × 500 × 3,500	**93**	100 × 500 × 2,500

Lamella Blankets
Covered with Aluminium Foil

Mantas de lámina cubiertas de hoja de aluminio
アルミ皮膜断熱シート　铝膜隔热片



A glass wool blankets made of lamellas with an aluminium facing which acts as vapor barrier.
Temperature: 250°C.

Unit Per Sht.

CODE	T × W × L mm	CODE	T × W × L mm
81 39 94	30 × 1,000 × 8,000	**81 39 97**	80 × 1,000 × 3,000
95	50 × 1,000 × 5,000	**98**	100 × 1,000 × 2,500
96	60 × 1,000 × 4,000		

Pipe Insulation Tapes
for High Temperature

Cinta Aislante y Resistente a Altas Temperaturas para Tubos
パイプ用絶縁テープ　管路用耐高温绝缘胶带



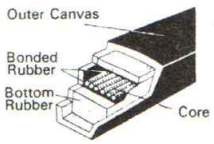
Quick and easy way to insulate high temperature surfaces of pipes or valves in vessel engine rooms. For use on bent and flanged pipes in areas where maintenance is not a consideration and/or space is limited. Made from biosoluble vitreous silicate fibre which is reinforced with an outer jacket of heat sealed aliminium foil. Rated for use to 1,000°C max.

Unit Per Rls.

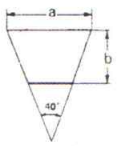
CODE	Width mm (inch)	Thickness mm (inch)	Length mm (inch)	Rolls/Box
81 38 71	50 (2")	3 (1/8")	7.7 (25')	24
72	100 (4")	12 (1/2")	3.3 (10')	6
73	300 (12")	25 (1")	7.7 (25')	2
74	600 (24")	25 (1")	7.7 (25')	1

V-Belts
for Power Transmission

Correas Trapeciales　V ベルト　V 型带



(Ref. JIS K 6323 ISO-/R608)



The outstanding properties of the single line cord V-belt are that it has great strength and flexibility while stretching only a minimum amount.

Standard V-Belts

The standard sizes are classified into 6 types: M, A, B, C, D, E with the sizes as shown in the table below.

The length M type is measured by an outside circle, while types A~E are measured by the inside circles of the belt.

Standard V-Belt Section

CODE	JIS		RMA (USA)		BS	
	a	b	a	b	a	b
M	10.0	5.5			9.5	6
A	12.5	9.0	12.7	8.0	13.0	8
B	16.5	11.0	16.7	10.3	17.0	10.5
C	22.0	14.0	22.2	13.5	22.0	13.5
D	31.5	19.0	31.7	19.0	32.0	19.0
E	38.0	25.5	38.0	23.0		

Note: Type D and E are seldom requested for supply and not coded here.

Section M

Unit Per Pc.

Section M
10 × 5.5 mm

CODE	Belt No.	Outer Circle of Belts mm	CODE	Belt No.	Outer Circle of Belts mm
81 40 01	M-15	381	**81 40 19**	M-33	838
02	-16	406	**20**	-34	864
03	-17	432	**21**	-35	889
04	-18	457	**22**	-36	914
05	-19	483	**23**	-37	940
81 40 06	M-20	508	**81 40 24**	M-38	965
07	-21	533	**25**	-39	991
08	22	559	**26**	-40	1,016
09	23	584	**27**	-41	1,041
10	24	610	**28**	-42	1,067
81 40 11	M-25	635	**81 40 29**	M-43	1,092
12	-26	660	**30**	-44	1,118
13	-27	686	**31**	-45	1,143
14	-28	711	**32**	-46	1,168
15	-29	737	**33**	-47	1,194
81 40 16	M-30	762	**81 40 34**	M-48	1,219
17	31	787	**35**	-49	1,245
18	32	813	**36**	-50	1,270

Remark: Belt number, for instance M-15 × (25.4) is the same length of the belt outer circle.

Section A

Unit Per Pc.

Section A
12.5 × 9 m

CODE	Belt No.	Center Circle of Belts mm	CODE	Belt No.	Center Circle of Belts mm
81 41 01	A-17	432	**81 41 41**	A-57	1,448
02	-18	457	**42**	-58	1,473
03	19	483	**43**	-59	1,499
04	20	508	**44**	-60	1,524
05	21	533	**45**	-61	1,550
81 41 06	A-22	559	**81 41 46**	A-62	1,575
07	-23	584	**47**	-63	1,600
08	-24	610	**48**	-64	1,626
09	-25	635	**49**	-65	1,651
10	-26	660	**50**	-66	1,676

(to be continued)

Unit Per Pc.

Section A
12.5 × 9 m

CODE	Belt No.	Center Circle of Belts mm	CODE	Belt No.	Center Circle of Belts mm
81 41 11	A-27	686	81 41 51	A-67	1,702
12	-28	711	52	-68	1,737
13	-29	737	53	-69	1,753
14	-30	762	54	-70	1,778
15	-31	787	55	-71	1,803
81 41 16	A-32	813	81 41 56	A-72	1,829
17	-33	838	57	-73	1,854
18	-34	864	58	-74	1,880
19	-35	889	59	-75	1,905
20	-36	914	60	-76	1,930
81 41 21	A-37	940	81 41 61	A-77	1,956
22	-38	965	62	-78	1,981
23	-39	991	63	-79	2,007
24	-40	1,016	64	-80	2,032
25	-41	1,041	65	-81	2,057
81 41 26	A-42	1,067	81 41 66	A-82	2,083
27	-43	1,092	67	-83	2,108
28	-44	1,118	68	-84	2,134
29	-45	1,143	69	-85	2.159
30	-46	1,168	70	-86	2,184
81 41 31	A-47	1,194	81 41 71	A-87	2,210
32	-48	1,219	72	-88	2,235
33	-49	1,245	73	-89	2,261
34	-50	1,270	74	-90	2,286
35	-51	1,295	75	-91	2,311
81 41 36	A-52	1,321	81 41 76	A-92	2,337
37	-53	1,346	77	-93	2,362
38	-54	1,372	78	-94	2,388
39	-55	1,397	79	-95	2,413
40	-56	1,422	80	-96	2,438

Remark: Belt number, for instance A-17 × (25.4) is the same length of the belt center circle.

Section B

Unit Per Pc.

Section B
16.5 × 11 mm

CODE	Belt No.	Center Circle of Belts mm	CODE	Belt No.	Center Circle of Belts mm
81 42 01	B-30	762	81 42 41	B-70	1,778
02	-31	787	42	-71	1,803
03	-32	813	43	-72	1,829
04	-33	838	44	-73	1,854
05	-34	864	45	-74	1,880
81 42 06	B-35	889	81 42 46	B-75	1,905
07	-36	914	47	-76	1,930
08	-37	940	48	-77	1,956
09	-38	965	49	-78	1,981
10	-39	991	50	-79	2,007
81 42 11	B-40	1,016	81 42 51	B-80	2,032
12	-41	1,041	52	-81	2,057
13	-42	1,067	53	-82	2,083
14	-43	1,092	54	-83	2,108
15	-44	1,118	55	-84	2,134
81 42 16	B-45	1,143	81 42 56	B-85	2,159
17	-46	1,168	57	-86	2,184
18	-47	1,194	58	-87	2,210
19	-48	1,219	59	-88	2,235
20	-49	1,245	60	-89	2,261
81 42 21	B-50	1,270	81 42 61	B-90	2,286
22	-51	1,295	62	-91	2,311
23	-52	1,321	63	-92	2,337
24	-53	1,346	64	-93	2,362
25	-54	1,372	65	-94	2,388
81 42 26	B-55	1,397	81 42 66	B-95	2,413
27	-56	1,422	67	-96	2,438
28	-57	1,448	68	-97	2,464
29	-58	1,473	69	-98	2,489
30	-59	1,499	70	-99	2,515
81 42 31	B-60	1,524	81 42 71	B-100	2,540
32	-61	1,550	72	-102	2,591
33	-62	1,575	73	-105	2,667
34	-63	1,600	74	-108	2,743
35	-64	1,626	75	-110	2,794
81 42 36	B-65	1,651	81 42 76	B-112	2,845
37	-66	1,676	77	-115	2,921
38	-67	1,702	78	-118	2,997
39	-68	1,727	79	-120	3,048
40	-69	1,753	80	-122	3,099

(to be continued)

Remark: Belt number, for instance B-30 × (25.4) is the same length of the belt center circle.

Section C

Unit Per Pc.

Section M
22 × 14 mm

CODE	Belt No.	Center Circle of Belts mm	CODE	Belt No.	Center Circle of Belts mm
81 43 01	C-40	1,016	81 43 21	C-88	2,845
02	-42	1,067	22	90	2,921
03	-45	1,143	23	92	2,997
04	-48	1,219	24	95	3,048
05	-50	1,270	25	98	3,099
81 43 06	C-52	1,321	81 43 26	C-100	2,540
07	-54	1,372	27	102	2,591
08	-55	1,397	28	105	2,667
09	-58	1,473	29	108	2,743
10	-60	1,524	30	110	2,794
81 43 11	C-62	1,575	81 43 31	C-112	2,845
12	-65	1,651	32	115	2,921
13	-68	1,727	33	118	2,997
14	-70	1,778	34	120	3,048
15	-72	1,829	35	122	3,099
81 43 16	C-75	1,905	81 43 36	C-125	3,175
17	-78	1,981	37	128	3,251
18	-80	2,032	38	130	3,302
19	-82	2,083			
20	-85	2,159			

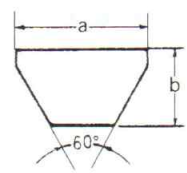
Remark: Belt number, for instance C-40 × (25.4) is the same length of the belt center circle.

Besides above standard types, the following types of V-Belts are also available on request.

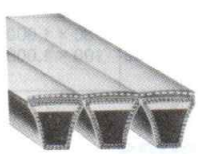
Wide Angle V-Belts

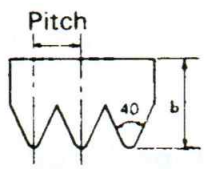
mm

No.	a	b	α°
3 M	3.0	2.0	60
5 M	5.0	3.0	60
7 M	7.0	5.0	60
11 M	11.0	7.0	60



Jointed V-Belts





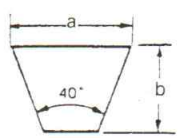
mm

	No.	Pitch		No.	Pitch
Narrow	3V	10.3	Standard	B	19.0
	5V	17.5		C	25.5
	8V	28.6		D	37.0

Light-Duty V-Belts

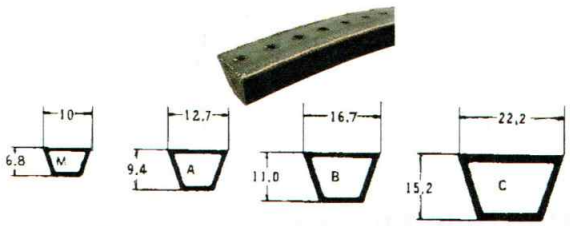
mm

No.	a	b	α°
MB	6.0	4.0	40
J			
K	8.0	6.0	40



Perforated V-Belts

Correas Perforadas　穴あき長尺 V ベルト　　多孔 V 型带



Designed for drives where ordinary V-belts would not fit and the splice must be arranged on the spot. Supplied in any length, easy to cut and splice. The belt splicing device and fastener will be furnished separately if required.

CODE	Wax Contents	Unit
81 46 01	A	12.7 x 9.4
02	B	16.7 x 11
03	C	22.2 x 15.2
04	M	10 x 6.8

Perforated V-Belt Fasteners

Correas Perforadas-Eslabón
穴あきＶベルト用レーシング
打孔式Ｖ型带接头


G-166

Specially designed for perforated V-belts which operate at low and medium speeds to connect the both edges of V-belts.

How to order: CODE

Perforated V-belt fastener, G-166, TYPE of V-BELT SECTION

Unit Per Pc.

Type G-166 Fasteners			
CODE	For V Belt Secton	CODE	For V Belt Secton
81 46 14	A	**81 46 16**	C
15	B	**17**	M

Steel Belt Lacings

Cordón para Cinturón de Acero　ベルトレーシング　皮带钢接头



These belt lacings are made from special steel which is tough and durable yet very easy to fit. Only a hammer is required to install the lacing.

Unit Per Box

CODE	No. & Symbol	Length	Pcs. Per Box	Belt Width	Belt Thickness
81 46 51	#15	200	16	25	3 ~ 4.5
52	#20	200	15	50	4
53	F25	200	12	75	5 ~ 6.5
54	G25	300	16	75	5 ~ 6.5
55	K27	300	8	100	6 ~ 7
81 46 56	L27	300	16	100	6 ~ 7
57	N35	300	8	125	6 ~ 8.5
58	U45	300	8	200	8 ~ 10
59	W55	300	8	250	9 ~ 12
60	X65	300	8	250	10 ~ 14
81 46 61	#75	300	8	300	13 ~ 20

Belt Wax

Spray Tensa-Correa　ベルトワックス　皮带蜡



It prevents slipping of V-belt and flat-belts. Available as solid cake or liquid spray type.

CODE	Wax Contents	Unit
81 46 81	Solid app. 420 grm	Pc.
82	Spray Liquid of 230 cc	Tin

Wedge V-Belts

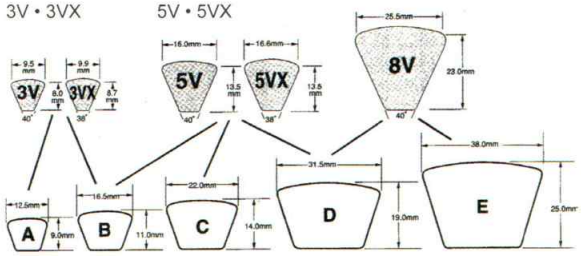
Correa de Cuña　ウェッジＶベルト　Ｖ型带

Compact designed for wedge sheave, and suitable for higher speed and horsepower than standard sheave permit. It is excellent for heat resistance and anti-static property. Available in normal wrapped type or more flexible energy saving "notched type", so please specify the type of wedge V-belt when ordering.


Normal Wrapped Type


Notched Type

3V • 3VX　　5V • 5VX



How to order: CODE

Wedge V-Belt, Normal or Notch shape, Size and Model Number

Unit Per Pc.

Section 3V 9.5 × 8 mm					
CODE	Belt No.	Effective Circle Length mm	CODE	Belt No.	Effective Circle Length mm
81 48 01	3V 250	635	**81 48 17**	3V 630	1,600
02	3V 265	673	**18**	3V 670	1,702
03	3V 280	711	**19**	3V 710	1,803
04	3V 300	762	**20**	3V 750	1,905
05	3V 315	800	**21**	3V 800	2,032
81 48 06	3V 335	851	**81 48 22**	3V 850	2,159
07	3V 355	902	**23**	3V 900	2,286
08	3V 375	953	**24**	3V 950	2,413
09	3V 400	1,016	**25**	3V 1000	2,540
10	3V 425	1,080	**26**	3V 1060	2,692
81 48 11	3V 450	1,143	**81 48 27**	3V 1120	2,845
12	3V 475	1,207	**28**	3V 1180	2,997
13	3V 500	1,270	**29**	3V 1250	3,175
14	3V 530	1,346	**30**	3V 1320	3,353
15	3V 560	1,422	**31**	3V 1400	3,556
81 48 16	3V 600	1,524			

Unit Per Pc.

Section 3VX 9.5 × 8.7 mm					
CODE	Belt No.	Effective Circle Length mm	CODE	Belt No.	Effective Circle Length mm
81 48 41	3VX 250	635	**81 48 57**	3VX 630	1,600
42	3VX 265	673	**58**	3VX 670	1,702
43	3VX 280	711	**59**	3VX 710	1,803
44	3VX 300	762	**60**	3VX 750	1,905
45	3VX 315	800	**61**	3VX 800	2,032
81 48 46	3VX 335	851	**81 48 62**	3VX 850	2,159
47	3VX 355	902	**63**	3VX 900	2,286
48	3VX 375	953	**64**	3VX 950	2,413
49	3VX 400	1,016	**65**	3VX 1000	2,540
50	3VX 425	1,080	**66**	3VX 1060	2,692
81 48 51	3VX 450	1,143	**81 48 67**	3VX 1120	2,845
52	3VX 475	1,207	**68**	3VX 1180	2,997
53	3VX 500	1,270	**69**	3VX 1250	3,175
54	3VX 530	1,346	**70**	3VX 1320	3,353
55	3VX 560	1,422	**71**	3VX 1400	3,556
81 48 56	3VX 600	1,524			

Unit Per Pc.

Section 5V
16 × 13.5 mm

CODE	Belt No.	Effective Circle Length mm	CODE	Belt No.	Effective Circle Length mm
81 49 01	5V 500	1,270	**81 49 19**	5V 1400	3,556
02	5V 530	1,346	**20**	5V 1500	3,810
03	5V 560	1,422	**21**	5V 1600	4,064
04	5V 600	1,524	**22**	5V 1700	4,318
05	5V 630	1,600	**23**	5V 1800	4,572
81 49 06	5V 670	1,702	**81 49 24**	5V 1900	4,826
07	5V 710	1,803	**25**	5V 2000	5,080
08	5V 750	1,905	**26**	5V 2120	5,385
09	5V 800	2,032	**27**	5V 2240	5,690
10	5V 850	2,159	**28**	5V 2360	5,694
81 49 11	5V 900	2,286	**81 49 29**	5V 2500	6,350
12	5V 950	2,413	**30**	5V 2650	6,731
13	5V 1000	2,540	**31**	5V 2800	7,112
14	5V 1060	2,692	**32**	5V 3000	7,620
15	5V 1120	2,845	**33**	5V 3150	8,001
81 49 16	5V 1180	2,997	**81 49 34**	5V 3350	8,509
17	5V 1250	3,175	**35**	5V 3550	9,017
18	5V 1320	3,353			

Unit Per Pc.

Section 5VX
16.6 × 13.5 mm

CODE	Belt No.	Effective Circle Length mm	CODE	Belt No.	Effective Circle Length mm
81 49 41	5VX 500	1,270	**81 49 59**	5VX 1400	3,556
42	5VX 530	1,346	**60**	5VX 1500	3,810
43	5VX 560	1,422	**61**	5VX 1600	4,064
44	5VX 600	1,524	**62**	5VX 1700	4,318
45	5VX 630	1,600	**63**	5VX 1800	4,572
81 49 46	5VX 670	1,702	**81 49 64**	5VX 1900	4,826
47	5VX 710	1,803	**65**	5VX 2000	5,080
48	5VX 750	1,905	**66**	5VX 2120	5,385
49	5VX 800	2,032	**67**	5VX 2240	5,690
50	5VX 850	2,159	**68**	5VX 2360	5,694
81 49 51	5VX 900	2,286	**81 49 69**	5VX 2500	6,350
52	5VX 950	2,413	**70**	5VX 2650	6,731
53	5VX 1000	2,540	**71**	5VX 2800	7,112
54	5VX 1060	2,692	**72**	5VX 3000	7,620
55	5VX 1120	2,845	**73**	5VX 3150	8,001
81 49 56	5VX 1180	2,997	**81 49 74**	5VX 3350	8,509
57	5VX 1250	3,175	**75**	5VX 3550	9,017
58	5VX 1320	3,353			

Porthole Glasses

Cristales para Portillo　丸窓用強化ガラス　弦窗玻璃板

Made of strengthened glass, with polished edges. When ordering, please specify the nominal size of the porthole and whether clear or frosted glass is required.



How to order: CODE

Porthole glass, CLEAR or FROST, DIAM × THICKNESS mm

Unit Per Pc.

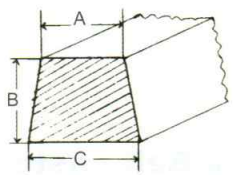
CODE	Port Hole Nom. Dia	Glass Diam.	Glass Thick	CODE	Port Hole Nom. Dia	Glass Diam.	Glass Thick
Clear				**Frost**			
81 47 01	200	212	8	**81 47 31**	200	212	8
02			10	**32**			10
03			12	**33**			12
81 47 04	250	262	8	**81 47 34**	250	262	8
05			10	**35**			10
06			12	**36**			12
07			15	**37**			15
81 47 08	300	312	8	**81 47 38**	300	312	8
09			10	**39**			10
10			12	**40**			12
11			15	**41**			15
81 47 12	350	362	10	**81 47 42**	350	362	10
13			12	**43**			12
14			15	**44**			15
81 47 15	400	412	10	**81 47 45**	400	412	10
16			12	**46**			12
17			15	**47**			15

(to be continued)

Porthole Linings

Junta para Cristales de Portillo　丸窓ゴムパッキン　弦窗橡皮垫料

A rubber trapezoid section used for packing porthole glasses. Any length available upon request. When ordering, please specify the size of the rubber section.



Unit Per Mtr.

CODE	Size mm.		
	A	B	C
81 47 51	8	8	11
52	9	9	12

Watertight E.P.D.M. Rubber Door Packings

Guarnición estanca de caucho EPDM para puertas

防水 E.P.D.M. ゴムドアパッキング

E. P. D. M. 门用防水橡胶条

Made of E.P.D.M. (Ethylene Propylene Diene Monomer) rubber and used as watertight door packing. Seawater resistance, and maximum temperature -40°C to + 70°C. Colour is black and Standard length : 10mtr.

Tolerations : 18 – 30mm ±1.0mm.
30 – 50mm ± 1.5mm

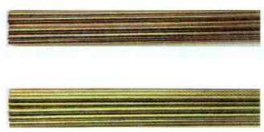
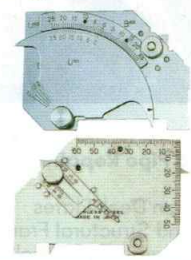
The list shows standard size, and please ask your local supplier availability for the sizes other than these standard sizes.



Unit Per Lgh.

CODE	Size mm	CODE	Size mm	CODE	Size mm
81 50 16	10 × 6	**81 50 02**	30 × 15	**81 50 13**	40 × 40
17	10 × 8	**03**	30 × 20	**38**	45 × 10
18	10 × 10	**32**	30 × 25	**39**	45 × 15
19	12 × 8	**33**	30 × 30	**14**	45 × 20
20	12 × 10	**34**	35 × 10	**15**	45 × 25
81 50 21	12 × 12	**81 50 35**	35 × 12	**81 50 40**	45 × 30
22	15 × 10	**04**	35 × 15	**41**	45 × 40
23	15 × 15	**05**	35 × 20	**42**	45 × 45
24	20 × 6	**06**	35 × 25	**43**	50 × 5
25	20 × 10	**07**	35 × 30	**44**	50 × 10
81 50 26	20 × 15	**81 50 36**	35 × 35	**81 50 45**	50 × 15
27	20 × 20	**37**	40 × 10	**46**	50 × 20
28	25 × 10	**08**	40 × 15	**47**	50 × 25
01	25 × 15	**09**	40 × 20	**48**	50 × 30
29	25 × 20	**10**	40 × 25	**49**	50 × 35
81 50 30	25 × 25	**81 50 11**	40 × 30	**81 50 50**	50 × 40
31	30 × 10	**12**	40 × 35		

85
Welding Equipment

Gases/Gas Cylinders  P. 85-1 ~ 9	Gas Welding and Cutting Equipment  P. 85-9 ~ 10	Welding Hose and Couplings  P. 85-10 ~ 12
Gas Welding Rods  P. 85-12 ~ 13	Electrodes  P. 85-13 ~ 19	Electric Welding Equipment  P. 85-19 ~ 22
Welder's Chalks  P. 85-22	Welders' Protection Items  P. 85-23 ~ 25	Welding Gauges  P. 85-25

High Pressure Gases

Gases de Alta Presión　高圧ガス　氧气



Gases are obtainable packed in cylinders or empty cylinders from a vessel can be refilled for use. The most commonly required gases for marine use are listed below. When ordering, please specify the type of gas required. Charges for cylinder rental or gas refills are applied separately and the guidelines regarding what type of valves are used on the cylinders, how frequently the cylinders must undergo pressure tests, and if cylinders can be exchanged will vary by country and manufacturer.

CODE	Gas Name	Gas Symbol	Unit	Standard Cylinder
85 01 02	Oxygen	O_2	M^3	7 M^3
04	Acetylene	C_2H_2	kg	6.8 ~ 7.8 kg
09	HFC-134a	CH_2FCF_3	kg	10, 20, 100 kg
10	R-404A	(*)	kg	10, 20, 100 kg
11	R-407C	(**)	kg	10, 20, 100 kg
85 01 13	R-407H	(**)	kg	10, 50 kg
15	R-448A	(***)	kg	10, 50 kg
17	R-449A	(****)	kg	10, 50 kg
12	Propane	C_3H_8	kg	10, 20, 50 kg
14	Carbon Dioxide	CO_2	kg	30 kg
85 01 16	Helium	He	M^3	7 M^3
18	Argon	Ar	M^3	7 M^3
20	Hydrogen	H_2	M^3	7 M^3
22	Nitrogen	N_2	M^3	7 M^3
24	Ammonia	NH_3	kg	50 kg

Remark (*) : R-404A is mixture gas of HFC-125/143a/134a
(**) : R-407C/407H is mixture gas of R32/R125/R134a
(***) : R-448A is mixture gas of HFO-1234yf/1234ze and HFC-32/125/134a
(****) : R-449A is mixture gas of R32/R125/R134a/HFO-1234yf

Note: The refill of an empty cylinder is under strict control by the high pressure gas control safety law of most countries. Consequently, it takes a long time for the refill procedure. To avoid this slow process, cylinder rental systems are also available in certain countries.

Information regarding the use of refrigerant gases

In accordance with the IMO resolution A. 719 (17) regarding CFCs we would like shipyards and ship owners to take note of the current regulations in place on the design of refrigerant systems and proposals for the future restriction of refrigerant gases.

The resolution states as follows:

1. The use of CFCs whose ozone depleting potential is higher than 5 % of R-11 in installations of fixed refrigeration and air conditioning plants and insulation shall be prohibited on ships of which the keel is laid or which are at a similar stage of construction on or after 6 November, 1992.
2. The use of CFCs in such new installations on other ships shall be prohibited by 6 November, 1992.

In regard to the use of refrigerant gases, CFC refrigerants above grade CFC 11(R-11) has been banned from use from the year 1996. Furthermore, the alternative refrigerant HCFC 22(R-22) has been totally banned in EU since 2015. Starting from 1st January 2020, virgin R-22 will be banned in non-article 5 parties (Montreal Protocol) such as Japan, Australia and USA. The other alternative refrigerants such as R-404A (mixture gas of HFC-125/143a/134a) and R-507 (mixture gas of HFC-125/143a) and R-422D (mixture of R-125/134a/600) will also be banned in EU from 1st January. 2020.

The Montreal Protocol stipulates 100% phaseout of the production of CFCs, which is the most common ozon-depleting refrigerants such as CFC-12, R-502 and HCFC-22, by January 1, 1996.

HFCs are environmentally superior to CFCs because HFC does not contain chlorine. However, due to their environmental impact, even more eco-friendly alternatives are introduced such as HFOs, which has significantly lower global warming potential and ozone-depleting potential.

We also include alternative gases from this edition as environmentally friendly refrigerants which enable to make direct replacement of CFCs.

CFC denotes Chlorofluorocarbon.
HFC denotes Hydrofluorocarbon.
HCFC denotes Hydrochlorofluorocarbon.
HFO denotes Hydrofluoroolefin.

Refrigerant Gases

As alternative for CFC Refrigerants



Gas refrigerante como alternativa a refrigerantes a base de CFC
冷凍機ガス　冷冻机制冷气体

Due to the ozone depleting issues, environmentally friendly maritime refrigerant is required for use in various cooling system. Here is the reference of quality assured refrigerants to the highest purity standards (ARI-700), covers wide range of marine refrigeration requirements.

CODE	Name	Unit	Application
85 01 25	Hycool Marine 45	kg	A cost efficient and environmentally friendly secondary refrigerant for use in indirect cooling systems. It is based on the organic salt Potassium Formate. Biodegradable and has neither Ozone Depleting Potential nor Global Warming Potential, Non-flammable and non-toxic. and Wide application range +50 to -45°C, can be used in freezing, cooling and heating applications.
26	Same, supplied in can (25L)	25 L	
85 01 27	Unicool R-407F	kg	A synthetic HFC refrigerant, used in a variety of maritime refrigeration applications such as high, medium and low temperature applications.
28	Same, supplied in 12L cylinder	11 kg	
29	Same, supplied in 56L cylinder	51 kg	
85 01 30	Unicool R-410A	kg	A synthetic HFC refrigerant, used in a variety of maritime refrigeration applications such as high, medium and low temperature applications.
34	Same, supplied in 12L cylinder	9.5 kg	
38	Same, supplied in 56L cylinder	45 kg	
85 01 39	Unicool R-417A	kg	A synthetic HFC refrigerant for replacing R-22 in existing refrigeration systems for low, medium and high temperature applications. **NOTE: Recommended drop-in retrofit replacement for R-22.**
40	Same, supplied in 12L cylinder	11 kg	
47	Same, supplied in 56L cylinder	51 kg	
85 18 21	Unicool R-448A	kg	A new generation of HFO blend refrigerant, with low GWP and highly energy efficient refrigerant for low and medium temperature applications. **NOTE: Suitable for new installation and retrofit for R-404a**
85 18 22	Same, supplied in 12L cylinder	10 kg	
85 18 23	Same, supplied in 56L cylinder	45 kg	

(to be continued)

CODE	Name	Unit	Application
85 18 24	Unicool R-449A	Kg	A new generation of HFO blend refrigerant, with low GWP and highly energy efficient refrigerant for low and medium temperature applications. **NOTE: Suitable for new installation and retrofit for R-404a**
85 18 25	Same, supplied in 12L cylinder	10 Kg	
85 18 26	Same, supplied in 56L cylinder	45 Kg	
85 18 27	Unicool R-452A	Kg	A new generation of HFO blend refrigerant, with low GWP and highly energy efficient refrigerant for low temperature application with air-cooled condenser. **NOTE: Suitable for new installation and retrofit for R-404a**
28	Same, supplied in 12L cylinder	10 Kg	
29	Same, supplied in 56L cylinder	45 Kg	
85 18 30	Unicool R-513A	Kg	A new generation of HFO blend refrigerant, with low GWP and highly energy efficient refrigerant for medium temperature applications **NOTE: Suitable for new installation and retrofit for R-404a**
31	Same, supplied in 12L cylinder	11 Kg	
32	Same, supplied in 56L cylinder	50 Kg	
85 18 33	Unicool R-407H	Kg	A new generation of HFC blend refrigerant, with low GWP and most suitable for new installations.
34	Same, supplied in 12L cylinder	10 Kg	
35	Same, supplied in 56L cylinder	45 Kg	

Name of Mfr: Wilhelmsen Ships Service

Seamless High Pressure Gas Cylinders

for Oxygen, Nitrogen, Hydrogen, Helium, etc.

Cilindros sin Costura de Gas de Alta Presión

継目なし高圧ガス容器　　无缝高压气瓶

Made of seamless mangan steel complete with valve and cap for use with various gases such as Oxygen(O_2), Nitrogen(N_2), Hydrogen(H_2), Helium(He), etc.
When ordering, please specify the name of the gas to be filled for safety's sake. Their specifications are as follows:

How to order: CODE

High pressure gas cylinder, KIND of GAS, GAS CAPACITY

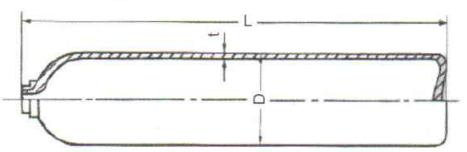
Unit Per Btl.

CODE	85 01 41	85 01 42
Gas Capacity m^3	7.0	6.0
Water Capacity ltr	46.7	40.0
Service Pressure	150 kgf/cm^2	
Hydraulic Test Pressure	250 kgf/cm^2	
Out Diam. mm	232.0	
Nominal Wall Thick mm	6.3	
Overall Length mm	1,370	1,190
Weight kg	53.5	46.5

High Pressure Gas Cylinders

There are a great variety of compressed gas cylinder standards. To avoid dangerous accidents, most countries have their own strict regulations governing the making, refilling and testing procedures of these high pressure gas cylinders. The table in the next page summarizes the abstract details of the popular cylinders of various countries.

In case of refilling, a certain country may require the certificates of the cylinders.



1. American Specifications : DOT 3AA (CTC in Canada)

Ref.No.	Materials	Gas Capacity (ft^3)	Service Pressure (Psi)	Water Capacity (in^3)	Outside Diameter (D) mm	Nominal Wall Thickness (t) mm	Overall Length (L) mm	Nominal Weight kg
UA-22	Chromium Molybdenum Steel	220	2,015	2,640	232.0	6.3	1,285	50.0
UA-25		250	2,265	2,640	232.0	6.5	1,290	51.5
UA-30		300	2,400	2,990	235.0	6.8	1,400	59.5
UA-34		340	2,845	2,850	232.0	8.1	1,425	71.0
UB- 8	Manganese Steel B	80	2,015	873	177.8	5.5	765	20.5
UB-11		110	2,015	1,318	177.8	5.5	1,110	28.0
UB-12		125	2,265	1,318	177.8	5.5	1,110	28.0
UB-15		150	2,015	1,630	190.7	5.5	1,170	32.5
UB-22		220	2,015	2,680	232.0	6.3	1,300	51.0
UB-23		230	2,015	2,680	232.0	6.3	1,300	51.0
UB-24		240	2,015	2,850	232.0	6.3	1,370	53.5
UB-26		260	2,135	2,850	232.0	6.3	1,370	53.5
UB-25		250	2,265	2,640	232.0	6.5	1,290	51.5
UB-30		300	2,400	2,990	235.0	7.0	1,420	62.0
UB-34		340	2,845	2,850	232.0	8.1	1,425	71.0

2. Germany Specifications : DIN 4664 Blatt 7,9

Ref.No.	Materials	Test Pressure (bar)	Water Capacity (liter)	Outside Diameter (D) mm	Nominal Wall Thickness (t) mm	Overall Length (L) mm	Nominal Weight kg
G7-40	Blatt 7 Manganese Steel B (38 Mn6)	250	40.2	232.0	6.5	1,220	54.5
G7-47			46.9	232.0	6.5	1,405	62.0
G7-68			67.5	267.4	7.5	1,535	90.5
G9-40	Blatt 9 Chromium Molybdenum Steel (32 CrMo4)	300	40.0	232.0	5.9	1,200	48.5
G9-50			50.0	232.0	5.9	1,470	58.5

3. British Specifications : BS5045 Part 1

Ref.No.	Materials	Water Capacity (liter)	Outside Diameter (D) mm	Nominal Wall Thickness (t) mm	Overall Length (L) mm	Nominal Weight kg
BA-68	Chromium Molybdenum Steel	68	267.4	7.0	1,515	76.0

4. Japanese Specifications : JIS B8241

For Permanent Gases

Ref.No.	Materials	Service Pressure	Hydraulic Test Pressure	Water Capacity (liter)	Gas Capacity (m^3)	Outside Diameter (D) mm	Nominal Wall Thickness (t) mm	Overall Length (L) mm	Nominal Weight kg
JC-7	Chromium Molybdenum Steel	200 kgf/cm²	334 kgf/cm²	35	7.0	216.3	6.2	1,205	43.5
JC-8				40	8.0	216.3	6.2	1,360	48.5
JC-9				45	9.0	216.3	6.2	1,515	53.0
JCT-7				35	7.0	232.0	6.3	1,060	43.0
JCT-8				40	8.0	232.0	6.3	1,190	46.5
JCT-9				45	9.0	232.0	6.3	1,330	52.0
JCT-10				50	10.0	232.0	6.3	1,460	56.5
JHC-10				50	10.0	232.0	7.8	1,500	70.0
JS-6	Manganese Steel B	150 kgf/cm²	250 kgf/cm²	40.0	6.0	232.0	6.3	1,190	46.5
JS-7				46.7	7.0	232.0	6.3	1,370	53.5
JS-10				68.0	10.2	267.4	7.0	1,515	76.0

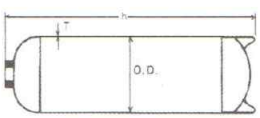
For High Pressure Liquefied Gases: CO_2 (NO_2, C_2H_4)

Ref.No.	Materials	Hydraustatic Test Pressure	Water Capacity (liter)	Gas Capacity (kg)	Outside Diameter (D) mm	Nominal Wall Thickness (t) mm	Overall Length (L) mm	Nominal Weight kg
JL-30	Manganese Steel B	250 kgf/cm²	40.2	30	232.0	6.3	1,190	46.5
JL-35			46.9	35	232.0	6.3	1,370	53.5
JL-50			68.0	50	267.4	7.0	1,515	76.0

Acetylene Gas Cylinders

Cilindros de Gas Acetileno　アセチレンガス容器　乙炔气瓶

Made of welded steel with monothetic porous filler (porosity 90-92%) which is ready to fill with dissolved acetylene gas. Complete with valve and cap.



Unit Per Cyl.

CODE		85 01 51	85 01 52	85 01 53
Gas Weight kg		7	4	2
Gas Volume m^3		6.3	3.6	1.8
Water Capacity (Ltr)		41	24	12.5
Outside Diam. mm		259	232	220
Wall Thickness mm		4.0	3.2	3.0
Height mm		939	701	432
Weight (kg)	Net Weight	26.5	16.5	9.0
	Porous Filler	9.2	5.3	2.8
	Aceton	14.0	8.2	4.3
	Saturated Gas	0.5	0.3	0.2
	Valve	0.8	0.8	0.8
	Total	51.0	31.1	17.1
Filling Pressure Kgf/cm²		15.5	15.5	15.5
Test Pressure Kgf/cm²		50.0	50.0	50.0

Spanners for Opening & Closing

Oxygen / Acetylene Gas Cylinder

Llave para apertura y cierre de bombona de oxígeno/acetileno

酸素・アセチレンボンベ開閉用スパナ　氧气乙炔储气罐开关扳手

Two square sockets for Oxygen cylinder valve and Acetylene cylinder valve in single spanner.



85 01 56	Spanner, opening & closing, for Oxygen/Acetylene gas cylinder	Pc.

Refrigerant Gas Cylinders

Cilindros de gas refrigerante

フロンガス容器　制冷剂气瓶

Made of welded steel for use with HFC-134a, R-404A, R-407C, R-407H, R-448A or R-449A complete with valve and head cap.



HFC-134a and R-404A / R-407C / R-407H / R-448A / R-449A

Nom. Gas Capacity			10 ltr	20 ltr	40 ltr	100 ltr
Actual Volume	HFC-134a		10 ltr	21 ltr	41 ltr	107 ltr
	R-404A / R-407C / R-407H		10 ltr	20 ltr	-	100 ltr
	R-448A/R449A		10 ltr	-	50 ltr	-
Size	O.D mm	HFC-134a	275	220	220	370
		R-404A / R-407C / R-407H	250	220	-	370
		R-448A / R-449A	229	-	254	-
	Length mm	HFC-134a	271	697	1,247	1,172
		R-404A / R-407C	344	758	-	1,299
	Height mm	HFC-134a	380	810	1,390	1,310
		R-404A / R-407C / R-407H	454	899	-	1,310
		R-448A / R-449A	506	-	1,380	-
Total Weight kg	HFC-134a		7	14	24	40
	R-404A / R-407C		8	13.5	-	52
	R-407H / R-448A / R-449A		19	-	74	-
Test Pressure kg/cm²	HFC-134a		31	31	31	31
	R-404A / R-407C / R-407C		51	51	-	51
	R-448A / R-449A		51	-	51	-

How to order: CODE

Refrigerant gas cylinder, NAME of GAS, TYPE NO., CAPACITY

Unit Per Cyl.

CODE	Name of Gas	Capacity kg
85 01 57	HFC-134a	10
58		20
60		100
85 01 73	R-404A	10
74		20
65		100
85 01 95	R-407C	10
96		20
70		100
85 01 13	R-407H	10
85 18 01		20
02		50
85 01 15	R-448A	Specify weight
85 18 03		10
04		50
85 01 17	R-449A	Specify weight
85 18 05		10
06		50

Non Refillable Refrigerant Gas Cylinders

Bombonas de gas refrigerante no recargables
再充填不可冷媒ガスボンベ
不可再充装制冷剂气瓶



Portable, easy to use and fully recyclable cylinders for refrigerant gases. Supplied in a protective shipping carton.

How to order: CODE

Refrigerant gas cylinder, non refillable, NAME of GAS, TYPE NO., CAPACITY

Unit Per Cyl.

CODE	Name of Gas	Capacity kg
85 01 78	R-410A	10
85 01 79	R-404A	10
85 01 80	R-407C	11.35
85 18 07	R-407H	10
85 18 08	R-448A	10
85 18 09	R-449A	10

Fluorocarbon Refrigerant-Recovery Machines

Máquinas de recuperación de refrigerantes de fluorocarburos
フロン冷媒回収装置　碳氟化合物制冷剂回收机

Fluorocarbon refrigerant recovery machine is necessary device that recovers and extract refrigerants from cooling systems such as refrigerator or air conditioning devices to prevent their release into the environment during maintenance, repairs or disposal processes.
Here are the units which may require for recovery works.

Fluorocarbon Refrigerant-Recovery Equipment

Equipos de recuperación de refrigerantes de fluorocarburos
フロン冷媒回収装置
碳氟化合物制冷剂回收设备

A machine that recovers refrigerants from cooling units, and discharges it to the recovery cylinders.



Unit per Set

CODE	85 18 41	85 18 42
Voltage	100V / 50Hz, 60Hz	220-240V / 50Hz
Recovery Refrigerant	R12, R22, R500, T502, R410A, R32, R404A, R407C, R507A,R134a and FC1, FC3 Series of Fluorocarbon Refrigerant (Flammable Exclusive)	R12, R22, R500, T502, R410A, R32, R404A, R407C, R507A,R134a and FC1, FC3 Series of Fluorocarbon Refrigerant (Flammable Exclusive)
Recovery Method	Gas/Mixture: Refrigerant gas from suction port is compressed and changed to liquid. Liquid: Push-Pull Operation. Liquid is forced to cylinder by pressure.	
Ultimate Vacuum	Cont. Operation: Approx. -0.05 Mpa (-380 mmHg) Auto. Operation: Approx. -0.04 Mpa (-300 mm Hg) *Pressure gauge: Mpa display	
Size / Net Weight	H: 360 x W: 430 x D: 260 mm / 16.8 Kg	
Operating Temperature	0~39°C	
Applicable Cylinder	~90kg (100L) Cylinder with float sensor ~90kg (100L) FC3 charging scale with Weight Limiter	

Vacuum Pump

Bomba de vacío　真空ポンプ　真空泵

Used for removing gas from compressor of cooling system or recovery cylinders to create vacuum environment before using fluorocarbon refrigerant-recovery device.



Unit Per Pc.

CODE	85 18 43	85 18 44
Voltage	100V	220-240V
Motor / RPM	390W / 2,880 r.p.m. (50 Hz) 3,440 r.p.m. (60 Hz)	70W / 2,880 r.p.m.
Air Displacement	60 Hz: 180 L/min.(6.4CMF) 50 Hz: 150 L/min.(5.3CFM)	40 L/min. (1.4XCFM)
Rotor	Two Stage	
Ultimate Vacuum	15 microns	25 microns
Pump Oil Capacity	500 ml	100 ml
Intake Fitting	5/16" (1/2-20 UNF)	
Dimension (mm)	W:130 × D:355 × H:265	W:100 × D:245 × H:160
Weight (kg)	10.9	3.75
Accessories	1/4" Male x 5/16" Female adapter (TA159p-4)	

Manifold Gauge

Manómetro　マニホールドゲージ　歧管压力表



Ball valve type hybrid manifold gauge is used for measuring refrigerant pressure by two gauges, one for high pressure and the other for low pressure with valves and ports (for gas and for liquid). The saturation temperatures of the liquid and vapor phases of some gases differ greatly even at the same pressure, and the hybrid gauge has a saturation temperature scale for the liquid and vapor phases, making it excellent accuracy for the saturation temperature.

Gauge connection: 1/8" NPT
Hose connection: 5/16" Flare

85 18 45	Manifold gauge for fluorocarbon refrigerant recovery	Pc.

Fluorocarbon Recovery Cylinders

Cilindros de recuperación de fluorocarbono
フルオロカーボン回収用ボンベ　碳氟化合物回收气瓶



Used to recover and store refrigerants during the process of removing them from cooling devices.

85 18 46	Refrigerant Recovery Cylinder 12 ltr (10 kg)	Cyl.
47	Refrigerant Recovery Cylinder 24 ltr (20 kg)	Cyl.

Nitrogen Gas Cylinders

Bombonas de nitrógeno　窒素ガスボンベ　氮气瓶

Specifications

Application	Inerting
Gas capacity mm^3	9 - 10
Filling pressure bar	196
Gross weight kg	92.7
Overall length mm.	1,664
Outside diameter mm.	230
Valve connection	W24.32 × 1/14M

85 01 77	Nitrogen gas cylinder 9 - 10 m^3	Cyl.

Propane Gas Cylinders

Bombonas de gas propano
プロパンガスボンベ　丙烷气瓶



Made of welded steel for use with liquefied petroleum gas which is mainly used for fuel.

Unit Per Cyl.

CODE		85 01 81	85 01 82	85 01 83
Type No.		5L	10L	20L
Gas Capacity kg		5	10	20
Actual Volume ltr		11.8	24	47
Size	Outside Diam. mm	250	310	320
	Wall Thickness mm	3	3	3
	Overall Length mm	450	545	823
Total Weight kg		8.5	12	21
Test Pressure kgf/cm^2		31	31	31

Span (Calibration) Gases

Gases de calibración　スパン(校正用)ガス　量程（校准）气体

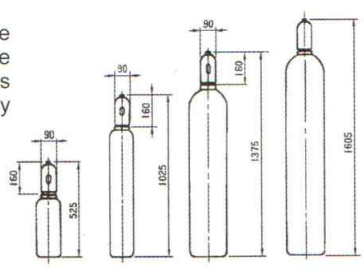
Several kinds of gases are available for calibrating gas analyzers. These gases are called Span Gas or Calibration Gas.

For combustible gas detection, two major methods are widely and commonly used in marine applications, one is the non-dispersive infrared absorption principle (Nitrogen Balance) and the other is the catalytic combustion principle (Air Balance).

The specifications of the gases for use on the calibration of the analyzers utilizing the above two principles are as follows.

No.	Mixing Ratio	Name of Gas Mixed	Main Component
C-0	Zero Gas		
D-0	100%		N_2 (Nitrogen)
C-1	Span Gas		
D-1	Approx. 2%	O_2 (Oxygen)	N_2 (Nitrogen)
D-2	" 3%	CH_4 (Methane)	"
D-3	" 4.3%	"	"
D-4	" 5%	"	"
D-5	" 1.5%	"	Air
D-9	Others ... Please specify the components and concentration.		

For containing the above gases, there are several gas cylinders and regulators. They are as follows:



No.	Volume Ltr	Pressure Kgf/cm^2 Filling	Pressure Kgf/cm^2 Test	Size mm Length	Size mm Dia.	Weight Kg
B-0	3.4	100	250	525	140	6.0
1	10	150		1,025	140	14
2	40	150		1,375	232	50
3	47	150		1,605	232	65

When ordering gases and cylinder (if required), please fill the following column.

How to order: 85 - 01 - 84

Span gas, with following information:

Order No. A B C D

(A) With or Without cylinder
0 - Gas only
1 - Gas with cylinder

(B) Cylinder Volume
B - 0, 1, 2, 3

(C) Use
0 - Zero Gas
1 - Span Gas

(D) Kinds of Gas
D-0, 1, 2, 3, 4, 5, 9

Order No. A 1 B 2 C 1 D 3 means

Span gas, 4.3 % CH_4 in N_2 with 40 ltr/cylinder.

Note:
1. In case (A) is 0, the refilling gas cylinder should be attached with the certificate if issued previously.
2. The combustible gas balanced by air which is over 30 % of LEL (Lower Explosive Limit) can't be supplied/refilled.

Span Gases

Gases de efecto invernadero　スパンガス　跨度气体



Span Gas for all types of gas detectors and analyzer. To help comply with standards, various types of calibration gas cylinders are available for your usage.
The most important accessory to any gas detector is a calibration kit, which provides the means to determine if the instrument is working properly. When using gas detection equipment, it is necessary to calibrate the equipment on a regular basis to guarantee accurate results. According to some regulations and standards, one must test the gas detector prior to each use with a suitable test gas.

Can Specifications

Type	34L	58L	110L
Height x Diam	280 x 74 mm	360 x 88 mm	360 x 88 mm
Weight in kgs	0.7	0.8	0.8
Material	Aluminium Alloy		
Filling Pressure	500 PSI	500 PSI	1,000 PSI
Usable Gas	34 ltr	58 ltr	110 ltr
Connection	5/8"-18 UNF(C-10)		
Filling Tolerance	5-49 PPM±10%, 50-500 PPM±5%>500 PPM±2%		
Transportation	UN 1956 Class 2		
Mixture	Flammable, non reactive and reactive gases		

Type of Mixture Gases

A span gas comes in aluminium alloy cylinder. Please specify kind of gas with capacity of cylinder you request selecting from standard ranges in the following table. If other Mixtures are required, please specify Gas Type and Concentration.

Unit Per Can

CODE	Description of Gas	Capacity of Cylinder
85 15 12 13 14	0.9% Vol (50%LEL) Iso-Butane (C_4H_{10}) Balance Air	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 16 17 18	8% Iso-Butane (C_4H_{10}) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 20 21 22	99.5% Pure Butane (C_4H_{10})	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 24 25 26	50 PPM Carbon Monoxide (CO) Balance Airr	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 28 29 30	100 PPM Carbon Monoxide (CO) Balance Air	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 32 33 34	250 PPM Carbon Monoxide (CO) Balance Air	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 36 37 38	5% Carbon Dioxide (CO_2) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 79 80 85 16 00	10% Carbon Dioxide (CO_2) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 17 44 45 59	15% Carbon Dioxide (CO_2) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 40 41 42	25 PPM Hydrogen Sulphide (H_2S) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 44 45 46	50 PPM Hydrogen Sulphide (H_2S) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 48 49 50	2.5% Vol (50%LEL) Methane (CH_4) Balance Air	in 34 ltr can in 58 ltr can in 110 ltr can
85 17 60	1.0% Vol (20%LEL) Methane (CH_4) Balance Air	in 110 ltr can
85 17 81	800 PPM Methane (CH_4) Balance Air	in 110 ltr can
85 17 82	10% Vol (50%LEL) Methane (CH_4) Balance Nitrogen	in 110 ltr can
85 17 83	50% Vol (50%LEL) Methane (CH_4) Balance Nitrogen	in 110 ltr can
85 15 52 53 54	99.95% Pure Methane (CH_4)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 56 57 58	99.995% Pure Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 60 61 62	2.1% Oxygen (O_2) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 64 65 66	5.5% Oxygen (O_2) Balance Nitrogen (N_2)	in 34 ltr can in 58 ltr can in 110 ltr can
85 17 84	8% Oxygen (O_2) Balance Nitrogen (N_2)	in 110 ltr can
85 17 85	10% Oxygen (O_2) Balance Nitrogen (N_2)	in 110 ltr can
85 17 86	20.9% Oxygen (O_2) Balance Nitrogen (N_2)	in 110 ltr can
85 15 68 69 70	0.7% Vol (50%LEL) Pentane (C_5H_{12}) Balance Air	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 72 73 74	1.1% Vol (50%LEL) Propane (C_3H_8) Balance Air	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 75	1.1% Propane (C_3H_8), 20 PPM Hydrogen Sulphide (H_2S) Balance Nitrogen	in 58 ltr can
85 17 87	50% Pure Propane (C_3H_8) Balance Nitrogen	in 110 ltr can
85 15 76 77 78	99.95% Pure Propane (C_3H_8)	in 34 ltr can in 58 ltr can in 110 ltr can
85 15 07	100 PPM Isobutylene Balance Air	in 110 ltr can
85 15 08	216 PPM Ethanol Balance Nitrogen 0.038% BRAC Equivalent for Alcohol Meter Test Gas	in 110 ltr can
85 15 09	2% Vol (50% LEL) Hydrogen Balance Air	in 110 ltr can
85 17 88	50 PPM Ammonia (NH_3) Balance Nitrogen	in 58 ltr can
85 17 89	5 PPM Chlorine (Cl_2) Balance Nitrogen	in 58 ltr can
85 17 90	5 PPM Nitrogen Dioxide (NO_2) Balance Nitrogen	in 58 ltr can

(to be continued)

4 Gas Mixtures

Very reactive gas mixture only available in 34, 58, 100 ltr cylinders.

Unit Per Can

CODE	Description of Gas	Capacity of Cylinder
85 15 81	2.5% Methane (CH_4), 50 PPM Carbon Monoxide (CO), 25 PPM Hydrogen Sulphide (H_2S), 12% Oxygen (O_2) Balance Nitrogen (N_2)	in 34 ltr can
82		in 58 ltr can
83		in 110 ltr can
85 15 84	2.5% Methane (CH_4), 100 PPM Carbon Monoxide (CO), 25 PPM Hydrogen Sulphide (H_2S), 20.9% Oxygen (O_2) Balance Nitrogen (N_2)	in 34 ltr can
85		in 58 ltr can
86		in 110 ltr can
85 15 87	2.5% Methane (CH_4), 100 PPM Carbon Monoxide (CO), 40 PPM Hydrogen Sulphide (H_2S), 15% Oxygen (O_2) Balance Nitrogen (N_2)	in 34 ltr can
88		in 58 ltr can
89		in 110 ltr can
85 15 90	2.5% Methane (CH_4), 100 PPM Carbon Monoxide (CO), 25 PPM Hydrogen Sulphide (H_2S), 18% Oxygen (O_2) Balance Nitrogen (N_2)	in 34 ltr can
91		in 58 ltr can
92		in 110 ltr can
85 17 91	0.9% (50%LEL) Isobutane, 50 PPM Carbon Monoxide, 25 PPM Hydrogen Sulphide, 12% Oxygen Balance Nitrogen	in 34 ltr can
85 15 10		in 58 ltr can
85 17 92	25% LEL Pentane (C_5H_{12}) 100 PPM Carbon Monoxide, 25 PPM Hydrogen Sulphide, 18% Oxygen Balance NItrogen	in 34 ltr can
93		in 58 ltr can
94		in 110 ltr can

Name of Mfr. : Atlas Marine Services Pte. Ltd.

Regulators and Accessories

Reguladores y accesorios　レギュレーターとアクセサリー　调压器和配件

Fixed Flow Regulators for 34 ltr, 58 ltr, and 110 ltr



Available for portable detectors with no pump or hand pump, also ideal for fixed head detectors. Flow rate 0.3 litres/minute, 0.5 litres/minute or 1.0 litres/minute.

Unit Per Pc.

CODE	Flow rate	CODE	Flow rate
85 15 93	0.3 ltr/min	85 15 95	1.0 ltr/min
94	0.5 ltr/min		

Demand Flow Regulators for 34 ltr, 58 ltr and 110 ltr



Special designed for gas detectors with built-in electric sample pump. Important gas is supplied at "Sample pump" normal working flow rate, hence ensures testing and calibration are similar to true operation conditions.

85 15 96	Regulator, demand flow, for 34 ltr, 58 ltr and 110 ltr	Pc.

Gas Sample Bags with Clip Valve



Sample bags are available too for use with fixed equipment or pumped instrument.

85 15 99	Gas sample bag with clip valve	Pc.

Mixtures Gases from Fastcalgas

Unit Per Btl.

CODE	Gas Description	Fastcalgas No.	Cylinder Size Ltr
Ammonia (NH_3)			
85 17 01	25 ppm NH_3/Air	FCG22000	58
Butane (C_4H_{10})			
85 17 02	0.9% (50% LEL) C_4H_{10} / Air	FCG23000	103
03	0.9% (50% LEL) C_4H_{10} / N_2	FCG23005	103
04	8% C_4H_{10} / N_2	FCG23010	34
05	8% C_4H_{10} / N_2	FCG23015	16
06	8% C_4H_{10} , 13.8% CO_2/N_2	FCG23020	34
07	8% C_4H_{10} , 13.8% CO_2/N_2	FCG23025	16
Iso-Butane (C_4H_{10})			
85 17 08	0.9% (50% LEL) i-C_4H_{10} / Air	FCG24000	34
09	0.9% (50% LEL) i-C_4H_{10} / Air	FCG24010	103
10	10% i-C_4H_{10} / N_2	FCG24005	34
11	10% i-C_4H_{10} / N_2	FCG24060	18
Carbon Dioxide (CO_2)			
85 17 12	1% CO_2/Air	FCG25000	103
13	15% CO_2/Air	FCG25005	103
14	15% CO_2/N_2	FCG25010	103
Carbon Monoxide (CO)			
85 17 15	50 ppm CO/Air	FCG26000	103
16	60 ppm CO/Air	FCG26005	103
17	100 ppm CO/N_2	FCG26010	34
Ethanol (C_2H_5OH)			
85 17 18	191 ppm C_2H_5OH/N_2	FCG33000	34
Hydrogen Sulphide (H_2S)			
85 17 19	10 ppm H_2S/N_2	FCG27000	58
20	25 ppm H_2S/N_2	FCG27005	58
21	40 ppm H_2S/N_2	FCG27010	58
22	50 ppm H_2S/N_2	FCG27015	58
Nitrogen (N_2)			
85 17 23	Nitrogen (99.99% v/v)	FCG28000	34
24	Nitrogen (99.99% v/v)	FCG28010	103
Oxygen (O_2)			
85 17 25	2% O_2/N_2	FCG29000	103
26	5% O_2/N_2	FCG29005	103
27	10% O_2/N_2	FCG29010	103
Methane (CH4)			
85 17 28	2% (40% LEL) CH4/Air	FCG30000	34
29	2% (40% LEL) CH4/Air	FCG30110	103
30	2.5% (50% LEL) CH4/Air	FCG30005	34
31	2.5% (50% LEL) CH4/Air	FCG30125	103
32	1.45% CH4, 15% O_2/N_2	FCG30010	103
33	2.5% CH4, 17% O_2/N_2	FCG30015	34
34	2.5% CH4, 17% O_2/N_2	FCG30135	103
35	50% CH4/N_2	FCG30020	34
Pentane (C_5H_{12})			
85 17 36	0.75% (50% LEL) C_5H_{12}/Air	FCG31000	103
37	0.75% C_5H_{12}, 15% O_2/N_2	FCG31005	34
38	0.75% C_5H_{12}, 15% O_2/N_2	FCG31010	103
Propane (C_3H_8)			
85 17 39	0.55% (25% LEL) C_3H_8/Air	FCG32000	103
40	1.1% (50% LEL) C_3H_8/Air	FCG32005	103
Zero Air			
85 17 41	20.8% O_2/N_2	FCG29015	103
Regulators			
85 17 42	For use with 34 ltr steel cylinder	FCG00713	-
43	For use with 34 ltr, 58 ltr Aluminium cylinder and 103 ltr steel cylinder	FCG00715	-

4 Gas Mixtures for Calibration from Fastcalgas

Unit Per Btl.

CODE	Composed of				Fastcalgas No.	Cylinder Size Ltr
	Methane (CH_4)	Hydrogen Sulfide (H_2S)	Carbon Monoxide (CO)	Oxygen / Nitrogen (O_2/N_2)		
85 17 46	1.45%	10 ppm	-	15%	FCG21000	58
47	1.45%	10 ppm	300 ppm	15%	FCG21005	58
48	1.45%	20 ppm	60 ppm	15%	FCG21020	58
49	2.2%	25 ppm	100 ppm	18%	FCG21045	34
50	2.2%	40 ppm	100 ppm	15%	FCG21055	34
85 17 51	2.5%	10 ppm	50 ppm	18%	FCG21010	58
52	2.5%	15 ppm	100 ppm	18%	FCG21015	58
53	2.5%	25 ppm	50 ppm	12%	FCG21030	58
54	2.5%	25 ppm	50 ppm	20.9%	FCG21035	58
55	2.5%	25 ppm	100 ppm	18%	FCG21050	58
85 17 56	2.5%	40 ppm	100 ppm	15%	FCG21060	34
57	Iso-butane ($I\text{-}C_4H_{10}$) 0.9%	25 ppm	50 ppm	12%	FCG21025	34
58	Propane (C_3H_8) 1.1%	25 ppm	100 ppm	19%	FCG21040	58

Refillable Span Gases

Gases span recargables
再充填式スパンガス　可充装跨度气体



A wide range of larger & higher pressure calibration gas cylinders for longer use on board and cost saving. Also, custom gas mixture is available upon request.

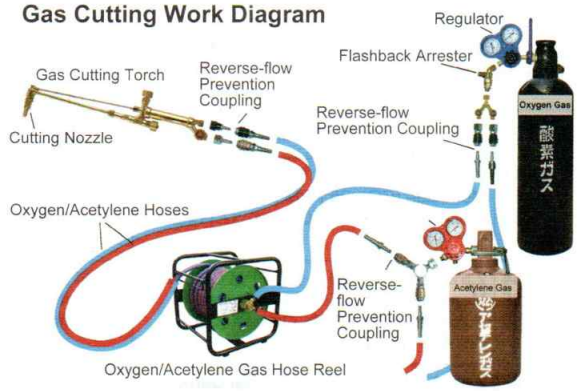
Cylinder Specifications

Cylinder Capacity	Diameter (mm)	Length (mm)	Material	Tare Weight (kg)	Max Working Pressure (PSI)
2.8L	111	413	Aluminium	3.57	2,015
3.4L	140	340	Steel	6.5	2,175
5L	200	680	Aluminium	6.0	2,175
10L	178	570	Steel	15.5	2,015
10L	175	584	Aluminium	9.4	2,175

Unit Per Can

CODE	Description of Gas	Capacity of Cylinder
85 17 61 62	0.9% (50%LEL) Butane Balance Air	in 3.4 ltr can in 10 ltr can
85 17 63 64	2.5 % (50%LEL) Methane Balance Air	in 3.4 ltr can in 10 ltr can
85 17 79	3.25% Methane Balance Nitrogen	in 10 ltr can
85 17 80	35% Methane Balance Nitrogen	in 10 ltr can
85 17 65 66	Pure Nitrogen, 99.9995%	in 3.4 ltr can in 10 ltr can
85 17 67 68	Oxygen Balance Nitrogen, 1.0%	in 3.4 ltr can in 10 ltr can
85 17 69 70	Oxygen Balance Nitrogen, 1.5%	in 3.4 ltr can in 10 ltr can
85 17 71 72	Oxygen Balance Nitrogen, 2%	in 3.4 ltr can in 10 ltr can
85 17 73 74	0.7% (35% LEL) Propane Balance Air	in 3.4 ltr can in 10 ltr can
85 17 75 76	1.1% (50% LEL) Propane Balance Air	in 3.4 ltr can in 10 ltr can
85 17 77	1.1% (50% LEL) Propane, 20 ppm Hydrogen Sulphide Balance Nitrogen	in 5 ltr can

Gas Cutting Work Diagram



Oxygen & Acetylene Gas Cylinder Regulators

Reguladores de Oxigeno y Acetileno
酸素及アセチレン調整器　氧气及乙炔调节器

Single stage with easy to read 60 mm gauges. For general welding and cutting, these regulators feature greater flow and accuracy, more economy, simple repairs and greater safety.

Oxygen regulators have two types of male and female inlet threads.



Oxygen Regulator with Male Thread



Oxygen Regulator with Female Thread



Acetylene Regulator

How to order: CODE

Regulator, KIND of GAS, INLET THREAD mm

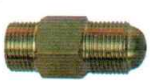
Unit Per Pc.

CODE	For	Gauges (kgf/cm²)		Delivery Pressure kgf/cm²	Flow Capacity Nm^3/h	Inlet Thread mm
		HP	LP			
85 01 91	Oxygen	250	25	10	72	22.8×14 Male
92	Oxygen	25	25	10	72	22 ×14 Female
93	Acetylene	25	1.9	0.7	9	Clamp

Adapters for Gas Cylinder Regulator

Adaptadores para regulador de bombona de gas
ガスシリンダレギュレータ用アダプタ　气瓶调节器适配器

Adapters are also available to connect flashback arresters or couplings in case the threads are not matched with gas cylinder regulators. Mainly used for oxygen cylinder regulators.



Nipple



Socket

85 01 90	Nipple for gas regulator, 22.8 x 14mm, male	Pc.
94	Socket for gas regulator, 22 x 14mm, female	

There are different sizes of Oxygen and Acetylene Hose connecting nipples for the various regulators, cutting and welding torches manufactured in the world, so please pay attention to this matter when ordering.

Flashback Arresters for Gas Cylinder Regulators

Supresor de retroceso de llama para reguladores de cilindros de gas
ガス調整器用逆火防止器　燃气调节阀用回火防止器

To be installed on Oxygen and Acetylene regulators for arresting the flashback.


For Oxygen


For Acetylene

Unit Per Pc.

CODE	85 03 11	85 03 12
For	Oxygen	Acetylene
Model	G-1	G-2
Flow Rate	25 m^3/h	2 m^3/h
Inlet Thread	M16×1.5 (Right) with nut	M16×1.5(Left) with nut
Outlet Thread	M16×1.5(Right) plug thread	M16×1.5(Left) plug thread
Overall Length	90 mm	
Weight	250 grm	

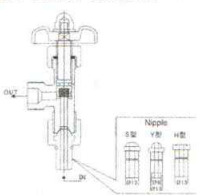
Valves for Gas Outlet Station

Válvulas para equipo de salida de gas
ガス集合装置取出しバルブ　气体集合装置排气阀

Valves for oxygen and acetylene gas outlet station.


For Oxygen


For Acetylene



Unit Per Pc.

CODE	Inlet Connection Type	Inlet Connection Thread	Outlet Thread Size Size	Direction of Plug Thread
For Oxygen				
85 05 01	S	M18×1.5	3/4-16 UNF	Right
02			M16×1.5	
85 05 03	Y	PF3/8	3/4-16 UNF	Right
04			M16×1.5	
85 05 05	H	M18×1.5	3/4-16 UNF	Right
06			M16×1.5	
For Acetylene				
85 05 07	S	M18×1.5	3/4-16 UNF	Left
08			M16×1.5	
85 05 09	Y	PF3/8	3/4-16 UNF	Left
10			M16×1.5	
85 05 11	H	M18×1.5	3/4-16 UNF	Left
12			M16×1.5	

Gas Welding Torches

with Nozzle Set

Sopletes de Soldandura Autógena　ガス溶接器　气体焊枪和喷嘴全套

These welding torches, operate on medium or low pressured acetylene gas, are ideal for all welding and heating applications.


WT-05


WT-00


WT-02


WT-04

Unit Per Set

CODE	Model	Welding Thickness Capacity mm	Overall Length mm	Weight grm	Nos. of Nozzle
85 02 01	WT-05	Up to 2.5	250	500	5 pcs.
02	WT-00	Up to 0.5	280	350	4 pcs.
03	WT-02	1.5 - 6.0	375	530	7 pcs.
04	WT-04	0.5 - 45.0	625	780	7 pcs.

There are different sizes of Oxygen and Acetylene Hose connecting nipples for the various regulators, cutting and welding torches manufactured in the world, so please pay attention to this matter when ordering.

Gas Welding Torch Spare Nozzles

Boquillas de Repuesto para Soplete de Soldaudura Autógena
ガス溶接用火口　气焊枪备用喷嘴

Various types and sizes of interchangeable spare nozzles for respective models are available.



How to order: CODE

Spare nozzle for gas welding torch, NOZZLE NO., for MODEL NO.

Unit Per Pc.

CODE	Nozzle No.	For Model No.	Thickness of Weldment Capacity mm
85 02 11	25		Under 0.5
12	50		0.5 - 1.5
13	75	3	1.5 - 2.0
14	100		2.0 - 2.5
15	150		2.5 - 4.0
85 02 16	50		Under 0.5
17	70		0.5 - 1.0
18	100	S	0.5 - 1.0
19	140		1.0 - 1.5
20	200		1.5 - 2.0
85 02 21	200		1.5 - 2.0
22	225		2.0 - 2.5
23	250		2.0 - 2.5
24	315	M	2.5 - 3.5
25	400		3.5 - 4.0
26	450		4.0 - 5.0
27	500		5.0 - 7.0
85 02 28	1		0.5 - 1.0
29	2		1.0 - 2.0
30	3	A1	2.0 - 3.0
31	5		3.0 - 4.0
32	7		4.0 - 7.0
85 02 33	10		7 - 15
34	13		7 - 15
35	16	A2	10 - 20
36	20		15 - 25
37	25		20 - 30
85 02 38	1,200		7 - 15
39	1,500		10 - 20
40	2,000		15 - 25
41	2,500	L	20 - 30
42	3,000		25 - 35
43	3,500		40 - 40
44	4,000		35 - 45

Gas Cutting Torches

Sopletes de gas　ガス切断器　气体割枪

Standard combination torches which operate on medium or low pressured acetylene gas and are designed for economy safety and convenience.


CT-01


CT-01K


CT-02


CT-02K

Unit Per Set

CODE	Model No.	Angle	Cutting Thickness Capacity mm	Overall Length mm	Weight grm	Nos. of Nozzle
85 02 51	CT-01	90°	1 - 30	450	625	3 pcs
53	CT-01K	45°	1 - 30	450	650	3 pcs
85 02 52	CT-02	90°	1 - 100	500	795	3 pcs
54	CT-02K	45°	1 - 100	500	785	3 pcs

There are different sizes of Oxygen and Acetylene Hose connecting nipples for the various regulators, cutting and welding torches manufactured in the world, so please pay attention to this matter when ordering.

Gas Cutting Torch Spare Nozzles

Boquilla de Repuesto para Soplete de Oxicorte
ガス切断用火口　焊枪喷口

3 numbers of interchangeable spare nozzles for each model are available.



How to order: CODE
Spare nozzle for gas cutting torch, for MODEL NO., NOZZLE NO.

Unit Per Pc.

CODE	For Model No.	Nozzle No.	Cutting Capacity mm	CODE	For Model No.	Nozzle No.	Cutting Capacity mm
85 02 61		1	1- 5	**85 02 64**		1	1- 10
62	1	2	5-15	**65**	2	2	10- 50
63		3	15-30	**66**		3	50-100

Gas Welding & Cutting Torches

With Nozzle Set

Soplete de gas para soldadura y corte
ガス溶接・切断両用器　气焊及气割两用器

For welding and cutting purpose with a single torch.


CTW-M


CTW-A

Unit Per Set

CODE	**85 02 71**	**85 02 72**
Model	CTW-M	CTW-A
Welding / Cutting Thickness mm	W : 2 – 6 C : 1 – 30	W: 2.5 – 12 C: 1 – 100
Overall Length mm	490	530
Weight grm	770	1,080
Nos. of Nozzles (Standard accessories)	W : 200/225/250/ 315/400/450/ 500, C : 1/2/3	W : 250/315/400/ 500/630/800/ 1000, C : 1/2/3

Nozzle Cleaners

Escariador　火口掃除器　喷嘴清通针

For cleaning holes of welding torch nozzles. Made of stainless steel, sizes from 0.5 mm to 1.4 mm, 8 pcs/set.



85 02 80	Nozzle cleaner, 8 pcs/set	Set

Welders' Gas Lighters

Ecendedores de Gas para Soldadura
ガス溶接用ライター　焊枪点火器

Pistol and friction types are available.


Pistol Type


Friction Type

85 02 85	Welders' gas lighter, pistol type	Pc.
86	Welders' gas lighter, friction type	Pc.

Spare Flints for Gas Lighter

Pedernales de Repuesto para encendedor de Gas
ガス溶接ライター用発火石
气体打火机备用火石

Two kinds for use, both pistol type and friction type are available.


For Pistol Type


For Friction Type

CODE	For	Packed in	Unit
85 02 88	Pistol Type	-	Pc.
89	Friction Type	10s	Pkt

Rubber Oxygen Hose

Molded & Braided Construction

Manguera de Goma para Oxigeno　酸素ホース　橡胶氧气软管

For oxygen welding equipment. Lightweight, extremely flexible and practically non-kinkable. Furnished in blue colour to distinguish oxygen lines from acetylene lines.



Unit Per Mtr.

CODE	Nom. Size mm	Actura Size mm		Braid	Working Pressure kgf/cm²	Mtr Per Coil
		I.D.	O.D.			
35 01 16	6	6.5	15.5	2B	15	200
17	8	7.9	16.5	2B	15	200
18	9	9.5	18.0	2B	15	200

Rubber Acetylene Hose

Molded & Braided Construction

Manguera de Goma para Acetileno　アセチレンホース　橡胶乙炔软管

For acetylene welding equipment. Lightweight, extremely flexible and practically non-kinkable. Furnished in red colour to be distinguished as an acetylene line.



Unit Per Mtr.

CODE	Nom. Size mm	Actura Size mm		Braid	Working Pressure kgf/cm²	Mtr Per Coil
		I.D.	O.D.			
35 01 21	6	6.5	13.5	1B	3	200
22	8	7.9	15.5	1B	3	200
23	9	9.5	16.5	1B	3	200

Rubber Twin Welding Hose

Molded & Braided Construction

Manguera Bitubo OX-AC　溶接用ツインホース　橡皮气焊管

One piece, two line welding hose, securely joined together to prevent tangling and increase flexibility. One line is red and the other is blue



to facilitate the welding operation. Usually supplied in 100 mtr coils. This hose is lightweight and easy to move about, reducing operator fatigue to a minimum.

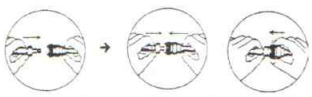
Unit Per Mtr.

CODE	Nom. Size mm	Actura Size mm				Braid	W/P Kgf/cm²	
		OX		AC				
		I.D.	O.D.	I.D.	O.D.		OX	AC
35 01 26	6 × 9	6.8	13.8	9.5	16.3	1	20	5
27	8 × 8	7.9	14.9	7.9	14.7	1	20	5
28	8 × 9	7.9	14.9	9.5	16.3	1	20	5

Automatic Reverse-flow Prevention Couplings

Acoples Automáticos Antirretorno

自動逆流防止継手　自动防回流接头（插座）



These couplings are fitted to the outlet pipe, connecting hose, and the welding/cutting machine and outfit, removing possible risks accompanying the gas welding/cutting operation and making preparation and maintenance of the welding/cutting machines easy.

Further, each type is specially designed for oxygen or fuel gas so as to prevent mistakes.

A spring-loaded locking method is used, fitting or removal is a single action, which minimizes hose damage and makes maintenance easy.

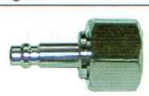
For Hose to Hose Connections

Gas	Size	Socket, Hose End	Plug, Hose End
Oxygen	1/4" Hose End	 AV-1	 AP-1
Acetylene	3/8" Hose End	 AV-2	 AP-2

For Gauge to Hose Connections

Gas	Size	Socket, Female Thread	Plug, Hose End
Oxygen	M16× P1.5 & 1/4" Hose End	 GV-1	 AP-1
Acetylene	M16× P1.5 & 3/8" Hose End	 GV-2	 AP-2

For Welding Machine/Cutting Machine to Hose Connections

Gas	Size	Socket, Hose End	Plug, Female Thread
Oxygen	1/4" Hose End & M16× P1.5	 AV-1	 OP-1
Acetylene	3/8" Hose End & M16× P1.5	 AV-2	 OP-2

How to order: CODE

SOCKET or PLUG, MODEL NO.

Unit Per Pc.

CODE	Model	Type	Size	Gas
85 03 01	AV-1	Socket	1/4" Hose End	OX
02	AP-1	Plug	1/4" Hose End	OX
03	GV-1	Socket	M16 x P1.5 Female Thread	OX
04	OP-1	Plug	M16 x P1.5 Female Thread	OX
85 03 06	AV-2	Socket	3/8" Hose End	AC
07	AP-2	Plug	3/8" Hose End	AC
08	GV-2	Socket	M16 x P1.5 Female Thread	AC
09	OP-2	Plug	M16 x P1.5 Female Thread	AC

Quick Couplers

for Welding Equipment Piping

Acoplamiento Rápido para Tubería del Equipo de Soldadura

溶断機器配管用クイックカップラー　焊接备用快速联接器

Especially for welding equipment piping with excellent durability and corrosion resistance. All piping connections from cylinder to torch can be associated with welding equipment by one-touch operations. Body is chrome plated for better corrosion resistance, and plug is hardened for better durability. Oxygen and fuel gas fittings are different sizes and sleeves are given different colours, chrome plating for oxygen and copper plating for fuel gas, to prevent accidental interconnection. No oxygen types (1/4" and 5/16") can be connected to fuel gas types (5/16" and 3/8"). However, respective types of the connection, oxygen plugs and sockets are interchangeable and fuel gas plugs and sockets are interchangeable.

Specification

Body Material	Socket: Brass (Chrome-plated), Plug: Steel (Chrome-plated)
Size	1/4", 5/16", 3/8"
Working Pressure MPa (kgf/cm²)	0.7 (7)
Pressure Resistance MPa (kgf/cm²)	1.0 (10)
Packing Material	NBR (Nitrile Butadiene Rubber)
Working Temperature Range	-20°C - +80°C

Max. Tightening Torque

Product Code	S22PF, S22SF S33PF, S33SF	S22SM	S33SM
Torque N•m (kgf•cm)	12 (122)	9 (92)	1 (112)

Hose End Plugs and Sockets



Unit Per Pc.

CODE	Part No.	Usage for	Application	Weight grm
Plugs				
85 03 61	S22PH	Oxygen	1/4", 5/16" hose	17
62	S33PH	Fuel gas	5/16", 3/8" hose	22
Sockets				
85 03 63	S22SH	Oxygen	1/4", 5/16" hose	50
64	S33SH	Fuel gas	5/16", 3/8" hose	73

Small Diameter Hose End Plugs and Sockets



Unit Per Pc.

CODE	Part No.	Usage for	Application	Weight grm
Plugs				
85 03 65	S225PH	Oxygen	5mm I.D. hose	12
66	S335PH	Fuel gas	5mm I.D. hose	15
Sockets				
85 03 67	S225SH	Oxygen	5mm I.D. hose	54
68	S335SH	Fuel gas	5mm I.D. hose	65

Female Threaded End Plugs and Sockets



Unit Per Pc.

CODE	Part No.	Usage for	Application	Weight grm
Plugs (For Torch Connection)				
85 03 71	S22PF	Oxygen torch	M16 × 1.5	35
72	S33PF	Fuel gas torch	M16 × 1.5 left	32
Sockets (For Cylinder Connection)				
85 03 73	S225SH	Oxygen gauge	M16 × 1.5	74
74	S335SH	Fuel gas gauge	M16 × 1.5 left	97

Flared Hose End Plugs and Sockets



Unit Per Pc.

CODE	Part No.	Usage for	Application	Weight grm
Plugs				
85 03 75	S22PN	Oxygen	5mm I.D. × 11mm hose	54
76	S33PN	Fuel gas	5mm I.D. × 11mm hose	57
Sockets				
85 03 77	S22SN	Oxygen	5mm I.D. × 11mm hose	74
78	S33SN	Fuel gas	5mm I.D. × 11mm hose	91

Male Threaded End Sockets



Unit Per Pc.

CODE	Part No.	Usage for	Application	Weight grm
Sockets				
85 03 81	S22SM	Oxygen	Rc 1/4 (PT 1/4)	58
82	S33SM	Fuel gas	Rc 3/8 (PT 3/8)	85

Charging Adapters

for Refrigerant Gas Cylinder Valve

Adaptadores de recarga para válvula de gas refrigerante
フロンガスバルブ用チャージングアダプター
氟利昂气罐阀用充气器

Valve adapter for refrigerant gas cylinder valve.



Unit Per Pc.

CODE	Connection to Cylinder	Connection to Hose	For Refrigerant Gas
85 03 15 16	W26-14 teeth	1/4 Flare 3/8 Flare	R-22
85 03 17	W26-14 teeth	1/4 Flare	HFC-134a, R-404A and R-407C

Refrigerant Gas Charging Hoses

Magueras para Carga de Gas Refrigerante
フレオンガスチャージホース　冷冻气补充软管

Flexible rubber lines with threaded quick coupling for charging refrigerant gas.
Colour coded for easy identification.



Unit Per Lgh.

CODE	Colour	Fitting Size	Length	For Gas
85 03 21 22	Red	1/4"	92 cm 150 cm	R-22
85 03 23 24		3/8"	92 cm 150 cm	
85 03 25 26	Yellow	1/4"	92 cm 150 cm	
85 03 27 28		3/8"	92 cm 150 cm	
85 03 31 32	Blue	1/4"	92 cm 150 cm	
85 03 33 34		3/8"	92 cm 150 cm	
85 03 36 37	Red	1/4"	92 cm 150 cm	HFC-134a R-404A R-407C
85 03 38 39	Yellow	1/4"	92 cm 150 cm	
40 41		3/8"	92 cm 150 cm	
85 03 42 43	Blue	1/4"	92 cm 150 cm	

Gauge Manifolds

Múltiples con indicadores　ゲージマニフォールド　歧管压力表

Two way standard manifold for refrigerant gas with bourdon type gauges and hook.



Component:

For R-22	For HFC-134a, R-404A, R-407C
One each Charging hose 92 cm (Red/Yellow/Blue)	One each Charging hose 92 cm (Red/Yellow/Blue)
One each Charging hose 150 cm (Red/Yellow/Blue)	One each Charging hose 150 cm (Red/Yellow/Blue)
One of Pressure gauge -0.1 – 3.5 MPa	One of Pressure gauge -0.1 – 3.8 MPa
One of Compound gauge -0.1 – 1.5 MPa	One of Compound gauge -0.1 – 1.8 MPa

Unit Per Set

CODE	For Refrigerant gas	Connection Port
85 03 45	R-22	1/4 Flare
46	HFC-134a, R-404A, R-407C	

Gas Welding Rods

Varillas para Soldaudura Autógena　ガス溶接棒　气焊条

Uncoated gas welding rod of high quality. Each rod is made for a specific use and its quality and uniformity are constantly checked when manufactured.



How to order: CODE
Gas welding rod, KIND of MATERIAL, DIAM mm

Unit Per Kgs.

CODE	Diam. mm	Length mm	CODE	Diam. mm	Length mm
			Mild Steel		
85 04 01	1.2	1,000	**85 04 05**	3.2	1,000
02	1.6		**06**	4.0	
03	2.0		**07**	5.0	
04	2.6				
			Copper and Copper Alloy (Brass)		
85 04 11	1.2	1,000	**85 04 15**	3.2	1,000
12	1.6		**16**	4.0	
13	2.0		**17**	5.0	
14	2.6				
			Cast Iron		
85 04 25	4.0	1,000	**85 04 27**	6.0	1,000
26	5.0				
			Silver 18%		
85 04 28	1.6	500	**85 04 30**	3.2	500
29	2.0				
			Silver 30%		
85 04 34	1.6	500	**85 04 38**	3.2	500
35	2.0				
			Silver 50%		
85 04 39	1.6	500	**85 04 41**	3.2	500
40	2.0				

Coated Brass Brazing Filler Metal

Varilla para Soldar, Latón Recubierta　被覆黄銅ろう付棒　铜焊条

This is a machine coated, wire drawn brass rod, made from special elements. These coated filler rods have the advantages of low flaming, fine deposits, increased tensile strength, easy and speedy operations.



Characteristic of Deposit Metal

Tensile Strength for All Deposit	36 - 43 kgf/cm²
Elongation (7d)	24 - 32%
Impact Strength	5-6 kgf/cm²
Hardness	90 - 95 HB
Sticking Strength on Steel	30 - 40 kgf/cm²
Sticking Strength on	Equal or up to Mother Metal

Applications:

Repair of cast iron assemblies, welding of dissimilar metals (steel and iron, copper and brass, iron and copper, etc.) assembly of steel plate and steel sheets.

Unit Per Pkt.

CODE	Rod Diam. mm	Rod Length mm	Number of rod per Package	Weight Per Package
85 04 51	2.0	1,000	177	5 Kg
52	2.6		107	
53	3.0		80	
54	4.0		46	
55	5.0		30	

Flux Coated Silver Solder

Varilla para Soldar, Plata Recubierta　フラックス付銀ろう　银焊条



Flux coated silver brazing type alloy for joining all ferrous and copper metals, stainless steel, nickel and its alloys, steel castings, malleable and cast iron, tungsten carbides, etc. Suitable for most close-fitting joint designs, rapid application with minimum joint preparation. It is cadmium free, has high fluidity with good capillary flow.

Specifications

Main Component	Ag (30%), Cu, Zn, Sn
Melting Temp. C	620° - 650°
Tensile Strength	60 kg/mm²
Hardness	B 95
Wire Length	450 mm
Package	500 grm/pkt

Unit Per Pkt.

CODE	Diam. mm	Length mm	Weight Per Package
85 04 61	1.6	450	500 grm
62	2.0		
63	2.4		

Welding Fluxes

Fundentes para Soldadura Autógena　ガス溶接剤　气焊粉

Several kinds of fluxes are available and the standard ones are listed below. They are all used for gas welding.

Unit Per Can

CODE	Purpose	Content
85 04 81	For Cast Iron Welding	1 kg
82	For Copper Welding	1 kg
83	For Brass Welding	1 kg
85 04 85	For Dissimilar Metal Soldering	1 kg
85 04 86	For Aluminium Welding	0.1 kg
87	For Silver Soldering	0.4 kg

Electrodes

Electrodos　電気溶接棒　电焊条（低碳钢）



A wide variety of brands from different manufacturers are available. Popular brands are listed below. When ordering, please specify brand and size.

If you wish to order electrodes from a specific manufacturer, please refer to the comparison table listing major international manufacturers and products types on page 85-16 ~ 18.

How to order: CODE

Electrode, APPLICATION, BRAND, SIZE mm, WEIGHT

Nittetsu Products

Unit Per Pkt

CODE	Brand	Size mm D	Size mm L	Kg per Packet	Features
			For Mild Steel		
85 06 01	A-200	2.6	350	5.0	Ilmenite type electrode for all positions welding of mild steel. Flat and horizontal fillet welding assures extraordinary bead appearance.
02	B-1	3.2	350		
03		4.0	400		
04		4.5	450		
05		5.0	450		
06		6.0	450		
85 06 11	G-300	2.6	300	5.0	Ilmenite type electrode for all positions and has good operational characteristics and weldability. Vertical upward welding is especially easy.
12		3.2	400		
13		4.0	450		
14		4.5	450		
15		5.0	450		
16		6.0	450		
17		7.0	450		
18		8.0	450		
85 06 21	NS-03Hi	2.0	300	5.0	Lime-titania type electrode assuring high efficiency in welding complicated structure of thin and medium thick plates. It produces a small amount of fumes and is highly resistant to moisture absorption.
22		2.6	350		
23		3.2	350		
24		4.0	450		
25		5.0	450		
26		6.0	450		

(to be continued)

Unit Per Pkt

CODE	Brand	Size mm D	Size mm L	Kg per Packet	Features
85 06 31	S-03Z	2.0	300	5.0	Lime-titania type electrode for all positions, containing a large amount of iron powder in the coating. It can promote efficiency in welding general structures and light gauges.
32		2.6	350		
33		3.2	350		
34		4.0	400		
35		5.0	450		
36		6.0	450		
85 06 51	S-13Z	2.0	300	5.0	High rutile type electrode which gives beautiful bead appearance with shallow penetration. Arc is calm, spatter is minimal and slag is easy to remove. Vertical downward welding is possible with small diameter electrodes.
52		2.6	350		
53		3.2	350		
54		4.0	400		
55		5.0	400		
56		6.0	450		
85 06 61	FT-51	2.0	250	2.5	High rutile type electrode which gives beautiful bead with shallow penetration. Small diameter electrodes assure easy operation in vertical downward welding. It is especially suitable for weldings sheet steels.
62		2.6	300		
63		3.2	350	5.0	
64		4.0	400		
65		5.0	400		
66		6.0	400		
85 06 71	16	2.6	300	5.0	Low hydrogen type electrode for all positions. The deposited metal from this electrode shows higher crack resistance, elongation and ductility than the other electrodes for mild steel.
72		3.2	400		
73		4.0	450		
74		5.0	450		
75		6.0	450		
76		8.0	450		
85 06 81	16V	3.2	400	5.0	Low hydrogen type electrode for vertical downward butt and fillet welding of mild steel. The deposited metal from this electrode shows high crack-resistability as well as excellent mechanical properties.
82		4.0	450		
83		4.5	450		
84		5.0	450		
85		5.5	450		
86		6.0	450		
For High Tensile Strength Steel					
85 07 01	L-55	2.6	300	5.0	Low hydrogen type electrode designed for all positions welding of 50-55 kg/mm^2 high tensile strength steel. The deposited metal contains less hydrogen, and shows high crack resistance as well as excellent mechanical properties. X-ray quality and notch-toughness.
02		3.2	400		
03		4.0	450		
04		5.0	450		
05		6.0	450		
06		7.0	450		
07		8.0	450		
For Weathering Steel					
85 07 21	CT-16Cr	2.6	300	5.0	Low hydrogen type electrode for welding 50 kg/ mm2 high tensile weathering steel in all positions.
22		3.2	350		
23		4.0	400		
24		5.0	400		
25		6.0	450		
For Cast Iron					
85 07 31	C-1N	3.2	340	2.0	Graphite type electrode with pure nickel core wire for welding cast iron. Weld metal is not so hard and is easy to machine.
32		4.0	380		
33		5.0	380		
85 07 36	C-5N	3.2	350	2.0	Graphite type electrode for welding cast iron. Since Fe-Ni composite wire is used for the core wire, operational characteristics do not change even in high current.
37		4.0	350		
38		5.0	350		
For Stainless Steel					
85 07 41	309-R	2.0	250	2.5	Lime-titania type electrode which gives the deposited metal of 25%Cr-12%Ni. It has excellent crack resistibility especially in the welding of dissimilar metals such as stainless steel to mild steel.
42		2.6	300		
43		3.2	350		
44		4.0	350	5.0	
45		5.0	350		
85 07 51	309-M-R	2.6	300	2.5	Lime-titania type electrode which gives the deposited metal of 25%Cr-12%Ni-2% Mo. It has excellent crack resistance especially in the welding of dissimilar metals such as stainless steel to mild steel.
52		3.2	350		
53		4.0	350		
54		5.0	350	5.0	
85 07 61	310-R	2.0	250	2.5	Lime-titania type electrode which gives the deposited metal of 25% Cr-20% Ni. The deposited metal has perfect austenite structure and shows better corrosion resistance and oxidation resistance than the one from 25% Cr- 12% Ni type electrode.
62		2.6	300		
63		3.2	350		
64		4.0	350		
65		5.0	350	5.0	
85 07 71	316-L-R	2.0	250	2.5	Lime-titania type electrode which gives the deposited metal of 18% Cr-12% Ni-2% MO. It has excellent resistance to intercrystalline corrosion in the as-welded condition.
72		2.6	300		
73		3.2	350		
74		4.0	350	5.0	
75		5.0	350		
For Heat Resistant Steel					
85 07 91	N-0S	2.6	300	5.0	Low hydrogen type 0.5% Mo electrode for welding C - Mo steel to be used in temperatures up to 500oC.
92		3.2	350		
93		4.0	400		
94		5.0	400		
95		6.0	400		
85 08 01	N-1S	2.6	300	5.0	Low hydrogen type 1.25% Cr-0.5% Mo electrode for welding 1-1.5%Cr-0.5% Mo steel to be used in high temperatures around 550oC.
02		3.2	350		
03		4.0	400		
04		5.0	400		
05		6.0	400		
85 08 11	N-2S	2.6	300	5.0	Low hydrogen type 2.25% Cr-1% Mo electrode for welding 2.25% Cr-1% Mo steel to be used in high temperatures around 600oC.
12		3.2	350		
13		4.0	400		
14		5.0	400		
15		6.0	400		
For Hardfacing					
85 08 21	H-Mcr	4.0	350	5.0	Low hydrogen type electrode for building up and hardsurfacing of steel parts subjected to high temperature abrasion and heavy impact abrasion.
22		5.0			
23		6.0			
85 08 26	H-350C	4.0	400	5.0	Low hydrogen type electrode for building up and hardsurfacing of steel parts subjected to light metal-to-metal abrasion.
27		5.0	400		
28		6.0	450		
29		7.0	450		
85 08 31	H-13M	4.0	400	5.0	Low hydrogen type electrode for building up and hardsurfacing of steel parts subjected to abrasion accompanied with severe impact.
32		5.0			
33		6.0			
For Nickel, Nickel-Alloys and Nickel-Alloy Steels					
85 08 36	Yawata Weld 182AC	2.6	300	2.5	Excellent crack-resistance due to much amount of Mn content in the deposited metal makes the electrode suitable for welding of extremely thick plates and for hardfacing of plates for use in nuclear power plants,etc.
37		3.2	300		
38		4.0	350	5.0	
39		5.0	350		

(to be continued)

Kobe Steel Products (Shinko)

Unit Per Pkt

CODE	Brand	Size mm D	Size mm L	Kg per Packet	Features
For Mild Steel (Shielded Metal Arc Welding)					
85 13 01	Familiark Z-44	2.0	300	2.0	Low fume type electrode for welding of mild steel used for vehicles, light gauge structures and buildings.
02 03 04		2.6 3.2 4.0	350 350 450	5.0	
For All-position Welding of General Structures					
85 13 05 06 07	B-10	2.6 3.2 4.0	350 350 400	5.0	Ilmenite type covered electrode for butt or fillet welding in all positions for thin or thicker plate (1.6 to 20mm).
For All-position Welding of Heavy-duty Structures					
85 13 11 12 13	B-14	2.6 3.2 4.0	350 400 450	5.0	Ilmenite type covered electrode for butt or fillet welding in all positions for thin or thicker plate(1.6 to 20mm).
85 13 15 16 17	B-17	2.6 3.2 4.0	350 350 400	5.0	Ilmenite type covered electrode. Structural steels with heavy sections up to about 25mm can be welded.
For Welding of Steel Sheets and Light Structures					
85 13 21	B-33	2.0	300	2.0	High titania type covered electrode, suitable for in flat or horizontal fillet welding.
22 23 24		2.6 3.2 4.0	350 350 400	5.0	
85 13 25	RB-26	1.6 2.0	250 300	2.0	High titania type covered electrode, suitable for vertical downward welding with the diameters up to 5.0mm.
26 27 28 29		2.6 3.2 4.0	350 350 400	5.0	
For Welding of Heavy-duty Structures and Heavy Plates					
85 13 31	LB-26	2.0	300	2.0	Low hydrogen type covered electrode containing iron powder. The welding in all positions can be easily done.
32 33 34		2.6 3.2 4.0	350 350 400	5.0	
For Vertical Downward Welding					
85 13 35 36	LB -26V	3.2 4.0	400 450	5.0	Low hydrogen type covered electrode for use in vertical downward position for ships.
For Welding of 50kgf/mm2 High Tensile Steel					
85 13 41 42 43	LB-52	2.6 3.2 4.0	350 350 400	5.0	Most widely used low hydrogen type covered electrode for all-position welding.
For Welding of General Mild Steel					
85 13 52 53 54	TB-24	2.6 3.2 4.0	350 350 400	5.0	Lime-titania type electrode, and excellent in all-position welding, particularly in vertical and overhead positions.
For Welding of Mild Steel					
85 13 55 56 57	TBI -24	2.6 3.2 4.0	350 350 400	5.0	Iron powder lime-titania type electrode for mild steel.
For Welding of Cast Iron					
85 13 61 62	CIA-1	3.2 4.0	300 350	2.0	Covered electrode with graphite type coating flux and pure nickel core rod.
85 13 65 66 67	CIA-2	2.6 3.2 4.0	300 300 350	2.0	Covered electrode with graphite type coating flux and 55% Ni-Fe alloy core rod.
For Stainless Steel (SUS-304)					
85 13 71 72	NC-38	2.0 2.6	250 300	2.0	Lime-titania type electrodes, especially excellent with better crack resistibility.
73 74		3.2 4.0	350 350	5.0	
For Stainless Steel (SUS-309S)					
85 13 75 76	NC-39	2.0 2.6	250 300	2.0	Lime-titania type electrodes, providing good corrosion resistibility and good heat resistibility.
77 78		3.2 4.0	350 350	5.0	
For Stainless Steel (SUS-310S)					
85 13 82 83	NC-30	2.6 3.2	250 300	2.0	Excellent in heat resistance, corrosion resistance and mechanical properties due to stable full-austenitic microstructure.
84		4.0	350	5.0	
For Stainless Steel (SUS-316L)					
85 13 85 86	NC -36L	2.0 2.6	250 300	2.0	Lime-titania type electrodes and the intergranular corrosion resistibility is superior due to lower carbon content.
87 88		3.2 4.0	350 350	5.0	
For Welding of 1.25%Cr-0.5%Mo Steel					
85 13 91 92 93	CMA -96	2.6 3.2 4.0	300 350 400	5.0	Low hydrogen type electrodes for all-position welding and the alloy elements are supplied from the core rod.
For Mild Steel and 50 kgf/mm² HT Steel (Tig Welding)					
85 14 01 02 03 04	Familiark TG -S50	1.6 2.0 2.4 3.2	1,000	5.0	For welding of mild steel, 50 kgf/mm² high tensile steel, and alminium-killed steel for low temperature use.
For Stainless Steel (Tig Welding)					
85 14 05 06 07 08	TGS -308	1.6 2.0 2.4 3.2	1,000	5.0	For welding of 18%Cr-8%Ni stainless steel (SUS-304).

(to be continued)

Atlantic Products

Unit Per Pkt

CODE	Brand	Size mm D	Size mm L	Kg per Packet	Features
For Mild Steel					
85 16 01 02 03	CHE 422	2.5 3.2 4.0	300 350 350	5 kg/ pkt	Titanium calcium carbon steel electrode, alternating current /direct-current, can be used to weld common carbon steel structure and low-intensity alloy steel.
85 16 05 06 07 08 09	CHE 506	2.5 3.2 4.0 5.0 5.8	300 350 400 400 400	5 kg/ pkt	Low Hydro-potassium coating electrode, with good plasticity, toughness and crack resistance, can be used to weld carbon steel and low-intensity alloy steel, marine steel (grade A, B, D, E), main structures of cars, buildings and bridges.
For 50 kgf/mm² High Tensile Strength Steel					
85 16 11 12 13 14	CHE 508	2.5 3.2 4.0 5.0	300 350 400 400	5 kg/ pkt	Iron powder low hydro-potassium coating electrode, alternating current / direct-current, with good plasticity, toughness and crack resistance, can be used to weld carbon steel and low-intensity alloy steel, important structures in marine steel (grade A, B, D, E).

(to be continued)

Unit Per Pkt

CODE	Brand	Size mm D	Size mm L	Kg per Packet	Features
For Atmospheric Corrosion Resisting Steel					
85 16 15 **16** **17**	CHE 506 NiLH	3.2 4.0 5.0	350 400 400	5 kg/ pkt	Ultra-low Hydro-potassium coating low-intensity alloy steel electrode, alternating current / direct-current, can be used to weld important production platforms, ships and high pressure vessels in carbon steel and low alloy steel.
For Cast Steel					
85 16 21 **22** **23**	CHC 308	2.5 3.2 4.0	290 340 340	1 kg/ pkt	Pure nickel core welding-wire graphite coating cast iron electrode, alternating current / direct-current, can be used to weld thin cast iron units such as cylinder heads, engine bearer gear cases.
85 16 25 **26** **27**	CHC 408	2.5 3.2 4.0	290 340 340	1 kg/ pkt	Ferro-nickel core welding-wire strong reducing property graphite coating cast iron electrode, with high strength, good plasticity and low coefficient of linear expansion, can be used weld high strength cast irons such as cylinders, engine bearers, gears.
For Stainless Steel					
85 16 31 **32** **33** **34** **35**	CHS 312	2.0 2.5 3.2 4.0 5.0	300 300 350 400 400	2 kg/ pkt	Titanium calcium stainless steel electrode, containing molybdenum, with good corrosion resistance, crack resistance, resistance to oxidation, alternating current/ direct-current, can be used to weld s.s. containers.
85 16 36 **37** **38** **39** **40**	CHS 402	2.0 2.5 3.2 4.0 5.0	250 250 300 350 350	2 kg/ pkt	Titanium calcium austenitic stainless steel electrode, has good resistance to oxidation in 900-1,100°C high temperature, alternating current / direct-current, can be used to weld resist heat stainless steel.
85 16 41 **42** **43** **44** **45**	CHS 022 (022R)	2.0 2.5 3.2 4.0 5.0	300 300 350 400 400	2 kg/ pkt	Titanium calcium ultra-low carbon stainless steel electrode, carbon content≤0.04%, with good corrosion resistance, crack resistance, heat resistance, alternating current /direct-current, can be used to weld area , synthetic fibre and stainless steel.
85 16 46 **47** **48** **49**	CHH 308	2.5 3.2 4.0 5.0	300 350 400 400	5 kg/ pkt	Iron powder Low Hydro-potassium low alloy electrode, alternating current/ direct-current, can be used to weld low alloy steel in 1% chromium and 0.5% molybdenum below 510°C.
For Hardfacing					
85 16 51 **52**	CHS 29.9	4.0 5.0	400 400	2 kg/ pkt	Titanium calcium stainless steel electrode, containing 40% iron, alternating current/ direct-current, can be used to weld high carbon steel, tool steel and heterogeneity metal.

(to be continued)

CODE	Brand	Size mm D	Size mm L	Kg per Packet	Features
For Nickel, Nickel-alloy and Nickel-alloy Steel					
85 16 55 **56**	CHN 337	3.2 4.0	300 350	2 kg/ pkt	Low Hydr-Ni70Cr15 heat resisting alloy electrode, containing a little manganese niobium alloy element, having good crack resistance, reversed polarity direct current, can be use to weld nickel-base alloy, heterogeneity steel.

Storage Containers

for Welding Rod

Recipientes para guardar varillas para soldadura
溶接棒用筒型コンテナ　焊条保管筒



A waterproof yellow coloured storage containers for welding rods of 350 mm or 450 mm with carrying strap. A diamond shape to prevent the canister from rolling off a work surface. The cap is sealed with a pressure fitted O-ring to prevent intrusion of moisture and contaminants.

Unit Per Pc.

CODE	Rod Length mm	CODE	Rod Length mm
85 16 57	350	**85 16 58**	450

Ovens for Welding Rod

Hornos para varillas para soldadura
溶接棒乾燥用オーブン　焊条烘干箱



Type 2　Type 5

A portable ovens ensure electrodes remain moisture-free in the field and meet welding code requirements. The ovens include a thermostat to adjust oven temperature in line with electrode requirements. The Type 5 is available with wheels and a pull handle or with carry handles.

- Storage capacity for 14" or 18" electrodes.
- Rod elevator for quick removal of electrodes.
- Adjustable thermostat provides temperature (from 38-149°C) control in the field.
- Safety Yellow colour increases field visibility.
- New 120/240V dual volt heating elements.

Standards :
EN60335-1:1994 (A1 and A2 and A11 through A16 included)
EN60335-2-45:96; I EC60335-1,A2:99 (EN60335-1,A2:00)
EN55014-1/02.97+A1/1997+A2/1999
EN61000-3-2/04.95+A104.98+A14/2000
EN61000-3-3/01.95
Protection class I - IPX 0

Unit Per Set

CODE	Type	Storage Capacity
85 16 59	2	10 kg
60	5	25 kg

Electrode Conversion Table

Products from a few manufacturers are listed in the next page for your reference. If there is some question as to what types are most suitable, please ask for further information or brochures from the local manufacturers when ordering.

When ordering electrodes, the following information will be required:

1. The composition on the metals to be connected.
2. The type of joints being welded.
3. The position of welding.
4. The type of welding power source available.
5. The requirements of the welded joint, strength, appearance, corrosion resistance, the way the weld assembly will be used.
6. The types and, to some extent, the sizes of electrodes.
7. CODE NO.
8. Type
9. Manufacturer's name and product type.
10. Required quantity in kg.

CODE	Type	Wilhelmsen Ships Service (Norway)	Drew Marine (U.S.A)	Marichem-Marigases (Greece)	Shinko (Japan)	Nittetsu (Japan)	Atlantic (China)
For Mild Steel (For All Positions)							
85 09 01	Ilmenite	GPO-302N (AWS A5.1: E6013) EN-ISO 2560-A: E38ORC11 DNV-GL:2 LR:2 BV:2 ABS:2	AMERARC EO (Note: this is a E6012 electrode not 6013, and the Wilhemsen GPO is the same)-	MGPO (AWS: E6013 (DIN: E4321R3 EN: E35AR12	**85 13 05 - 07** B-10(JIS Z-3211 E4319) (AWS A5.1 E6019)	**85 06 01** A-200(JIS Z-3211 E4319) (AWS A5.1 E6019)	**85 16 01 – 03** CHE422
					85 13 11 - 13 B-14(JIS Z-3211 E4319) (AWS A5.1 E6019)	**85 06 02 - 06** B-1(JIS Z-3211 E4319) (AWS A5.1 E6019)	-
					85 13 15 - 17 B-17(JIS Z-3211 E4319)	**85 06 11 - 18** G-300(JIS Z-3211 E4319) (AWS A5.1 E6019)	-
85 09 05	High Rutile	GPO-302N (AWS A5.1: E6013) EN-ISO 2560-A: E38ORC11 DNV-GL:2 LR:2 BV:2 ABS:2	AMERARC ER PLUS (AWS A5.1 E6013) (DIN E51 21 RR3) (ISO E51 2 RR32) (BS E213) Note: we do not use ER Plus any longer	MGPO (AWS: E6013 (DIN: E4321R3 EN: E35AR12	**85 13 21 - 24** B-33(JIS Z-3211 E4313) (AWS A5.1 E6013)	**85 06 51 - 56** S-13Z(JIS Z-3211 E4313) (AWS A5.1 E6013)	-
					85 13 25 - 29 RB-26(JIS Z-3211 E4313) (AWS A5.1 E6013)	**85 06 61 - 66** FT-51(JIS Z-3211 E4313) (AWS A5.1 E6013)	-
85 09 11	Low Hydrogen	LH-314N (AWS E-7018) EN-ISO 2560-A: E 42 4 B 42 H5 DNV-GL: 3YH5 LR: 3YH5 BV: 3, 3YH5 ABS: 3YH5, 3Y	Amerarc EO	MSPECIAL (AWS: E7016) (DIN: E5143 B (R) 10) (EN: E38 B12 H10)	**85 13 31 - 34** LB-26(JIS Z-3211 E4316) (AWS A5.1 E7016)	**85 06 71 - 76** Nittetsu-16 (JIS Z-3211 E4316U) (AWS A5.1 E7016)	**85 16 05 – 09** CHE506
For 50 kgf/ cm² High Tensile Strength Steel							
85 09 15	Low Hydrogen and All Positions	LH-314N (AWS E-7018) EN-ISO 2560-A: E 42 4 B 42 H5 DNV-GL: 3YH5 LR: 3YH5 BV: 3, 3YH5 ABS: 3YH5, 3Y	AMERARC LH PLUS (AWS A5.1 E7018-1) (DIN E51 43B10) (ISO E51 4B 120 26H) (BS E614HJ) Note: we do not use LH Plus any longer	MLH (AWS: E7018) (DIN: E51 55 B10) (EN: E42 6 B42 H10)	**85 13 41 - 43** LB-52 (JIS Z-3211 E4916) (AWS A5.1 E7016)	**85 07 01 - 07** L-55 (JIS Z-3211 E4916U) (AWS A5.1 E7016)	**85 16 11 – 14** CHE508
For Atmospheric Corrosion Resisting Steel							
85 09 21	Low Hydrogen and All Positions	LHR-320N (AWS A5.5: E-8018-G) EN-ISO2560-A: E46 5 Z B 32 DNV-GL: 3YH10 LR: 3YH15 BV: 3YH10 ABS: 3YH10	-	MLHR-	LB-W52B (JIS Z-3214 E49J16-NCC A U H15)	**85 07 21 – 25** CT-16Cr (AWS A5.5 E7016G)	**85 16 15 – 17** CHE506NiLH
For Low Temperature Service Steel							
85 09 25	Low Hydrogen	LHL-319N (AWS A5.5: E-8018-C1) EN-ISO 2560-A: E46 6 2 Ni B 32 H5 DNV:5Y46H5 LR:5Y42H5 BV:5Y 40M H5ABS:3Y400H5	AMERARC LV PLUS (AWS E-7048) (DIN E51 54 B9) (ISO E51 5B56H10) (BS E51 55B 110 16H)	MLHL (AWS: E8018-C1) (DIN: E SY42 87 2 Ni B H5) (EN: E46 6 2Ni B 42 H5)	NB-1 (JIS Z-3211 E5516-GAP) (AWS A5.5 E8016G)	-	-

(to be continued)

CODE	Type	Wilhelmsen Ships Service (Norway)	Drew Marine (U.S.A)	Marichem-Marigases (Greece)	Shinko (Japan)	Nittetsu (Japan)	Atlantic (China)
For Cast Steel							
85 09 31		NICKEL-333 (AWS A5.15: E Ni-CL) NIFE-334N (AWS A5.15: E NiFe CL-A)	AMERARC NI99 (AWS A5.15:ENi-CI) (DIN Eni-BG1) AMERARC NI60 (AWS A5.15:Eni-CI) (DIN ENiFe BG-1)	MINICKEL (AWS: E Ni-CL) (DIN: E Ni BG 22)	**85 13 61 - 62** CIA-1 (JIS Z-3252 EC Ni-CI) (AWS A5.15 ENi-CI) **85 13 65 - 67** CIA-2 (JIS Z-3252 EC Nife-CI) (AWS A5.15 ENiFe-CI)	**85 07 31 - 33** C-IN (AWS A5.15 ENi-CI)	**85 16 21 - 23** CHC308 **85 16 25 – 27** CHC408
For Stainless Steel							
85 09 35	22% Cr -12%Ni	23/14-322N (AWS A5.4 E309Mol-17) EN-ISO 3581-A: E 23 12 2 LR 32 DNV:VL309Mo LR:S/CMn BV:309Mo ABS: SS/CMn	AMERARC SSMO (AWS E309 Mo-16) (DIN E22143n CR26)	MSSM 23/14V (AWS: E309Mo-16) (DIN: E 2313 2 LR 23) (EN: E23 12 2 LR 12)	**85 13 75 - 78** NC-39 (JIS Z-3221 ES309-16) (AWS A5.4 E309-16)	**85 07 41 - 45** 309-R (JIS Z-3221 ES309-16) (AWS A5.4 E309-16)	**85 16 31 - 35** CHS312
85 09 41	25%Cr -20%Ni	TENSILE-328N (30% Cr – 10.5%Ni) (AWS A5.5: E 312-17) (EN-ISO 3581-A: E 29 9 R 32) (EN 14700: E Fe 11)	AMERARC TE (29% Cr - 10% Ni) (AWS A5.4 E312-16) (DIN E29 9 MPR 36 170)	MTEN0SILE**	**85 13 82 - 84** NC-30 (JIS Z-3221 ES310-16) (AWS A5.4 E310-16)	**85 07 61 – 65** 310-R (AWS A5.4 E310-16)	**85 16 36 - 40** CHS402
For Stainless Steel							
85 09 45	18% Cr-12% Ni-2% Mo	18/8-321N (AWS-A5.4 E316L-17) EN-ISO 3581-A: E 19 12 3 LR 12) DNV-GL:V316L LR:316L BV: 316L ABS: E 316L 17	AMERARC ST (19% Cr - 12% Ni - 2.3% Mo) (AWS A5.4 E316L-16) (DIN E19 12 3n CR26) (BS 19 12 3L)	MSSM 18/8V (AWS: E316L-16) (DIN: E19123LR26) (EN: E19.12.3LR32)	**85 13 85 - 88** NC-36L (JIS Z-3221 ES316L-16) (AWS A5.4 E316L- 16)	**85 07 71 - 75** 316 L.R (JIS Z-3221 ES316L-16) (AWS A5.4 E316L-16)	**85 16 41 - 45** CHS022 (022R)
For Heat Resisting Steel (Low Hydrogen Type)							
85 09 51	1.25% Cr-05%Mo	LHT-318N (AWS A5.5: E 8018-B2) (EN 1599: E CrMo 1B 42 H5) DNV-GL: H5 BV:1%Cr 0.5%Mo, H5 ABS: SR	AMERARC CRMO (AWS A5.5 E8018-B2)	MLHT (AWS: E8018-B2) (DIN E CrMo1B20)	**85 13 91 - 93** CMA-96 (JIS Z-3223 E5516-1CM) (AWS A5.5 E8016-B2)	**85 08 01 - 05** N-1S (AWS A5.5 E8016-B2)	**85 16 46 - 49** CHH308
85 09 55	5%Cr-0.5% Mo	-	-	-	CM-5 (JIS Z-3223 E5516-5CM) (AWS A5.5E8016-B6)	N-55 (AWS A5.5 E8016-B6)	-
For Hardfacing							
85 09 61		TENSILE-328N IMAPCT-329S WEARMAX-327	AMERARC HF38 AMERARC HF60	MTENSILE (AWS E312-16) (DIN: E 29 9 R 26) (EN: E 29 9 R 12)	HF-350 (JIS Z-3251 DF 2A-400-B)	**85 08 26 - 29** H-350C	**85 16 51 - 52** CHS29.9
For Nickel, Nickel-Alloy and Nickel-Alloy Steel							
85 09 65		EXATON Ni60 (AWS A5.11: ENiCrMo-3) (EN ISO 14172: E Ni 6625 (NiCr22Mo9Nb)	-	-	NIC-703D (JIS Z-3224 ENi6182) (AWS A5.11 ENiCrFe-3)	**85 08 36 - 39** Yamata Weld 182AC (AWS A5.11 ENiCrFe-3)	**85 16 55 - 56** CHN337

Remark: When ordering the products which are not from Shinko, Nittetsu or Atlantic, please use the code number 85 09 --, which are specified in the left column.

Gouging Electrodes

Electrodos para ahuecar　溝掘り用溶接棒　刨槽用焊条

Made of carbon and have a copper coating. The gouging electrodes are available in a variety of shapes and diameters to meet the various applications.
Power source 380V, DC, compactness 1.57; max. humidity < 0.4%.

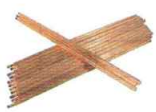
Direct Current Pointed Gouging Electrodes



Unit Per Pc.

CODE	Size (mm/inch)		Ampere
85 09 66	4 x 305	5/32" x 12"	150 – 200
67	5 x 305	3/16" x 12"	200 – 250
68	6.3 x 305	1/4" x 12"	250 – 300
69	8 x 305	5/16" x 12"	350 – 400
70	10 x 305	3/8" x 12"	400 – 450
85 09 71	13 x 305	1/2" x 12"	600 – 700
72	13 x 355	1/2" x 14"	600 – 700

Direct Current Jointed Gouging Electrodes



For intensive applications jointed electrodes are available. These can be put into each other to increase the duty cycle.

Unit Per Pc.

CODE	Size (mm/inch)		Ampere
85 09 73	8 x 355	5/16" x 14"	450
74	10 x 355	3/8" x 14"	500
75	11 x 355	7/16" x 14"	600
76	13 x 355	1/2" x 14"	750
77	15 x 355	5/8" x 14"	1,000
85 09 78	19 x 355	3/4" x 14"	1,300
79	10 x 430	3/8" x 17"	550
80	13 x 430	1/2" x 17"	750
81	16 x 430	5/8" x 17"	1,000
82	19 x 430	3/4" x 17"	1,300

Direct Current Flat Gouging Electrodes



85 09 83	Electrode, DC, flat gouging, 5 x 15 x 305 mm, 300-400 amp.	Pc.

Gouging Torches

Antorchas para ahuecar　くり抜き用トーチ　刨槽用焊枪

The airflow can be regulated on the torch. The adjustable nozzle and the use of high quality materials ensure optimal electric safety and efficiency and maximum airflow. The mono cable can be mounted easily to the torch and the power source. Recommended air pressure is 7 bar.



Unit Per Pc.

CODE	Ampere	Max. Electrode
85 09 84	600	10 mm (3/8")
85	1,600	19 mm (3/4")

Monocables

for Gouging Torch

Monocables para antorchas de ahuecar
くり抜き用トーチ用ケーブル
刨槽焊枪用电缆



Gouging with the support of a monocable is a very efficient and handy way to operate. Both the power and the air are guided through one cable, which allows the gouger to work. Length: 2.35 mtr.

Unit Per Lgh.

CODE	Ampere	Cable Size
85 09 86	600	35 mm²
87	1,600	95 mm²

Gouging Torch & Monocable Sets

Conjunto de antorcha para ahuecar y monocable
くり抜き用トーチ＆ケーブル一体型セット
刨槽焊枪及电缆一体型组件



Complete sets allow you to start gouging immediately and saves the costs of putting the set together. Total length 2.5 mtr.

Unit Per Lgh.

CODE	Ampere	Cable Size
85 09 88	600	35 mm²
89	1,600	95 mm²

Welding Cables

Butyle Rubber Sheathed 1,000V or less-Single Conductor

Cables para Soldadura　溶接用電線　焊接电缆



Welding cable for general use. Cloth or paper wrapped wire sealed in rubber sheath.

Unit Per Mtr.

CODE	mm²	Strand O.D. mm	Cable O.D. mm	Cable Construction mm	Kg Per mtr
79 41 01	22	7.0	11.8	0.45 × 20 × 7	0.31
02	38	9.1	14.5	0.45 × 34 × 7	0.50
03	60	11.7	17.5	0.45 × 20 × 19	0.75
04	100	15.2	21.8	0.45 × 34 × 19	1.23
05	150	18.7	25.9	0.45 × 34 × 27	1.71
79 41 06	200	21.2	29.0	0.45 × 34 × 37	2.30

Welding Cable Connectors

Conectores para Cable de Soldadura
溶接用電線コネクター　焊接电缆接头



Brass bar with interior and exterior covered in watertight rubber. Specially designed for welding cable connections.

Unit Per Pc.

CODE	Ampere	Applicable Cable Size mm	Overall Length mm	Weight grm
79 47 61	300A	38 ~ 50	250	300
62	500A	60 ~ 80	295	510
63	750A	100 ~ 125	275	750
64	1,000A	150 ~ 200	300	950

Electrode Holders

Pinza Portaelectrodo　電気溶接棒ホルダー　焊条夹钳

Closed Head

Cabeza cerrada　差込式ホルダー　插入支架



A high quality closed head electrode holder with optimal insulation and powerful grip on the electrodes. Also be used for overhead welding, and electrodes can be inserted in various manners. Standards : EN 60974-11.

Unit Per Pc.

CODE	Amp	Electrode Size mm	Connection	Cable mm²
85 10 24	300	1.6 - 6.3	1 screw M12	25-70
25	400	2.5 - 8.0	1 screw 9/16"	25-95
26	500	2.5 - 8.0	1 screw 9/16"	25-95
27	600	2.5 - 8.0	2 screws 9/16"	25-95

Open Crocodile Type Head (Grip Type)



Cabeza abierta tipo cocodrilo
(Tipo de agarre)
圧着式ホルダー　开放式鳄鱼头(握把型)

An open crocodile type head electrode holder with many and firm electrode holding insert positions for wide range of welding applications.
Standard: EN 60974-11.

Unit Per Pc.

CODE	Amp	Electrode Size mm	Connection	Cable mm²
85 10 31	200	2.0 - 5.0	-	-
32	300	2.0 - 6.3	1 screw M12	25-70
33	400	2.5 - 8.0	2 screw 9/16"	25-95
34	500	2.5 - 8.0	2 screws 9/16"	25-95

Screw-on Closed Head



Cabeza cerrada atornillable
ねじ込み式ホルダー　螺纹支架

A screw-on closed head electrode holder with extreme tight grip on the electrode, wide range of applications and optimal electric safety (class A for Progress 400).
Standards: EN 60974-11.

Unit Per Pc.

CODE	Amp	Electrode Size mm	Connection	Cable mm²
85 10 28	400	1.6 - 6.3	1 screw 9/16"	25-95
29	600	1.6 - 8.0	1 screw 9/16"	25-95

Turnable Head



Cabezal giratorio
回転式ホルダー　旋转支架

A high quality and simple electrode holder with a turnable head. The slim and smooth appearance allows for welding in the most confined areas. The extreme tight grip on the electrode, the wide range of applications and the optimal electric safety (class A for Victory 400).
Standards: EN 60974-11

Unit Per Pc.

CODE	Amp	Electrode Size mm	Connection	Cable mm²
85 10 30	400	1.6 - 6.3	1 screw 9/16"	25-95
36	600	1.6 - 8.0	1 screw 9/16"	25-95

Electrode Holders

Integrated with Welding Cable



Portaelectrodos integrados con cable de soldadura
溶接ケーブル付き溶接棒ホルダー
附带焊接电缆的焊夹

A closed head type electrode holder 300amp connected with welding cable. Welding cable neoprene HO-1/N2-D.

Unit Per Pc.

CODE	Plug	Cable	Length mtr
85 10 37	SK 25 - 13 mm	25 mm²	5
38	SK 50 - 13 mm	50 mm²	10
39	SK 70 - 13 mm	70 mm²	10
40	SK M25 - 9 mm	25 mm²	5

Earthing Clamps

For arc welding use



Pinza Masa Soldadura
電気溶接機用アースクリップ　接地夹头

Screw-on Type

Screw-on type made of high quality raw materials and components. Excellent cable connection and high quality yellow copper result in an efficient use of power.
Standards: EN 60974-13.

85 10 45	Earth clamp, screw-on type, with rubber, 600 amp, cable 35-95 mm², jaw width 42 mm	Pc.

Spring Type (Grip Type)

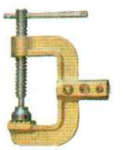


The curved shape of earth clamp ensures optimal contact with the workpiece.
Standards: EN 60974-13.

Unit Per Pc.

CODE	Amp	Jaw Width mm
85 10 46	250	70
41	300	25
42	300	35
47	350	70
48	500	70
85 10 49	600	70

C-clamp Screw Type



C-clamp for extreme applications till 1,000 ampere. With allen screw connection.
Standards: EN 60974-13.

Unit Per Pc.

CODE	Amp	Jaw Width mm
85 10 43	500	70
50	800	85
44	1,000	80

Magnetic Type



Magnetic on 3 sides. Insulated cable connection by means of plastic handle. With allen key cable connection.
Standards: EN 60974-13.

Unit Per Pc.

CODE	Amp	CODE	Amp
85 10 52	200	**85 10 54**	600
53	400		

Earth Clamps

Integrated with Welding Cable

Abrazaderas de contacto a tierra integradas con cable de soldadura
溶接ケーブル付きアースクリップ
附带焊接电缆的接地夹



A spring type earth clamp connected with welding cable. Welding cable neoprene HO-1/N2-D.

Unit Per Pc.

CODE	Clamp	Plug	Cable	Length mtr
85 10 55	Spring	SK 50 - 13 mm	35 mm²	5
56	(Grip)	SKM25 - 9 mm	25 mm²	5
57	Type	SK 50 - 13 mm	50 mm²	5

Arc Welders

Grupo Soldadura de Arco 電気溶接機 电弧焊接机



Shielded metal arc welding (Stick electrode welding) is most broadly used in shipboard maintenance and repair welding.

In welding two pieces of metal together, an electric arc is established the end of the coated electrode and the base metal in the joint.

When the electric arc is struck between the tip of the electrode and the work piece (Base metal), molten droplets from the electrode are transferred to and mixed with the molten metal in the joint. As the arc progresses along the joint the molten weld metal cools and solidities forming a strong, integral bond in the joint.

Arc welder converts shipboard power – usually 220, 380 or 440 volts, alternating currents (AC) to an output in the form of AC (Transformer) or DC (Rectifier) current.
Typical welding currents may range from 30 to 400 amperes at voltage of 22 to 32 volts.

Most electrodes used for shipboard maintenance welding operate at less than 200 amperes. So a current output of 400 amperes will suffice for most carbon arc applications.

The output AC/DC type will be more flexible and better suited to a wide range of conditions.

Please specify the following points when ordering:
1. Type of welder required;
   1) Transformer (AC)
   2) Rectifier (DC)
   3) Transformer/Rectifier (AC/DC)
2. Main supply: Voltage and Frequency
3. Maximum output capacity: Current amperes

85 10 51	Arc welder, type of welder_____, many supply _____ , max. output capacity_____.	Set

Portable Arc Welders

Soldadoras de arco portátiles

ポータブル直流アーク溶接機　便携式弧焊机



Super lightweight and compact inverter DC arc welder. Power correction circuit decreases the input/output conversion loss and minimize the input current. Accurate output current setting with digital display, and stable output with digital control. Available in 110V/220V type.

Unit Per Set

CODE	**85 10 73**	**85 10 74**
Rated Input Voltage	1-110V(1-100V)	1-220V(1-200V)
Rated Input Current	1-110V-36A (1-100V-40A)	1-220V-32A (1-200V-35A)
Rated Frequency	50 / 60 Hz	
Rated Input Power	1-110V-3.6KW 1-100V-3.9KW	1-220V-6.4KW 1-200V-6.4KW
Rated Output Current	100V/125A	200V/200A
Rated Non-load Voltage	66V	
Service Factor	60%	
Welding Rod Diameter	100V / MAX Φ2.6	200V / MAX Φ4.0
Electric Shock Preventive Device	Available (with ON/OFF switch)	
Input Cord	4.0 sq x 2.5 m	
Dimensions	L420 x W135 x H250 mm	
Weight	7 kg	
Accessories	Cable Joint (for main unit) Welding Cable with Electrode Holder (male) Welding Cable with Earthing Clamp (male)	

(to be continued)

Tig Welders

Soldadores TGI　TIG 溶接機　TIG 焊接机



Tig (Tungsten Inert Gas) welding is an arc welding process that uses a non-consumable tungsten electrode to produce the arc, and used for critical weld joints, welding metals, such as aluminium, stainless steel, copper, brass, titanium, nickel, even two dissimilar metals, other than common steel, and where precise, small welds are needed.

Tig welding requires a shielding gas to protect the weld area from the air (typically pure Argon gas), and utilizes a constant current welding power supply to generate an electric arc between the tungsten electrode and the workpiece, using the resultant heat to create the weld. The pulse function is used for giving a more stable arc than not pulsing. This allows for welding thinner metals and high heat conductive metals without burning through.

Unit Per Set

CODE		**85 10 75**	
Model		300P	
Pulse Function		With Pulse	
Input Voltage		1 phase/200 volt	
TIG Arc Activation System		High frequency	
Rated Input Voltage	TIG	28.8 kVA (12.9 kW)	
	Manual Weld	23.8 kVA (15.1 kW)	
Rated Frequency		50/60 Hz	
Duty Cycle		40%	
Maximum Open Circuit Voltage		78 volt	
Starting Voltage (DC TIG)		100 volt	
DC Output Current	TIG	5 – 300 amp	
	Manual Weld	20 – 300 amp	
AC Output Current	TIG	20 – 300 amp	
	Manual Weld	20 – 300 amp	
Rated Load Voltage	TIG	22 volt	
	Manual Weld	32 volt	
Pulse TIG Function	Pulse Time Period	-	0.03 – 1.2 sec.
	Base Time period	-	0.05 – 2.5 sec.
Dimension (W x D x H)		460 x 663 x 859 mm	
Weight		161 kg	

Plasma Cutting Machines

Máquinas de corte por plasma
プラズマ切断機　等离子切割机



The plasma cutting process, as the most cost-effective method of cutting a range of materials, is especially recommended for steel, stainless steel, aluminium or other alloys those are electrically conductive, not easily cut by conventional oxy-acetylene process. The combined effect of a high intensity arc and a hot, high velocity plasma gas results in a very clean, high speed cut including piercing, beveling and gouging.

Please specify if air compressor built-in model is required, when ordering.

Cutting Capacity of Plate Thickness

Rated Output Current	Steel / Stainless Steel	Aluminium	Copper
15 amp	13 mm	1 mm	-
35 amp	10 mm	6 mm	-
55 amp	18 mm	12 mm	-
70 amp	25 mm	20 mm	8 mm
80 amp	30 mm	28 mm	10 mm
120 amp	46 mm	46 mm	20 mm

How to order: 85 - 10 - 76
Air plasma cutting machine, Cutting capacity of plate thickness, Rated output current AMP, Power source VOLTAGE, Air Compressor built-in, or not (Set)

Pipe Clamps for Welding

Abrazaderas de tubo para soldadura
溶接作業用パイプクランプ　焊接作业用管夹



For the optimal positioning of pipes for welding. Made of aluminium or steel. Lightweight and has good grip on pipes with an outside diameter up to 76 mm. For pipe-pipe and pipe-fitting welding.

Unit Per Pc.

CODE	**85 10 62**	**85 10 63**
For Pipe Diameter	25 – 64 mm 1.0 – 2.5"	26 – 76 mm 1.0 – 3"
Material	Aluminium	Steel
Weight kg	0.6	0.75

Metal Holding Magnets

Imanes para la sujeción de metales
金属材料固定用磁石　固定金属材料用磁石



Fixed Angle

The fast & easy way to hold metal workpieces at 45° & 90°. Turn the magnet Off when setting up, turn On when you're ready to work. Fast and safe set-up! Ideal for round and square tubing, angle, and flat stock. Easy to clean. Simply turn Off and wipe.

Unit Per Pc.

CODE	**85 10 64**	**85 10 65**
Type	MSA-46HD	MSA-48HD
Description	Adjust-O™ Magnet Squares (45° & 90°)	Heavy duty large magnet, Adjust-O™ Magnet Squares (45° & 90°)
Max. Pull Force	35 kg	80 kg
Size mm	110 × 95 × 29	153 × 130 × 35
Weight grm	700	1,400

(to be continued)

Mini Handy Set



The handy, take-along magnets in a convenient 6-pack. Large centre holes for easier handling. Two riveted holes for linking magnets together. Useful in light duty applications. For 30°, 45°, 60° and 90° angles.

Type: MS346AK
Size : 60 × 50 × 15 mm

85 10 66	Magnet, handy mini, 6's/pack Type : MS346AK	Pkt

Adjustable Angle



The magnet will make positioning easier, and safer to use, and hold all angles between 25°- 275°. Hold flat and round work pieces.
Max. pull force : 40 kg
Size : 115 × 190 x 38 mm
Weight : 2.4 kg

85 10 67	Magnet, metal holding, adjustable angle, Max. pull force 40 kg	Pc.

Welders Guide Scales

Básculas guía para soldadores　溶接用ガイドスケール　焊接指南秤



A special guiding tool for gas welding and cutting work, guiding to move the torch in a straight line while maintaining nozzle height. High performance permanent magnet holds the guide scale firmly onto the steel plate. Made of stainless steel and available in 3 different sizes.

Unit Per Pc.

CODE	Length (mm)	Width (mm)	Height (mm)	Magnet
85 10 68	250	83	46	1
69	500	83	46	2
70	800	83	46	2

Welding Screens with Frame

Pantallas de soldadura con bastidores
溶接用遮蔽ついたて　焊接防护屏



180 × 80 cm welding screen with frame. Available in orange or green screen colour. The frame comes with wheels.
Standards: DIN EN 1598:2002-04

Unit Per Pc.

CODE	Colour	CODE	Colour
85 10 71	Orange	**85 10 72**	Green

Welders' Chalks

Tiza de Soldador　石筆　石笔



A cut alabaster used for marking cutting lines and angles on welding materials. 3 different shaped chalks are available.

85 11 01	Welders' chalk, round bar 100's	Box
02	Welders' chalk, square bar 100's	Box
03	Welders' chalk, rectangular bar 50's	Box

Welders' Goggles

Gafas Protectoras de Soldador　溶接用遮光眼鏡　焊接用遮光镜

For use in gas welding. One size fits all.



Flip-up



Contour-mould

Unit Per Pr.

Code	Type	Lens Diam.	Remark
85 11 11	Flip-up	45	-
12	Contour-mould	50	w/Side Ventilation

Safety Spectacles

Anti-scratch & Anti-fog

Gafas protectoras, antirayaduras y antivaho

きず防止・くもり防止安全作業用メガネ　防雾防刮擦安全防护眼镜



Available in white and IR (Infrared) colour 5. Lens made from a single piece of polycarbonate which fits almost all contours of the face. Curved model, ergonomic design with adjustable arms. Comfortable glasses with a high protection factor. Weight: 34 grams

Standard: EN166:2001 FT, EN 175

Unit Per Pr.

CODE	85 11 13	85 11 14
Lens Colour	Clear	IR shade 5

Safety Spectacles

with Interchangeable Lenses

Gafas protectoras con lentes intercambiables

レンズ交換式安全作業用メガネ

可换镜片安全防护眼镜



Safety spectacles with different interchangeable lenses, supplied as a set. Set consists of: glasses frame, lenses: white/smoke/amber, clip cord, lens cloth and storage case. Lenses and frame made from reinforced polycarbonate. Lightweight and very comfortable frame with soft rubbers on the arms. Also comes with rubber nose pads that prevent the glasses from slipping off. Fits all contours of the head and face. Weight: 27 grams.

Standards: EN166:2001 FT

85 11 15	Spectacle, safety, with interchangeable lenses	Set

Welding Helmets

Cascos para soldar　溶接用ヘルメット　电焊帽



Helmet with headgear for general welding use. Made of fibre glass, lightweight, and heat-resistant.

85 11 16	Welding helmet with headgear	Pc.

Arc Flash Protective Visors

for Electricians

Visera protectora contra descargas de arco eléctrico para electricistas

電気溶接火花防災面　电焊火花防护面罩



V-Gard Electrician's Visors provide reliable protection from arc flash effects: high temperature, flying debris and powerful radiation. They are certified to the highest European arc flash protection levels by the standards GS-ET-29 [class 2, 7 kA] and EN166 [8]. The impact and splash resistance is certified to EN 166 [B & 3].

Made from a patented injection molded blend of dyes and nano particles in a polycarbonate matrix. They absorb the arc energy layer by layer. This blend of dyes makes the visor look light green but offers the highest visual light transmission available in GS-ET-29 [VLT Class 0] providing maximum light transmittance and color recognition. As moldings they are optically correct, which ensure the best vision and reduced eye fatigue.

Two versions are available:

- Compatible with helmet mounted earmuffs.
- With extended ear protective shape, covering the ears.

Both feature an anti-fog coating for a clear view in challenging situations.

85 11 17	Visor, arc flash protective, compatible with helmet mounted earmuffs	Pc.
85 11 18	Visor, arc flash protective, with extended ear protective shape, covering the ears	

Name of Mfr: MSA The Safety Company

Electrician Kits Premium

EN166 & GS-ET-29 class 2 (7 kA)

Kits de electricista Premium

電気工事キット・プレミアム　高级电工工具包

Ideal set for applications requiring arc flash protection, especially in confined spaces.

- Helmet, V-Gard 520 white with Fas-Trac III ratchet suspension, replaceable.
- Foam sweatband (EN 397 440 V AC and EN 50365, Part of visor testing GS-ET-29 Class 2).
- V-Gard frame (EN 166: 389 BT; Part of visor testing GS-ET-29 Class 2).
- Electrician visor Premium – V-Gard arc flash visor compatible with earmuffs, retractable chin guard (EN166 & GS-ET-29 Class 2, EN166 2C-1.2 1 B 8 - 2 - 0 3).

Unit Per Set

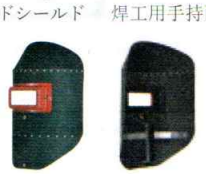
CODE	Description	Part No.
85 11 19	Premium Electrician Kit, EN166 & GS-ET-29 class 2	GV919-0029000-000

Name of Mfr.: MSA The Safety Company

Handshields

Pantallas de mano para Soldar

溶接用ハンドシールド　焊工用手持面罩



Handle Inside



Handle Outside

For general welding use; also for inspectors and occasional use. Made of fibre glass. Inside or outside handles are available.

85 11 21	Handshield, handle inside type	Pc.
22	Handshield, handle outside type	Pc.

Spare Lens/Plates/Glasses

Recmbio de Lentes/Láminas/Cristales
溶接ゴーグル・ヘルメット用替レンズ　　备用镜头 / 板 / 镜片

Spare glass for goggle, helmet and shield of the above. Various shades and sizes are available. When ordering, please specify lens or plate No. and size.





Shade Table

Shade No.	Standard Visible Ray Filter %	Application
4,5,6,7	5.18-0.27	For Gas Welding, Low amperage Arc Welding
8,9	0.100-0.037	For Arc Welding amperage up to 100A
10,11,12	0.0139 - 0.0019	For Arc Welding amperage over 100A up to 300A
13,14	0.00072 - 0.00027	For Arc Welding amperage 300A up to 500A

How to order: CODE

Spare lens, TYPE of LENS, SIZE mm, COLOUR, TONE, for GAS or ARC WELDING

Unit Per Pc.

CODE	Lens Type	Size mm	Colour	Tone or Shade	For
85 11 41	Oblong Plage	105×50×3	Dark Green	No. 8	Arc Welding
42				No. 9	
43				No. 10	
44				No. 11	
45				No. 12	
85 11 46		105×50×2	Clear	-	

Automatic Light-Shielding Plates for welding

Placas automáticas de protección contra la luz para soldadura
溶接用自動遮光プレート　　用于焊接的自动遮光板



An automatic light-shielding plates for welding that protects the eyes from arc light during welding. A sensor detects the arc light and automatically shades the eyes. Compatible with welding helmet, hand shields, semi-automatic welding, TIG welding.

Unit per Pc.

CODE	Size mm (W × H × D)	Shade	Reaction Speed	Return Speed
85 11 47	108 × 51 × 5.5	No. 10	1/2000 (sec)	0.2 (sec)

Welding Jackets and Trousers

Flame Retardant

Chaquetas y pantalones ignífugos para soldar
難燃性溶接作業着　　阻燃焊接工作服



A welding jacket made of lava brown leather with flame retardant impregnated thread, fully stitched with strong and heat-resistant Kevlar

Jackets: With collar and large innerpocket. Fastens left over right side with snap-fasteners. Fastening is reinforced with velcro overlap fasteners.

Trousers: The respective welding trousers are supplied complete with belt.

CODE	Size	CODE	Size
Jackets			Unit Per Pc.
85 11 51	M	**85 11 53**	XL
52	L	**54**	XXL
Trousers w/belt			Unit Per Pr.
85 11 55	M	**85 11 57**	XL
56	L	**58**	XXL

Welders' Gloves

Calibres de Cordones de Soldadura (Galgas)
溶接用手袋　　焊缝尺寸检查用样板

For gas and arc welding. Made of tanned heat resistant leather with gauntlet cuff. Two, three and five finger types are available.



Two Fingers



Three Fingers



Five Fingers

Unit Per Pr.

CODE	**85 11 61**	**85 11 62**	**85 11 63**
Type	2 Fingers	3 Fingers	5 Fingers

Welders' Protective Clothing

Ropa de Protección Soldador　溶接用革製保護具　焊工用保护衣服

Made of chrome leather. Worn for protection when welding.



Sleeves



Apron



Leggings

CODE	Description	Size mm	Unit
85 11 66	Sleeves	210 × 530	Pr.
67	Apron	550 × 1,000	Pc.
68	Leggings	260 × 220	Pr.

Anti Spatter Sprays

Pulverizadores antisalpicaduras
金属粒付着防止スプレー　防止金属颗粒粘着喷雾剂



Prevents welding spatters from sticking to the welding torch or to the workpiece. Contains no harmful or flammable detergents. Offers the perfect solution to stainless steel.
- Resistant up to 1,500°C.
- Ideal for welding torches and automatic machines.

85 11 76	Anti spatter spray, 500 ml	Can

Water-Based Weld Anti-Spatters

Soldadura de base acuosa antisalpicaduras
水性溶接はね防止剤　水焊防飞溅剂



A water-based spatter release agent which gives exceptional results without the use of harmful solvents, silicones or mineral oils.

85 11 77	Weld anti-spatter. water based CRC Ambersil, Bioweld, 400 ml	Tin

Aluminium Backing Tapes

Cintas para embalar de aluminio
アルミニウムバッキングテープ　铝箔胶带



An aluminium backing tape with fiberglass center

Benefits:
- Reduces setup time.
- Eliminates/minimizes need for back purging.
- Reduces post-weld grinding.
- Cuts down on post-weld clean up.
- Increases weld productivity, reduces costs.
- Heat resistant (Adhesive 260°C, Aluminium tape 593°C, Fiberglass strip 550°C).
- For application up to 500/600 Amps.

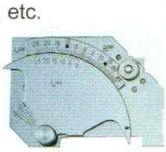
Unit Per Rls.

CODE	**85 11 78**	**85 11 79**
Width × Length	63 mm × 12.5 mtr 2.5" × 41'	102 mm × 12.5 mtr 4" × 41'
Width Weld Backing Tape	28.5 mm 1-1/8"	38 mm 1-1/2"

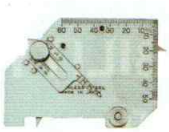
Welding Gauges

Calibres de Cordones de Soldadura (Galgas)　溶接ゲージ　焊接量具

Stainless steel made. Long life use, rust and corrosion resistant. Multi purpose welding gauge for measuring the height of bead, round bar diameter, plate thickness, under cut depth, etc.



Front Side



Reverse Side

85 11 80	Welding gauge, stainles steel	Pc.

Thermomelt Temperature Sticks

Barras indicadoras de temperatura Thermomelt
温度チェックマーカー　温度测试笔



A fast, simple and accurate method to determine an indicated temperature by means of melting stick as soon as reached the required temperature. Available in a range from 50 °C to 700 °C. Low temperatures are used to see whether machinery has the right temperature, higher temperatures are used for welding and pre-heating etc.

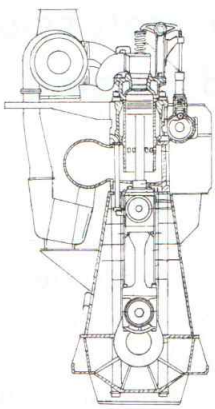
Unit Per Pc.

CODE	Temp.	CODE	Temp.	CODE	Temp.	CODE	Temp.
85 11 81	50°C	**85 11 86**	175°C	**85 11 91**	300°C	**85 11 96**	525°C
82	75°C	**87**	200°C	**92**	350°C	**97**	550°C
83	100°C	**88**	225°C	**93**	400°C	**98**	600°C
84	125°C	**89**	250°C	**94**	450°C	**99**	650°C
85	150°C	**90**	275°C	**95**	500°C	**85 12 00**	700°C

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87
Machinery Equipment

Main Engine Diagrams



P. 87-1 ~ 2

Anti-splashing Tape for Ship's Engine Room



P. 87-2 ~ 3

M/E Scavenging Drain Analysis Onboard Test Kits



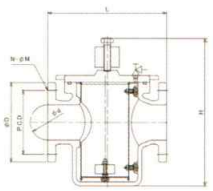
P. 87-3

Ultra High Pressure Product for Main Engine



P. 87-4 ~ 5

Marine Can Water Filters



P. 87-5 ~ 6

DIN Strainers



P. 87-6

DIN Mud Boxes



P. 87-6 ~ 7

Air Vent Heads



P. 87-7~ 8

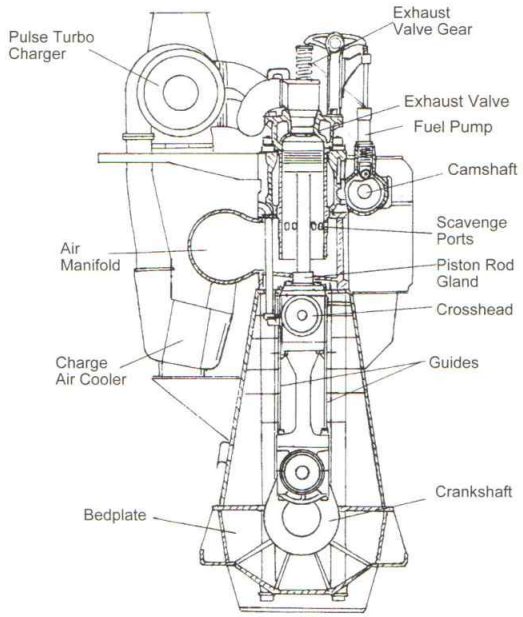
Emergency Shut-off Valves



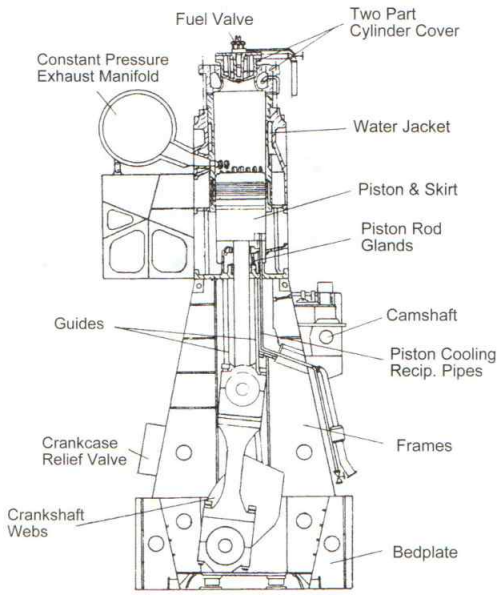
P. 87-9 ~ 11

Main Engine Diagrams

There are various types of main engine with a range of cylinder sizes from various manufacturers in the world. Basically, marine diesel engines can be divided into two main types; Large, slow-running direct drive engines with limited numbers of cylinders (Two-stroke cycle), or Medium to high speed engine driving through reduction gears (Four-stroke cycle).
Below are shown basic cross sections of common two-stroke cycle engines as a reference. Two-stroke engines are commonly used as the main engine for oil tankers, bulk carriers, or container vessels which must carry a large payload. Four-stroke engines are commonly used of car carriers, Ro-Ro vessels and ferries where a low set, medium speed engine is preferable to allow space for additional car deck space or accommodations above the engine room.



MAN – B & W KEF Engine



SULZER RND Engine

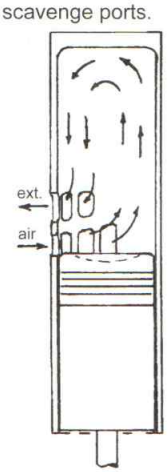
The Basic Method of Scavenging within the Cylinder

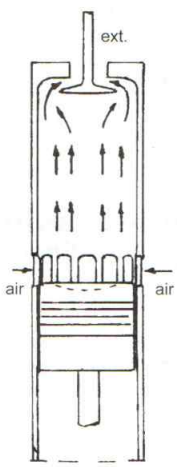
Loop Scavenge:

Air passes over the piston crown and rises to form a loop within the cylinder, expelling gas through exhaust ports cut in the same side of the liner above the scavenge ports.

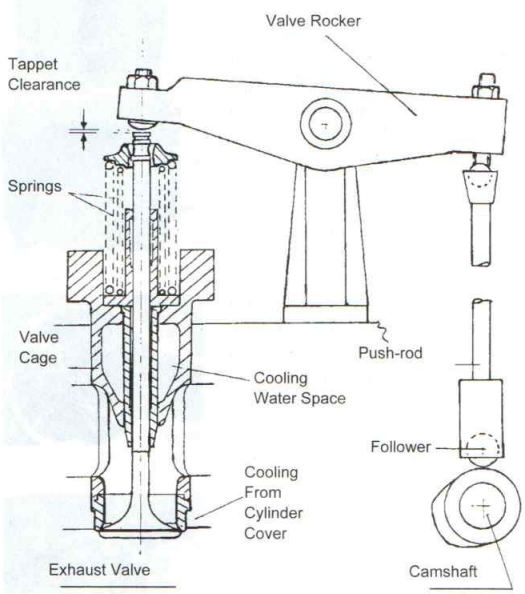
Uniflow Scavenge:

Air passes straight up through the length of the cylinder, forcing the exhaust through ports or valves at the top of the cylinder.





Exhaust Valves and Tappets

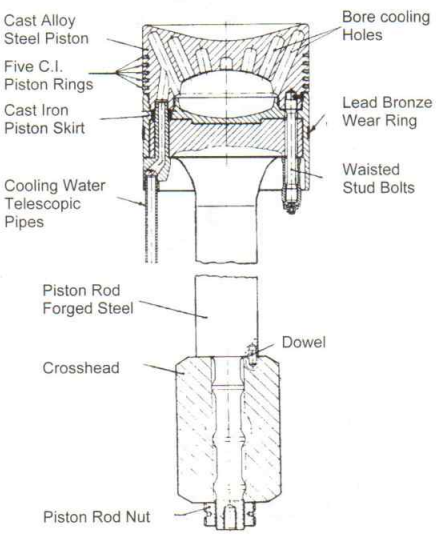


Large Two-stroke Engine Pistons

Cooling of pistons is necessary to remove excess heat from combustion and to limit thermal stressing. It also limits thermal expansion to maintain correct clearances between piston and liner and between ring grooves and rings. Cooling may be carried out by circulating either water or oil.

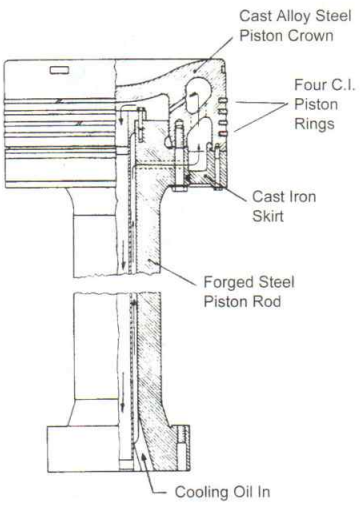
Fresh Water Cooling Piston:

Fresh water cooling has the advantage of greater thermal capacity than oil ; it may also sustain higher outlet temperatures (up to 70°C) improving thermal efficiency. Water cooling has the disadvantage that flexible connections and glands to convey it to and from the piston require maintenance and there is the possibility of crankcase contamination from gland leakage.



Oil Cooling Piston:

Oil cooling has lower thermal capacity and a lower temperature limit (56°C) to prevent carbon or lacquer forming on hot surfaces, with consequent loss in heat transfer or choking of passages.



87

Machinery Equipment

Machinery Part Cleaners

Limpiadores de Piezas de Maquinaria
機械部品洗浄装置　机械零件清洗机

The machinery part cleaner designed for maritime use. It saves man hours because of simple operation and fast cleaning without supervision. The machines are able to accommodate and clean the most common auxiliary engine spare parts, filters, pump parts, tools, cylinder cover, etc.

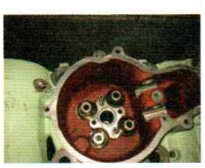


Internal box is made of stainless steel plates and is well isolated in order to reduce the loss of heat and enable the machine to stay heated all day, ready of use. The energy loss at evaporation is reduced considerable as the machine is fitted with a steam reducer in the top, which opens for steam discharge when the machine is started.



Before

The items are placed on the fixed grating which has a carrying capacity up to 1,350 kgs or for smaller items in a special designed basket, made of stainless steel.
The cleaning liquid is heated to the required temperature controlled by the fitted thermostat.



After

Unit Per Set

CODE	87 11 01	87 11 02	87 11 03
Model	201M	203M	204M
Liquid Demand	40 ltr	63 ltr	125 ltr
Power Source Connection*	3x440V-60Hz 3,700 Watt/ 3x380V- 50 Hz*	3x440V-60Hz 6,600 Watt/ 3x380V- 50Hz*	3-x-440V-60Hz 11,000 Watt/ 3x380V- 50Hz*
Max Temperature	25 – 85°C		
Inside Dimensions W×D×H mm	650×600×550	900×600×800	1,240×920×800
Outside Dimensions W×D×H mm	880×700 ×1,200	1,125×700 ×1,430	1,500×1,060 ×1,430
Max. Carrying Capacity kg	300	550	1,350
Weight kg	80	132	200
Name of Mfr.	Marine Technic a/s		

Remark: *please advise by order

Anti-splashing Tapes
for Ship's Engine Room

Cinta de Anti-Sapicadura para Sala de Máquinas
燃料油用飛散防止テープ　防溅帯

For preventing outbreak of a fire caused by a splash of combustible oil, such as fuel oil, lubricating oil, etc. from oil pipes connected to an engine or a generator in a ship's engine room.

Amended SOLAS Reg.4.2.5.3, 4.2.3 and 4.2.4, Chapter II-2 stipulate that oil fuel line shall be screened or otherwise

suitably protected to avoid as far as practicable oil spray or oil leakage onto the source of ignition, hot surfaces, into machinery air intakes, or other sources of ignition.



Piping, valves, pressure gauges, or any other auxiliary parts become loose due to vibration, fatigue, deterioration of material, excess tension, and tend to be damaged with a pinhole or crack.

Covering with this anti-splashing tape to protect the exhaust pipe and other high temperature equipments from being exposed to splashes of combustible oil and preventing possible occurrence of a fire.

The tape consists of aramid woven cloth superimposed with aluminium foil on both sides, and an adhesive agent is applied to one side and covered by a separator film.

The tape can withstand prominent pressure of 1.5 MPa when applied properly.

Specifications

Tensile Strength	318 N per 10 mm width
Ordinary Joint Strength	7 N per 10 mm width
Shear Joint Strength	196 N per 20 mm x 20 mm
Pressure Resistance	Maximum : 3.0 MPa Approved : 1.5 MPa
Heat Resistance	Maximum : 150°C
Oil Resistance	Inactive with respect to heavy oil, light oil, etc.
Weather Resistance	When tested with a weather meter, normal after 72 hours
Approved	Class NK, ABS, BV, CCS, DNV, KR, LR, RINA, UL
Name of Mfr.	Tokyo Nisshin Jabara Co.,Ltd.

* Data on the above table is actual test data, not quarantined data.

Unit Per Rls. Unit Per Sht.

Tape		Sheet	
CODE	Width × Length	CODE	Width × Length
87 18 01	35 mm × 10 mtr	**87 18 07**	250 mm × 10 mtr
02	50 mm × 10 mtr	**05**	500 mm × 10 mtr
08	75 mm × 10 mtr	**06**	1,000 mm × 10 mtr
04	100 mm × 10 mtr		
03	140 mm × 10 mtr		

M/E Scavenging Drain Analysis (SDA) Onboard Test Kits

"Fe-asy Checker 26"

Equipo de pruebas a bordo M/E para análisis de desagüe de eliminación (SDA)
船上簡易全鉄分分析キット　船用简易总铁含量测试分析套件

A highly accurate analysis test kit on board for total iron content in the scavenging drain of diesel-powered main engines.



The colorimetric method enables crew members to take extremely accurate analysis of total iron content by specific wavelength filter for a photoelectric colorimeter and a special mix of two kinds of Reagents (A & B). The result is displayed in parts per million (PPM) value.

Optimizing scavenging drain oil requires careful monitoring of conditions inside the diesel main engine and recently, many instances of low-temperature sulfuric acid corrosion have been reported due to an increase of design pressure inside the cylinders. This analysis kit can measure not only conventional magnetic iron particles, but also the total iron content including iron ions, which lead to earlier detection of abnormalities inside the cylinder.

87 12 01	M/E Scavenging Drain Analysis (SDA) Onboard Test Kit "Fe-asy Checker 26"	Set

Accessories

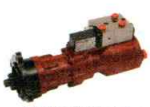
CODE	Product	Product No	Unit
87 12 02	ReAgent A	101	Btl.
87 12 03	ReAgent B	102	Btl.
87 12 04	Lure Lock Syringe, 200's/Pkt	201	Pkt.
87 12 05	Syringe Cap, 200's/Pkt	202	Pkt.
87 12 06	Syringe Filter, 200's/Pkt	203	Pkt.
87 12 07	Disposable Cell, 200's/Pkt	204	Pkt.
87 12 08	Pipet	301	Pc.
87 12 16	Pipet Tip	302	Pc.
87 12 09	Capillary Micro Pipet	401	Set
87 12 10	Universal Top Plate	502	Pc.
87 12 11	Syringe Holder	503	Pc.
87 12 12	Cuvette Rack	701	Set
87 12 13	Vortex Mixer	501	Pc.
87 12 14	Replacement Capillary Tube, 100's/Pkt	402	Pkt.
81 12 15	Absorption Spectrophotometer	601	Set

Engine Starter Motors

Aparatos de arranque para motores
エンジンスターターモーター　发动机用启动马达

Reliable and powerful starter motors for diesel engines and generators. Their independent, dead-ship or black-start capability is ideal as your primary or secondary method of starting fire pumps, emergency generators and compressors. Starters are available from stock from locations around the world. There are three types: Hydraulic, Air (pneumatic), and Spring (mechanical) type.

The starter motor must be specified to match the engine type and configuration so, when ordering, please specify the maker and model of engine and, if available, the original part number of the old starter motor.



Hydraulic Type



Air (Pneumatic) Type



Spring (Mechanical) Type

How to order: CODE

Engine Starter Motor, Hydraulic or Air or Spring Type, Engine Capacity (litres), Engine maker, model and original part number of old starter etc.

Unit Per Set

CODE	Description
87 12 51	Engine Starter Motor, Hydraulic Type
87 12 52	Engine Starter Motor, Air Type
87 12 53	Engine Starter Motor, Spring Type

Ultra High Pressure Products for Main Engine

Productos de ultra alta presión para el motor principal
メインエンジン用超高圧製品　用于主机的超高压产品

General Safety and Warnings for High Pressure Products

These products are mainly used for opening the Cylinder Head for main engine maintenance, loosening very tight bolt & nut. During the maintenance work, hose assemblies may fail abruptly and unexpectedly due to a variety of reasons. Hydraulic oil shooting out at high pressure and/or at high speed can cause serious personal injury and severe damage to objects as well as pollution of the environment.

Example of potential hazards
1. Bursting hose components.
2. Whipping hose ends.
3. Oil spray leakage.
4. Coupling blow off .

Make sure for your safety that:
1. The design and operation of tools and machines complies with the existing safety regulations.
2. Inspect hose assemblies for damage and wear at regular Intervals. The inspection of hose kit should be done under zero pressure.
3. Defective or damage hose assemblies must be replaced immediately.
4. A coupling and a nipple should be connected properly and do not connect with other brand even it is interchangeable.
5. When the leakage is confirmed from the high pressure components, stop using and replace immediately.

When ordering these products, please specify the manufacturer & model of Main Engine, as the original couplings are required for Main Engine.

Hydraulic Couplings

Acoplamientos hidráulicos　油圧カップリング
液压联轴器



Compact design, non-drip, quick connect coupling and nipple that stand up to 250MPa for bolt tensioner and jack application. All exposed components are made of zinc chrome plated steel.

Nominal flow diameter: 2.5 mm (3/32")
Temperature range: -20°C - +80°C (0F - + 175 F)

Unit Per Pc.

CODE	Description	Max. Working Pressure	Connection
87 13 01	Coupling	150 MPa	G1/4" Female with valve
87 13 02	Nipple		G1/4" Female with valve
87 13 03	Nipple		G1/4" Male without valve
87 13 04	Coupling	200 MPa	G1/4" Female with valve
87 13 05	Nipple		G1/4" Female with valve
87 13 06	Nipple		G1/4" Male without valve
87 13 07	Coupling	250 MPa	G1/4" Female with valve
87 13 08	Nipple		G1/4" Female with valve
87 13 09	Coupling		G1/4" Female 90° Connection with valve

Adapters

Adaptadores
超高圧油圧アダプター　适配器



Made of steel, black zinc plating with durable design adapters, suitable for most couplings and hoses.

Unit Per Pc.

CODE	Description	Max. Working Pressure	Connection
87 13 11	Adapter	150 MPa	G1/4" w/60° internal cone x NPT 3/8"
87 13 12	Adapter		G1/4" w/60° internal cone x R3/8"
87 13 13	Adapter		G1/4" w/120° external cone x R1/4"
87 13 14	Adapter	200 MPa	G1/4" w/120° external cone x G1/4" w/120° external cone
87 13 15	Adapter		G1/4" w/60° internal cone x G1/4" w/120° external cone
87 13 16	Adapter		G1/4" w/120° external cone x 3/4-16 UNF w/60° external cone
87 13 17	Elbow Adapter	250 MPa	G1/4" w/120° internal cone female swivel x G1/4" w/120° external cone fixed male thread

Porting Blocks

Portar bloques
超高圧ポーティング・ブロック　舷側块



Made of steel, black zinc plating or stainless steel with durable design porting blocks. Make it possible to utilize/connect several hydraulic lines from a single pump to numerous tools as well as the possibility of connecting a pressure gauge.

Unit Per Pc.

CODE	Description	Max. Working Pressure	Connection
87 13 21	4 way block steel	300 MPa	G1/4" w/120° internal sealing cone female thread
87 13 22	3 way block steel		G1/4" w/120° internal sealing cone female thread
87 13 23	3 way block stainless steel		G1/4" w/120° internal sealing cone female thread
87 13 24	5 way block steel		G1/4" w/120° internal sealing cone female thread

Ultra High Pressure Hoses

Mangueras de ultra alta presión
超高圧ホース　超高压软管



Ultra-high pressure thermoplastic hoses reinforced with high tensile steel wire that gives you extremely high working pressure up to 2,500 bar with maintained flexibility through entire service life. Its low volumetric expansion gives fast response time in hydraulic systems while the smooth inner bores provide a minimized pressure drop. Various kinds of fittings are available upon request.

Unit Per Mtr.

CODE	**87 13 26**	**87 13 27**
Working Pressure	1,800 Bar	2,500 Bar
Inner Core	Polyoxymethylene (POM)	
Outer Cover	Polymide (PA)	
Construction	4 spiral layers of high tensile steel wire	6 spiral layers of high tensile steel wire
Min. burst pressure	4,500 Bar	6,250 Bar
Min. bend radius	130 mm	175 mm

Pressure Gauges for High Pressure Filled with Glycerine



Stainless steel cover with glycerine filled gauges with accuracy of ±1.6% in 63mm gauges and 0-1% in 100mm to 150mm gauges. Both bottom and panel mounted type is available, range of pressure is up to 5,000 bar.

Unit Per Pc.

CODE	Measuring Range (bar)	Dial Size	Connection
65 33 51	0 – 1,000	63	bottom connection G1/4" male
65 33 52		63	panel mounting G1/4" male
65 33 53		100	bottom connection G1/2" male
65 33 54		100	panel mounting G1/2" male
65 33 55		150	bottom connection G/1/2" male
65 33 56	0 – 1,600	100	bottom connection G1/2" male
65 33 57		100	panel mounting G/1/2" male
65 33 58		150	bottom connection G/1/2" male
65 33 59	0 – 2,000	100	bottom connection G1/2" male
65 33 60		150	bottom connection G/12" male
65 33 61	0 – 3,000	100	bottom connection 9/16"-18UNF Female
65 33 62		150	bottom connection 9/16"-18UNF Female
65 33 63	0 – 4,000	100	bottom connection 9/16"-18UNF Female
65 33 64		150	bottom connection 9/16"-18UNF Female
65 33 65	0 – 5,000	100	bottom connection 9/16"-18UNF Female
65 33 66		150	bottom connection 9/16"-18UNF Female

Ultra High Pressure Pumps

Bombas de ultra alta presión　超高圧ポンプ　超高压泵

Air Driven Hydraulic Pumps up to 3,500 Bar



These pumps are air driven explosion-proof type hydraulic pumps that can generate hydraulic pressures up to 3,500 bar. Light weight compact air hydraulic pumps provide easy handling, safe and efficient services with built-in automatic pressure stop function to prevent unexpected accidents. These are suitable for engine maintenance when used with bolt tensioners.

Unit Per Set

CODE	Max. working pressure (Auto stop)	Tank capacity	Displacement per cycle	Weight
87 13 31	1,540Bar (1,060Bar)	3.5 liters	0.43 cc	20 kg
87 13 32	1,540Bar (1,060Bar)	6.5 liters	0.76 cc	24 kg
87 13 33	2,400Bar (1,750Bar)	6.5 liters	4.2 cc	30 kg
87 13 34	3,500Bar (2,500Bar)	8.0 liters	4.2 cc	40 kg

Hand Pumps up to 2,500 Bar



Light weight aluminium body and compact design with two stage hydraulic hand pumps provide easy handling and efficient engine maintenance service. Two stage hydraulic pumps can generate hydraulic pressure up to 2,500 bar.

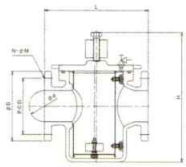
Unit Per Set

CODE	Max. working pressure	Tank capacity	Pump flow capacity	Weight
87 13 36	1,800 Bar	2.2 liters	L 20cc H 0.8cc	8.1 kg (dry)
87 13 37	2,500 Bar	2.2 liters	L 20cc H 0.8cc	8.1 kg (dry)

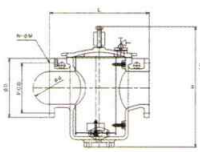
Marine Can Water Filters

Filtros Marinos de agua　筒型水こし　船用筒型水过滤器

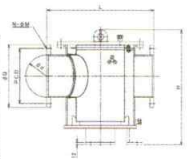
Made of casting steel and used for water pipelines in ship. Complete with inner strainer. Connecting flange size are conform to JIS 5K standard.



25A - 100A



125A - 150A



200A - 800A

Unit Per Set

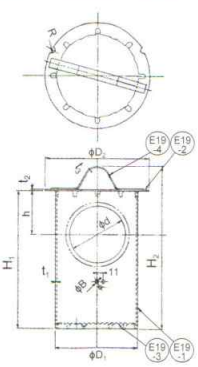
CODE	Nominal Diam. mm	Flange					Total Height mm	Weight kg
		Face to Face mm	Diam. mm	Bolt				
				P.C.D. mm	No.	Diam. mm		
87 20 01	25	170	95	75	4	M10	178	5.80
02	40	190	115	90	4	M12	211	8.2
03	40	190	120	95	4	M12	211	8.4
04	50	200	130	105	4	M12	258	11.4
05	65	250	155	130	4	M12	314	18.5
87 20 06	80	270	180	145	4	M16	335	25.4
07	100	320	200	165	8	M16	391	35.7
08	131	400	235	200	8	M16	480	52.4
09	156	460	265	230	8	M16	573	71.6
10	200	550	320	280	8	M20	600	95
87 20 11	250	680	385	345	12	M20	725	150
12	300	760	430	390	12	M20	820	185
13	350	820	480	435	12	M22	920	245
14	400	880	540	495	16	M22	1,010	290
15	450	1,040	605	555	16	M22	1,230	440
87 20 16	500	1,130	655	605	20	M22	1,320	530
17	550	1,220	720	665	20	M24	1,380	720
18	600	1,310	770	715	20	M24	1,455	830
19	650	1,410	825	770	24	M24	1,514	1,150
20	700	1,500	875	820	24	M24	1,574	1,200
87 20 35	750	1,600	945	880	24	M30	1,630	1,390
36	800	1,700	995	930	24	M30	1,900	1,690

Filter Elements

for Marine Can Water Filter

Repuestos para Filtros Marino

筒型水こし用エレメント　过滤器构成元件



Suitable for use with marine can water filter based on JIS F-7121 specification.

Made of stainless steel with light weight and tough structure.

Unit Per Pc.

CODE	Model	Size mm				Weight kg
		d	D1	D2	H1	
87 20 21	SWSII-FC-S-C-25	33	50	68	109.1	0.17
22	SWSII-FC-S-C-32	47	65	84	137	0.24
23	SWSII-FC-S-C-40	47	65	84	137	0.28
24	SWSII-FC-S-C-50	62	75	94	172	0.28
25	SWSII-FC-S-C-65	78	100	125	218	0.42
87 20 26	SWSII-FC-S-C-80	91	110	140	226	0.69
27	SWSII-FC-S-C-100	116	130	160	282	1.56
28	SWSII-FC-S-C-125	141	162	195	319	1.77
29	SWSII-FC-S-C-150	167	200	235	371	2.19
30	SWSII-SS-S-C-200	217	250	347	350	2
87 20 31	SWSII-SS-S-C-250	269	330	390	505	4
32	SWSII-SS-S-C-300	320	380	440	581	6
33	SWSII-SS-S-C-350	359	420	485	709	8
34	SWSII-SS-S-C-400	410	471	535	755	9.5
37	SWSII-SS-S-C-450	461	562	637	861	14
87 20 38	SWSII-SS-S-C-500	514	625	700	927	18
39	SWSII-SS-S-C-550	566	689	780	980	21
40	SWSII-SS-S-C-600	617	753	845	1,033	25
41	SWSII-SS-S-C-650	667	816	910	1,074	31
42	SWSII-SS-S-C-700	719	882	980	1,134	40
87 20 43	SWSII-SS-S-C-750	770	941	1,040	1,170	47
44	SWSII-SS-S-C-800	820	1,008	1,110	1,482	67

Name of Mfr. : Niikura Kogyo Co., Ltd.

Strainers (DIN)

Single Basket, DIN Flanges PN10/16 Ductile Cast Iron

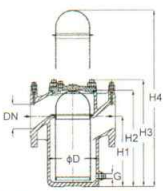
Cedazo Senclo de Hierro Fundido (según DIN)

DIN 型筒型水こし

DIN 型铸铁联接管







Simplex Basket Strainer for general use. Fitted with a fluid drain plug and suitable for use in horizontal pipe lines only. Ductile Cast Iron body with epoxy coating treatment on the surface (internal and external). Maximum differential pressure at 20°C is 1 bar.

Material specification

Component	Material	EN and/or (DIN)
Body and cover	Ductile cast iron	GJS-500-7(GGG-50)
Cover seal	NBR	
Drain plug	Stainless steel	
Material bleed screw	Stainless steel	

How to order: CODE

Strainer (DIN), single basket, Ductile cast iron, DIN flanges PN 10/16, SIZE DN

Unit Per Pc.

CODE	DN	L	D	H1	H2	H3	H4	G	Weight Kg
87 20 52	20	171	81	156	178	220	330		6
53	25	171	81	156	178	220	330		6
54	32	189	102	164	214	250	420	3/8"	15
55	40	189	102	164	214	250	420		15
56	50	189	102	164	214	250	420		15
87 20 57	65	230	127	214	282	315	530		25
58	80	279	168	235	313	350	610		28
59	100	317	176	324	427	465	810	3/8"	42
60	125	379	222	324	452	510	900		55
61	150	461	262	389	540	580	1,090		75
87 20 62	200	605	322	489	694	745	1,340		140
63	250	604	402	605	815	880	1,550	3/8"	195
64	300	719	472	730	974	1,035	1,860		300

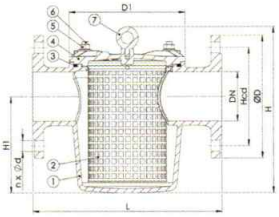
Cast Iron Mud Boxes (DIN)

Basket Type, Raised face flanged according to DIN PN 10

Depósitos de Lodos (según DIN) Tipo Cesta

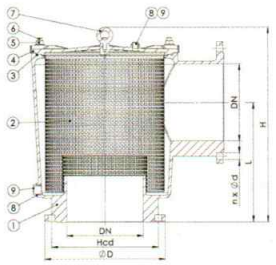
DIN 型マッドボックス　DIN 型铸铁联接网箱





Straight





Angle

Mud boxes are installed in suction pipes aboard vessels to protect pumps against large solids. Straight type, Cast Iron body and bonnet mud box with Stainless Steel strainer. Fitted with bonnet lifting eyebolt. Raised face flanges.

Material Specification

Component	Material	EN and/or DIN
Body	Cast Iron	GG-25
Disk	Stainless Steel	1.4432
O-ring	Rubber	NBR
Bonnet	Cast Iron	GG25

Applications

Fuel oil, Lubricating oil, Flammable hydraulic oil, Sea water, Water.

How to order: CODE

Mud box (DIN), basket type, cast iron, flat flanged according to DIN PN 10, STRAIGHT or ANGLE, SIZE DN

Unit Per Pc.

CODE	DN	Size mm						Weight Kg
		Hcd	D	L	H	D_1	H_1	
87 20 65	40	110	150	200	191	111	95	6.9
66	50	125	165	230	208	136	106	10
67	65	145	185	290	239	172	134	14
68	80	160	200	310	270	190	156	17
69	100	180	220	350	309	350	185	24
87 20 70	125	210	250	400	385	400	229	36
71	150	240	285	480	436	480	268	47
73	200	295	340	600	538	387	335	84
74	250	350	395	600	589	479	355	116
84	300	400	478	600	640	479	380	135

MESON Model No.: 100.1.9.9.1

Angle

Unit Per Pc.

CODE	DN	Size mm						Weight Kg
		Hcd	D	L	H	D_1	H_2	
87 20 75	40	110	150	125	228	136	179	8.9
76	50	125	165	135	241	172	198	12
77	65	145	185	150	265	190	231	15
78	80	160	200	175	297	229	263	21
79	100	180	220	195	347	270	318	27
87 20 80	125	210	250	220	381	302	365	38
81	150	240	285	270	455	387	424	56
83	200	295	340	300	523	479	528	92
85	250	350	395	390	635	479	655	113
86	300	400	478	450	729	639	769	172
87 20 87	350	460	505	400	735	665	862	250

MESON Model No.: 101.1.9.9.1

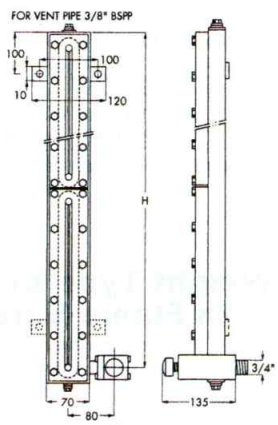
Level Gauges for Oil (DIN)

Reflex Type with Push-Button, Spring to Close According to SOLAS Requirements

Indicador de Nivel de Aceite (según DIN) Tipo Reflex con Pulsaor

DIN 型油用水位計

DIN 型油位计



Especially for oil storage tanks and similar applications. The level gauges are also often used on board of ships.

They meet the requirements of the international classification societies, such as Lloyd, BV, ABS, and DNV.

Available length is between 245 mm and 6,000 mm. Please specify required length when ordering.

Also following types are available if required.

* with the same connection on top including push-button or lever and weight.
* all of stainless steel.
* anti-clockwise to close.

Pressure/Temperature rating : 2 bar – 95°C.

Materials

Part	Material according to DIN	
Body	Steel	St.35
Cover Plate	Stainless Steel	X5CrNi18 10

How to order: 87 - 20 - 91

Level gauge for oil (DIN), reflex type, according to SOLAS requirements, with push-button, spring to close, LENGTH H in mm, TYPE of CLASSIFICATION SOCIETY

Air Vent Heads

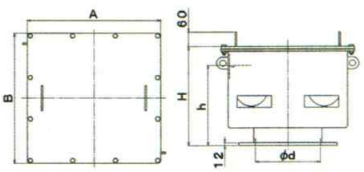
Ventilaciones　空気管頭　通气管头

Auto-closing appliances of ball float. Model No. 53B(W), 53C(W), 53P(W) application of IACS unified requirements P3 are approved by NK, ABS, LRS, DNV and BV. Model No. 53P(W) is approved by NK, and DNV.

Model: 53B (Without screen for ballast water tank)

53B (300 450 mm) Size: 300 to 45





Unit Per Pc.

CODE	Model	Dimensions mm					Wgt Kg
		Φd	A	B	H	h	
87 23 23	53B-300	300	613	633	458	365	120
24	53B-350	350	669	699	492	383	146
25	53B-400	400	719	745	524	410	165
26	53B-450	450	853	903	634	481	248

Name of Mfr.: Niikura Kogyo Co., Ltd.

Model: 53BW (with screen for fuel oil tank, water ballast tank next to cargo oil tank)

Unit Per Pc.

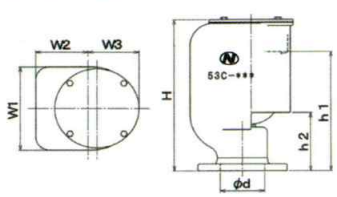
CODE	Model	Dimensions mm					Wgt Kg
		Φd	A	B	H	h	
87 23 29	53BW-300	300	613	633	466	340	130
30	53BW-350	350	669	699	499	358	158
31	53BW-400	400	719	745	531	385	180
32	53BW-450	450	853	903	635	453	255

Name of Mfr.: Niikura Kogyo Co., Ltd.

Model: 53C

53C (100~250 mm) Size: 50 to 250





Unit Per Pc.

CODE	Model	Dimensions mm								Wgt Kg
		Φd	H	h1	h2	t	W1	W2	W3	
87 23 35	53C-100	100	364	284	140	16	202	118	116	20
36	53C-125	125	433	342	180	16	260	192	192	35
37	53C-150	150	502	390	195	18	302	200	224	51
61	53C-200	200	641	487	264	20	350	253	233	102
62	53C-250	250	771	593	335	22	453	313	280	145

Name of Mfr.: Niikura Kogyo Co., Ltd.

Model: 53CW (with screen for fuel oil tank, water ballast tank next to cargo oil tank)

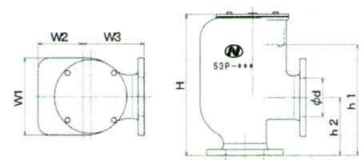
Unit Per Pc.

CODE	Model	Dimensions mm								Wgt Kg
		Φd	H	h1	h2	W1	W2	W3	W4	
87 23 38	53CW-50	50	261	219	113	162	92	88	-	12
39	53CW-65	65	261	219	113	162	85	96	-	12
40	53CW-80	80	298	246	123	190	98	109	-	17
41	53CW-100	100	364	284	140	202	118	116	-	20
42	53CW-125	125	433	342	180	260	192	192	151	35
87 23 43	53CW-150	150	502	390	195	302	200	224	163	51
63	53CW-200	200	641	487	264	350	253	233	249	102
64	53CW-250	250	771	593	335	453	298	280	310	145

Name of Mfr.: Niikura Kogyo Co., Ltd.

Model : 53P (without screen for ballast water tank)





Unit Per Pc.

CODE	Model	Dimensions mm								Wgt
		Φd	H	h1	h2	t	W1	W2	W3	Kg
87 23 45	53P-50	50	264	221	112	14	162	92	127	14
46	53P-65	65	264	221	122	14	162	85	132	15
47	53P-80	80	300	248	132	14	190	98	152	20
48	53P-100	100	366	286	152	16	202	118	162	25
49	53P-125	125	435	344	197	16	260	192	202	41
87 23 50	53P-150	150	502	392	222	18	302	200	242	60
51	53P-200	200	640	487	282	20	350	253	272	108
52	53P-250	250	767	589	342	22	450	310	332	182

Name of Mfr.: Niikura Kogyo Co., Ltd.

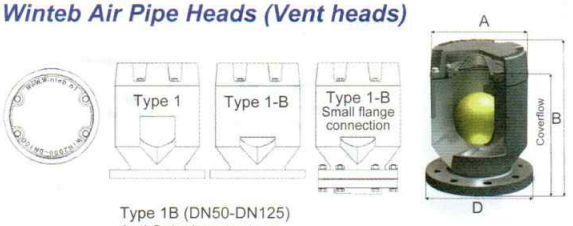
Model: 53PW (with Screen for Fuel oil tank)

Unit Per Pc.

CODE	Model	Dimensions mm								Wgt
		Φd	H	h1	h2	W1	W2	W3	W4	Kg
87 23 53	53PW-50	50	264	221	112	162	92	127	-	14
54	53PW-65	65	264	221	122	162	85	132	-	15
55	53PW-80	80	300	248	132	190	98	152	-	20
56	53PW-100	100	366	286	152	202	118	162	-	25
57	53PW-125	125	435	344	197	260	192	202	151	41
87 23 58	53PW-150	150	502	392	222	302	200	242	163	60
59	53PW-200	200	640	487	282	350	253	272	249	108
60	53PW-250	250	767	589	342	450	310	332	310	182

Name of Mfr.: Niikura Kogyo Co., Ltd.

DIN PN10 type
Winteb Air Pipe Heads (Vent heads)



Type 1B (DN50-DN125)
Anti Splash water type
Recommended for fuel tanks

WIN2000 Type 1 Air Vent Head, including Screen (mesh 18) with DIN PN10 flange connection.

- Made of seawater resistant Aluminium DIN1725.
- Non corroding(If fitted according to fitting instructions).
- Maintenance free, smallest design available.
- Cost saving.
- High volume metric flow.
- Light weight = less fuel = less CO2 emission.

Available three types:
Type 1 - Standard
Type 1B - Smaller air inlet opening
Type 1B - Small flange connection

Approved by all major classification societies – ABS, BV, DNV, Lloyd's, RINA, RMRS, CCS, and NK.

Please specify the type of air vent heads, flange size to be connected with the type of pipe head when ordering.

Model: WIN2000 Type 1 (with Screen)

Flow Rate & Air Speed

Model	Flow Rate at 0.25 bar (m^3/h)*	Flow Rate at 0.25 bar (m^3/h)**	Max.Inlet Air Speed (m/s)	Inlet air flow rate at max. inlet air speed (m^3/h)
W2T1-PN10-50	23	19	11	72
W2T1-PN10-65	34	33	9.5	11.5
W2T1-PN10-80	57	52	10	180
W2T1-PN10-100	102	78	8	216
W2T1-PN10-125	128	116	9.5	432
W2T1-PN10-150	204	188	10	665
W2T1-PN10-175	210	195	8.5	720
W2T1-PN10-200	340	273	10	1,080
W2T1-PN10-250	450	405	9.5	1,700
W2T1-PN10-300	775	705	15	3,780
W2T1-PN10-350	940	896	19	6,500
W2T1-PN10-400	1,250	1,095	20.5	8,100
W2T1-PN10-450	1,800	-	15.5	9,000

* values correspond with the WIN2000 type 1 without screen, flowrate is with water being pumped through the air pipe head.
** values correspond with the WIN2000 type 1 with screen mesh 18, flowrate is with water being pumped through the air pipe head.

(to be continued)

Unit Per Pc.

CODE	Model	Dimensions mm					Flange size			Wgt
		Φd	A	B	C	Ball Dia	O.D.	Pitch	Bolt Hole	Kg
87 23 74	W2T1-PN10- 50	50	108	161	136	60	165	125	4×18	2.0
75	W2T1-PN10- 65	65	130	200	168	75	185	145	8×18	2.75
76	W2T1-PN10- 80	80	160	226	190	90	200	160	8×18	3.75
77	W2T1-PN10-100	100	195	226	226	105	220	180	8×18	6.0
65	W2T1-PN10-125	125	235	320	262	130	250	210	8×18	8.5
87 23 66	W2T1-PN10-150	150	275	372	312	155	285	240	8×22	12
67	W2T1-PN10-175	175	275	372	312	155	315	270	8×22	13
68	W2T1-PN10-200	200	340	470	385	200	340	295	8×22	19.5
69	W2T1-PN10-250	250	415	593	478	250	395	350	12×22	31
70	W2T1-PN10-300	300	560	741	595	325	445	400	12×22	63
87 23 71	W2T1-PN10-350	350	642	842	675	360	505	460	16×22	88
72	W2T1-PN10-400	400	725	950	760	400	565	515	12×26	114
73	W2T1-PN10-450	450	740	1,110	925	480	615	565	20×26	34

Name of Mfr.: World Wide Metric

Weight Type Breather Valves with Flame Screen

Válvulas de alivio de presión con pantalla antideflagrante
ウエイト式ブリザーバルブ　　带火焰滤网的配重式透气阀

Designed for Cargo Tanks in oil tankers to relieve the effect of overpressure or vacuum caused by thermal variations or during cargo loading and unloading. Fitting of vent main pipe, connecting flange is JIS 5K. Approved by NK, and LRS.

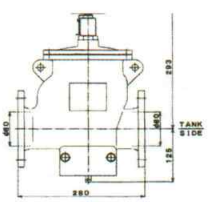
Setting pressure is 5 kPa to 20 kPa & -3.5 kPa to -7 kPa.



BVW-13C MODEL



BVW-41C-80 (FC) &
BVW-41C-II-B-80 (SCS)



BVW-13C

Unit Per Pc.

CODE	Model	d1	L	H	Weight kg
87 23 81	BVW-13C-FC-80	80	508	270	57
82	BVW-13C-FC-100	100	538	305	80

Name of Mfr.: Niikura Kogyo Co., Ltd.

BVW-41C-FC-080 / BVW-41C-IIB-080

Unit Per Pc.

CODE	Model	d1	L	H	Weight kg
87 23 83	BVW-41C-FC-80	80	280	400	36
84	BVW-41C-IIB-80	80	280	400	36

Name of Mfr.: Niikura Kogyo Co., Ltd.

Emergency Shut-off Valves & Air Reservoirs

Válvulas de cierre de emergencia y depósito de aire

非常遮断弁とエアリザーバー　緊急切断阀和储气罐

Every Pipe to suck in oil from Tank located up in the double bottom such as Fuel-oil Tank, Lubricating-oil Tank and Heat-agent-oil Tank must be equipped with Stop Valve or Cock in the way that it is located direct to Tank wall.

This Stop Valve or Cock has to be of function and structure so that it can shut off oil-flow direct at the installed position and also can be remote-controlled for shut-off from a safe place out of the area. This is a Device fit for such purpose.

Shut-off Operation

Air operating type:

Only open the compressed air supply valve connected from air reservoir. Air reservoir should be kept certain pressure between 0.39 MPa and 0.89 MPa.

* If there is insufficient pressure in the tank, there is a risk of inadequate air supply causing malfunction.

Wire operating:

Only pull the lever connected with wire. For manual shut, these valves can close with handle wheel by rotating in clockwise direction.

Reset after Shut-off

1. Rotate clockwise until a head of piston is set in the grooving on spindle, and then rotate counterclockwise the handle to set valve in full open condition.
2. In an emergency, the valves can be manually reset by lifting the handle upward.

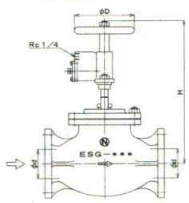
* Regarding Air operating type, 1 or 2 should be applied after air supply valve is closed.

JIS Flanged End Globe Type

JIS 5K

***Shut-off Operation: Air operating type**





Unit Per Pc.

CODE	Type	Size mm				Weight kg
		d	L	H	D	
87 45 01	ESG-005-025	25	120	265	100	7
02	ESG-005-040	40	160	270	100	11
03	ESG-005-050	50	210	270	100	15
04	ESG-005-065	65	250	320	125	20
05	ESG-005-080	80	280	325	125	25
87 45 06	ESG-005-100	100	340	410	160	35
07	ESG-005-125	125	410	430	160	45
08	ESG-005-150	150	480	460	160	65
09	ESG-005-200	200	570	615	315	100
10	ESG-005-250	250	740	655	315	135

Name of Mfr.: Niikura Kogyo Co., Ltd.

Shut-off Operation : Wire operating type

Unit Per Pc.

CODE	Type	Size mm				Weight kg
		d	L	H	D	
87 45 11	ESG-005-025-W	25	120	265	100	7
12	ESG-005-040-W	40	160	270	100	11
13	ESG-005-050-W	50	210	270	100	15
14	ESG-005-065-W	65	250	320	125	20
15	ESG-005-080-W	80	280	325	125	25

Name of Mfr.: Niikura Kogyo Co., Ltd.

JIS 10K

***Shut-off Operation: Air operating type**

Unit Per Pc.

CODE	Type	Size mm				Weight kg
		d	L	H	D	
87 45 41	ESG-010-025	25	130	265	100	9
42	ESG-010-040	40	170	270	100	12
43	ESG-010-050	50	220	270	100	16.5
44	ESG-010-065	65	270	320	125	22
45	ESG-010-080	80	300	325	125	27
87 45 46	ESG-010-100	100	350	410	160	41
47	ESG-010-125	125	420	430	160	58
48	ESG-010-150	150	490	460	160	68
49	ESG-010-200	200	570	615	315	110
50	ESG-010-250	250	740	655	315	150

Name of Mfr.: Niikura Kogyo Co., Ltd.

***Shut-off Operation: Wire operating type**

Unit Per Pc.

CODE	Type	Size mm				Weight kg
		d	L	H	D	
87 45 51	ESG-010-025-W	25	130	265	100	8
52	ESG-010-040-W	40	170	270	100	12
53	ESG-010-050-W	50	220	270	100	16.5
54	ESG-010-065-W	65	270	320	125	22
55	ESG-010-080-W	80	300	325	125	27

Name of Mfr.: Niikura Kogyo Co., Ltd.

JIS 16K

***Shut-off Operation: Air operating type**

Unit Per Pc.

CODE	Type	Size mm				Weight kg
		d	L	H	D	
87 45 71	ESG-016-025	25	130	265	100	8
72	ESG-016-040	40	170	270	100	12
73	ESG-016-050	50	220	270	100	16.5
74	ESG-016-065	65	270	320	125	22
75	ESG-016-080	80	300	325	125	27

Name of Mfr.: Niikura Kogyo Co., Ltd.

***Shut-off Operation: Wire operating type**

Unit Per Pc.

CODE	Type	Size mm				Weight kg
		d	L	H	D	
87 45 76	ESG-016-025-W	25	130	265	100	8
77	ESG-016-040-W	40	170	270	100	12
78	ESG-016-050-W	50	220	270	100	16.5
79	ESG-016-065-W	65	270	320	125	22
80	ESG-016-080-W	80	300	325	125	27

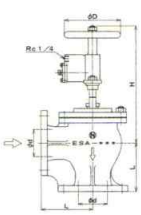
Name of Mfr.: Niikura Kogyo Co., Ltd.

JIS Flanged End Angle Type

JIS 5K

***Shut-off Operation: Air operating type**





Unit Per Pc.

CODE	Type	Size mm				Weight kg
		d	L	H	D	
87 45 21	ESA-005-025	25	120	265	100	7
22	ESA-005-040	40	160	270	100	10
23	ESA-005-050	50	210	270	100	14
24	ESA-005-065	65	250	320	125	18
25	ESA-005-080	80	280	325	125	22
87 45 26	ESA-005-100	100	340	410	160	30
27	ESA-005-125	125	410	430	160	42
28	ESA-005-150	150	480	460	160	50
29	ESA-005-200	200	570	615	315	85
30	ESA-005-250	250	740	655	315	115

Name of Mfr.: Niikura Kogyo Co., Ltd.

Shut-off Operation : Wire operating type

Unit Per Pc.

CODE	Type	Size mm				Weight kg
		d	L	H	D	
87 45 31	ESA-005-025-W	25	65	245	100	7
32	ESA-005-040-W	40	80	240	100	9
33	ESA-005-050-W	50	100	240	100	13
34	ESA-005-065-W	65	115	280	125	17
35	ESA-005-080-W	80	130	280	125	21

Name of Mfr.: Niikura Kogyo Co., Ltd.

JIS 10K

*Shut-off Operation: Air operating type

Unit Per Pc.

CODE	Type	Size mm				Weight kg
		d	L	H	D	
87 45 56	ESA-010-025	25	85	245	100	9
57	ESA-010-040	40	100	240	100	10
58	ESA-010-050	50	120	240	100	13
59	ESA-010-065	65	130	280	125	19
60	ESA-010-080	80	140	280	125	23.5
87 45 61	ESA-010-100	100	160	355	160	32.5
62	ESA-010-125	125	180	370	160	49
68	ESA-010-150	150	205	385	160	66
69	ESA-010-200	200	230	535	315	95
70	ESA-010-250	250	290	560	315	135

Name of Mfr.: Niikura Kogyo Co., Ltd.

*Shut-off Operation: Wire operating type

Unit Per Pc.

CODE	Type	Size mm				Weight kg
		d	L	H	D	
87 45 63	ESA-010-025-W	25	85	245	100	9
64	ESA-010-040-W	40	100	240	100	10
65	ESA-010-050-W	50	120	240	100	13
66	ESA-010-065-W	65	130	280	125	19
67	ESA-010-080-W	80	140	280	125	23.5

Name of Mfr.: Niikura Kogyo Co., Ltd.

JIS 16K

*Shut-off Operation: Air operating type

Unit Per Pc.

CODE	Type	Size mm				Weight kg
		d	L	H	D	
87 45 81	ESA-016-025	25	85	245	100	9
82	ESA-016-040	40	100	240	100	10
83	ESA-016-050	50	120	240	100	13
84	ESA-016-060	65	130	280	125	19
85	ESA-016-080	80	140	280	125	23.5
87 45 86	ESA-016-100	100	160	355	160	32.5
87	ESA-016-125	125	180	370	160	49
88	ESA-016-150	150	205	385	160	66
89	ESA-016-200	200	230	535	315	95
90	ESA-016-250	250	290	560	315	135

Name of Mfr.: Niikura Kogyo Co., Ltd.

*Shut-off Operation: Wire operating type

Unit Per Pc.

CODE	Type	Size mm				Weight kg
		d	L	H	D	
87 45 91	ESA-016-025-W	25	85	245	100	9
92	ESA-016-040-W	40	100	240	100	10
93	ESA-016-050-W	50	120	240	100	13
94	ESA-016-065-W	65	130	280	125	19
95	ESA-016-080-W	80	140	280	125	23.5

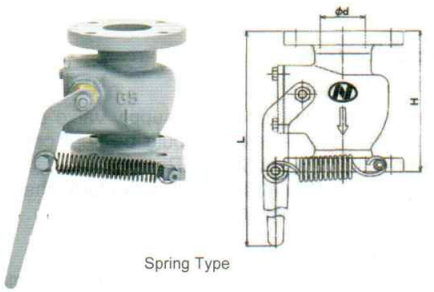
Name of Mfr.: Niikura Kogyo Co., Ltd.

Self-Closing Valves

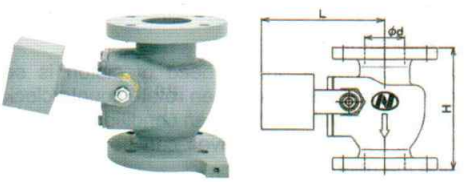
Válvulas de cierre automático
自動閉鎖弁　自闭阀

Required in the middle of the drainpipe and need to be installed in a handle-operated position when directing the drain water that accumulates at the top of the deep tank to the bilge reservoir.

Regulations also require that a quick-acting self-closing valve be installed in the drainpipe that collects at the top of the deep-water tank. Available in spring type and counter-weight type. Connecting Flange is JIS 5K.



Spring Type



Counter-weight Type

39A-050~100 / 39A-W-050~100

Unit Per Pc.

CODE	Type	Model	d	H	L	Weight Kg
87 46 61	Spring type	39A-50	50	165	375	7
62		39A-65	65	180	375	10
63		39A-80	80	240	470	16
64		39A-100	100	280	465	23
87 46 65	Counter-weight type	39A-A-50	50	165	155	8
66		39A-A-65	65	180	192	12
67		39A-A-80	80	240	228	20
68		39A-A-100	100	280	168	32

Name of Mfr.: Niikura Kogyo Co., Ltd.

Quick-Closing Valves (DIN)

Ductile Cast Iron for Marine Service
Pressure Rating PN 16/10

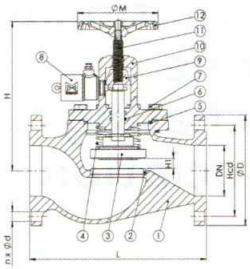
Válvulas de cierre rápido (DIN), Fundición dúctil para servicio marino
Presión nominal PN 16/10
非常遮断弁（DIN）圧力定格 PN 16/10
船用球墨铸铁 快关阀（DIN）压力等级 PN 16/10

Angle and straight types metal seated quick closing valve made with Nodular Cast Iron. It equipped with universal release cylinder for mechanical, hydraulic or pneumatic closing. Also has an integrated safety feature for fire release and raised face flanges.

Applications:
Fuel oil, Lubricating oil, Flammable hydraulic oil, Cargo oil, Non-flammable hydraulic fluid, Boiler feedwater, Condensate, Sea water, Water.

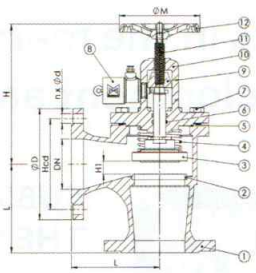


Straight





Angle



Pressure and Temperature Range

Size	Max. Press. At 180°C	Flange Rate
DN 15 - 150 DN 200-250	10 6	PN16 PN10

Material Specification

Component	Material	EN and/or DIN
Body	Ductile Cast Iron	EN-GJS400-18-LT
Bonnet	Ductile Cast Iron	EN-GJS400-18-LT
Disc	Stainless Steel	1.4301
Seat	Stainless Steel	1.4301
Stem	Stainless Steel	1.4301
Gasket	Rubber	NBR
O-ring	Rubber	FKM
Screw	Stainless Steel	1.4401
Release Cylinder	Copper Alloy	CW614N
Setting nut	Copper Alloy	CW617N
Handwheel	Cast Iron	GG25

How to order: CODE

Quick-closing valve (DIN), ductile cast iron, pressure rating PN 10, TYPE of OPERATION, STRAIGHT or ANGLE, SIZE DN

Straight Type

Unit Per Pc.

CODE	DN	Size mm					Weight
		Hcd	D	L	H	M	Kg
87 46 01	15	65	95	130	176	120	5.2
02	20	75	105	150	178	120	5.9
03	25	85	115	160	188	120	6.8
04	32	100	140	180	192	120	8.4
05	40	110	150	200	202	140	10.0
87 46 06	50	125	165	230	224	140	14.0
07	65	145	185	290	253	140	19.0
08	80	160	200	310	253	160	26.0
09	100	180	220	350	298	160	46.0
10	125	210	250	400	338	200	54.0
87 46 53	150	240	285	480	410	200	72.0
54	200	295	340	600	575	400	150.0
55	250	350	405	730	615	400	183.0

MESON Model No. : 450.2.4.4.1

Angle Type

Unit Per Pc.

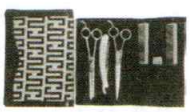
CODE	DN	Size mm					Weight
		Hcd	D	L	H	M	Kg
87 46 11	15	65	95	90	169	120	5
12	20	75	105	95	170	120	5.6
13	25	85	115	100	179	120	6.4
14	32	100	140	105	186	120	8.3
15	40	110	150	115	205	140	9.9
87 46 16	50	125	165	125	204	140	14
17	65	145	185	145	233	140	19
18	80	160	200	155	252	160	26
19	100	180	220	175	278	160	41
20	125	210	250	200	295	200	47
87 46 56	150	240	285	225	335	200	63

MESON Model No. : 451.2.4.4.1

Conversion Table (kgf - N)

kgf → N		N → kgf		kgf → N		N → kgf	
1	9.8066	1	0.1020	51	500.1	51	5.2006
2	19.613	2	0.2039	52	510.0	52	5.3025
3	29.420	3	0.3059	53	519.8	53	5.4045
4	39.227	4	0.4079	54	529.6	54	5.5065
5	49.033	5	0.5099	55	539.4	55	5.6084
6	58.840	6	0.6118	56	549.2	56	5.7104
7	68.647	7	0.7138	57	559.0	57	5.8124
8	78.453	8	0.8158	58	568.8	58	5.9144
9	88.260	9	0.9177	59	578.6	59	6.0163
10	98.066	10	1.0197	60	588.4	60	6.1183
11	107.87	11	1.1217	61	598.2	61	6.2203
12	117.68	12	1.2237	62	608.0	62	6.3222
13	127.49	13	1.3256	63	617.8	63	6.4242
14	137.29	14	1.4276	64	627.6	64	6.5262
15	147.10	15	1.5296	65	637.4	65	6.6282
16	156.91	16	1.6315	66	647.2	66	6.7301
17	166.71	17	1.7335	67	657.1	67	6.8321
18	176.52	18	1.8355	68	666.9	68	6.9341
19	186.33	19	1.9375	69	676.7	69	7.0360
20	196.13	20	2.0394	70	686.5	70	7.1380
21	205.94	21	2.1414	71	696.3	71	7.2400
22	215.75	22	2.2434	72	706.1	72	7.3420
23	225.55	23	2.3453	73	715.9	73	7.4439
24	235.36	24	2.4473	74	725.7	74	7.5459
25	245.17	25	2.5493	75	735.5	75	7.6479
26	254.97	26	2.6513	76	745.3	76	7.7498
27	264.78	27	2.7532	77	755.1	77	7.8518
28	274.59	28	2.8552	78	764.9	78	7.9538
29	284.39	29	2.9572	79	774.7	79	8.0558
30	294.20	30	3.0591	80	784.5	80	8.1577
31	304.01	31	3.1611	81	794.3	81	8.2597
32	313.81	32	3.2631	82	804.2	82	8.3617
33	323.62	33	3.3651	83	814.0	83	8.4636
34	333.43	34	3.4670	84	823.8	84	8.5656
35	343.23	35	3.5690	85	833.6	85	8.6676
36	353.04	36	3.6710	86	843.4	86	8.7696
37	362.85	37	3.7729	87	853.2	87	8.8715
38	372.65	38	3.8749	88	863.0	88	8.9735
39	382.46	39	3.9769	89	872.8	89	9.0755
40	392.27	40	4.0789	90	882.6	90	9.1774
41	402.07	41	4.1808	91	892.4	91	9.2794
42	411.88	42	4.2828	92	902.2	92	9.3814
43	421.69	43	4.3848	93	912.0	93	9.4834
44	431.49	44	4.4868	94	921.8	94	9.5853
45	441.30	45	4.5887	95	931.6	95	9.6873
46	451.11	46	4.6907	96	941.4	96	9.7893
47	460.91	47	4.7927	97	951.3	97	9.8912
48	470.72	48	4.8946	98	961.1	98	9.9932
49	480.53	49	4.9966	99	970.9	99	10.095
50	490.33	50	5.0986	100	980.7	100	10.197

11
Welware Items

Sporting Goods  P. 11-1 ~ 4	Sporting Wear  P. 11-4	Bathroom Scales  P. 11-4	Games  P. 11-4 ~ 5
Smoking Goods  P. 11-5	Sunglasses  P. 11-5	Cosmetics  P. 11-6	Medicine/Skin Guards  P. 11-6
Sanitary Items  P. 11-6	Shoe Goods  P. 11-7	Digital Media  P. 11-7 ~ 8	Marine TV/Radio Antenna System/TV/Videos  P. 11-8 ~ 10
Films  P. 11-11	Christmas Accessories  P. 11-11	Wears  P. 11-10 ~ 11	Sandals  P. 11-12

Indoor Spinning Bikes

Bicycle stationary, indoor use
ヘルスサイクル　室内健身脚踏车



The indoor spinning bike is designed to make you feel as if you are cycling outdoors.

It can simulate different terrains for a good cardio workout, which involves interval training with climbs and sprints. The flywheel simulates momentum.

11 01 01	Bicycle stationary, indoor use	Set

Stationary Bicycles
with Ergometer

Bicicleta Estática con Ergómetro
エルゴメーター付きヘルスサイクル
室内健身脚踏车



A stationary bike with an ergometer to measure the results of the workout. Designed for High-performance and heavy use. It has several challenging programs for a full workout. The seat is vertically and horizontally adjustable and the wheels make it easy to transport.

Please specify the power source voltage when ordering.

11 01 02	Bicycle stationary, with ergometer	Set

Treadmills

Cinta Ergométrica　ランニングマシーン
跑步机



Foldable Treadmill



Non-Foldable Treadmill

The treadmill provides a powerful speed and allows variation in intensity of the exercise at any speed. The challenging programs will help you meet your goal. Available in "Foldable" and "Non-Foldable" type.

Foldable Treadmill is "foldable" to save space in your exercise room, whereas Non-foldable treadmill has oversized frame which provides strength, rigidity and endurance during the exercise.

Unit Per Set

CODE	Type	Voltage	CODE	Type	Voltage
11 01 03 04	Foldable	AC 110V AC 220V	11 01 06 07	Non-Foldable	AC 110V AC 220V

Cross Trainers

Bicicleta Líptica　クロストレーナー
交叉训练机



Cross Trainer

The cross trainer or elliptical trainer provides an efficient training. It combines the advantages of walking, running, cross training, stair climbing and push ups in one machine, at the same time.



Elliptical Trainer

Elliptical Trainer has "Frontweel" and "Backwheel", designed for an intensive and realistic workout, so please specify "Front/Back wheel", the power source voltage when ordering.

11 01 08	Cross Trainer	Set
09	Elliptical Trainer	"

Rowing Exercisers

Máquinas de Ejercicio de Remo
ローイングマシーン　划船练习架



The rowing machine incorporates many muscle groups at once, creating a great workout.

・Magnetic rower
The magnetic rower uses a maintenance-free magnetic break system to create resistance. The magnets are incorporated into the flywheel. They adjust resistance in calibration with your pull and are set.

・Air rower
The air rower has a flywheel that creates air resistance as you pull against it and can be calibrated to increase or decrease resistance.

The air resistance also goes against the force being applied, therefore, the faster you pull, the harder the resistance. The design simulates rowing in water, with a fluent and natural motion.

Please specify "Magnetic" or "Air" resistance rower, the power source voltage when ordering.

11 01 34	Rowing exercisers, indoor use, Magnetic rower	Set
10	Rowing exercisers, indoor use, Air rower	"

Multi Gyms

Multigimnasio　マルチジム　多功能健身器



The multi station is a very compact and versatile machine that offers plenty of exercises to train the most important muscle groups: the chest, arms, back and legs. The smart and efficient design makes it easy to switch between exercises and lets you accomplish a divers training, without the use of many different machines.

11 01 11	Multi Gym Station, indoor use	Set

Smith Machine Sets

Conjunto de máquina Smith
スミスマシンセット　史密夫架



The Smith machine is a training machine used for weight training.

It consists of a barbell that is fixed within steel rails allowing vertical movement. The machine can be used for a wide range of exercises however it is most commonly used to perform "Smith machine squats"

11 01 46	Smith Machine Set	Set

Chin & Dipping Multi Stands

Soporte múltiple para dominadas y fondos
チン＆ディッピングマルチスタンド
单双杠多功能训练架



Designed to build and tone your triceps, chest, shoulders and core to develop six pack abs. Thick comfortable back pad, arm supports and rubber hand grips reduce fatigue and discomfort allowing you keep working on your upper body and abs.

11 01 47	Chin & Dipping Multi Stand	Set

Weight Sets, etc.

Equipos de Pesas, etc. ウェート用具セット 重量设备等

There are many kinds of body building equipment available such as barbells, dumbbells, bench presses, and barbell stands.


Barbell Set


Barbell Discs


Barbell Bar


Dumbbell Set

When ordering Barbell or Dumbbell, please specify the weight composition and shaft weight.


Spine Press Bench


Gym Rack

11 01 21	Barbell bar	Pc.
25	Barbell disc, cast iron, 1.25 kg (2's)	Pr.
33	Barbell disc, cast iron, 2.5 kg (2's)	Pr.
36	Barbell disc, cast iron, 5 kg (2's)	Pr.
37	Barbell disc, cast iron, 10 kg (2's)	Pr.
38	Barbell disc, cast iron, 15 kg (2's)	Pr.
39	Barbell disc, cast iron, 20 kg (2's)	Pr.
22	Dumbbell set, WEIGHT----- kg	Set
24	Spine press bench	Set
26	Gym rack	Pc.

Benches

Bancos ベンチ 長凳



Incline/Decline Bench

A bench that can incline or decline into different positions, which allows you to perform dumbbell or barbell exercises, while supporting the body.

Abdominal Bench

The abdominal bench is a workout bench that makes it easier to perform abdominal exercises. It can incline and decline for a full abdominal workout.



11 01 12	Incline/Decline Bench	Set
13	Abdominal Bench	"

Puzzle Exercise Protection Mats

Colchoneta protectora acoplable para ejercicios
ジョイント式プロテクションマット 拼接式运动保护垫



The puzzle exercise mat creates a comfortable surface for workouts and exercise equipment while protecting your floors.
Dense EVA foam absorbs impact and noise during workouts and provides a soft surface for exercises like Yoga and push-ups.

Lightweight puzzle pieces connect quickly and easily, and can be disassembled just as simply for quick storage.

<Approximate Size>
60 × 60 × 1.2 cm

11 01 48	Puzzle Exercise Protection Mat	Pc.

Exercise Mats

Alfombra para hacer ejercicio ヨガマット 瑜伽垫



Training mat is for use in stretching, Yoga, and variety of core trainings.

11 01 14	Exercise mat	Pc.

Weight Lifting Belts

Cinturón para levantamiento de pesas
ウェートリフト用ベルト 举重腰带



Weight lifting belt provides superior back and abdominal support during weight training.

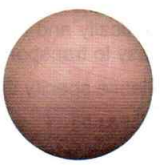
< Approximate Size >
S : 61-81 cm M : 74-94 cm L : 86-106 cm

Please specify the size when ordering.

11 01 15	Weight Lifting Belt, Size ----	Pc.

Exercise Balls

Pelota de ejercicios バランスボール 健身球



Made of soft elastic filled with air, and suitable for balancing training, core body training – abdominal muscles and buck muscles, and more.

Standard Sizes available in OD: 55 cm / 65 cm / 75 cm / 90 cm

Please specify the ball size when ordering.

11 01 16	Exercise Ball	Pc.

Medicine Balls

Balón medicinal
メディシンボール 药球（健身实心球）



A medicine ball (also known as an exercise ball) is soft rubber weighted ball used for strength training.

It enhances your daily exercises, and usually available for 1 – 10 kg.

Pease specify the ball weight when ordering.

11 01 49	Medicine Ball, _____ Kg	Pc.

Push-Up Bars

Barras para flexiones de brazos
プッシュアップバー 俯卧撑架



Supporting your push-up exercises, increase chest, shoulder, and triceps strength with push-up bars.

High impact plastic with non-slip end caps for increased stability, and foam handgrips for improved comfort.

11 01 17	Push-Up Bar	Pr.

Exercise Wheels

Rueda abdominal
エクササイズホイール 健身轮



Small sturdy wheel with a rod traversing the center that serves as the handles.

Assist with core-strengthening exercises, such as highest-rated abdominal exercise. Careful technique is required to avoid muscle strain or injury.

11 01 18	Exercise Wheel	Pc.

Hand Grips

Resortes para manos　ハンドグリップ　握力器



Basic and quality pair of handgrips, great as a starter set to train hand grip balance. Durable chrome steel springs are for a long useful life.
Grip strength is available from 15 kg to approx. 70 kg. Please specify the level of strength (kg) when ordering.

11 01 19	Hand Grip, Strength __kg	Pc.

Foam Rollers

Rodillo de espuma　ストレッチローラー　泡沫轴



Designed for stretching your body, increases blood flow for an accelerated muscle recovery before and after working out. It's also perfect for developing core stabilization, lower body balance, and stamina.

Water resist and light weighted. Please specify the size when ordering.

<Approximate Size>
Short : Dia 13.5 cm × Length 32 cm
Long : Dia 15 cm × Length 98 cm

11 01 70	Foam Roller	Pc.

Gym Gloves

Guantes de gimnasia　ジム用グローブ
健身手套



Designed for use during weigh training or other exercises. Providing extra grip, support, and stability to protect your hands from variety of exercises.

11 01 71	Gym Gloves, size S	Prs
72	Gym Gloves, size M	Prs
73	Gym Gloves, size L	Prs
74	Gym Gloves, size XL	Prs

Skipping Rope

Cuerda de saltar　縄跳び　健身跳绳



Durable solid rubber rope with molded handles for Jump Rope workout.

Please specify the length of rope when ordering.

11 01 27	Skipping Rope	Pc.

Ankle/Wrist Weights

Tobilleras/Muñequeras con pesos
足首 / 手首用負荷ウェイト　脚踝 / 手腕用负重沙袋





Ankle weights enable you to tone your glutes and thighs, wrist weights will tone your shoulder and arms.

Easy hook-and-loop closure for use.

Please specify the weight when ordering.

11 01 28	Ankle Weight, weight __ kg	Pr.
29	Wrist Weight, weight __ kg	"

Boxing Stands, etc.

Soporte de boxeo　ボクシングエクササイズ　拳击架组合

The boxing stands hold the boxing bags firmly on the floor whilst the boxer trains on them. They are also used to hold speed balls and enable you to have boxing exercises. A punch bag, boxing gloves are also available.

Punch bag: available in 100 cm (29 kg), 120 cm (35 kg), 150 cm (40 kg), 180 cm (44 kg).

Boxing gloves: available in 10, 12, 14, 16 once.





Punch Bag

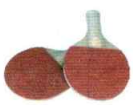


Boxing Gloves

11 01 30	Boxing stand	Set
31	Punch bag, SIZE --- cm	Pc.
32	Boxing gloves, weight --- once	Pr.

Table Tennis Goods

Artículos de Ping-Pong　卓球用品　乒乓球用品



Bat



Ball



Supporters for net



Net



Table - Folders



Table - Fixed

Please specify the "fixed" or "foldable" Table when ordering.

11 01 40	Table for table tennis	Pc.
41	Net for table tennis	Pc.
42	Supporters for table tennis net	Pr.
43	Table tennis bat, rubber face, shake hand	Pc.
44	Table tennis bat, rubber face, penholder	Pc.
45	Table tennis ball	Doz

Jogging Shoes

Zapatos de Jogging　ジョギングシューズ
跑步鞋



Made of lightweight, nylon fabric with full support synthetic rubber soles.

11 01 50	Jogging shoes	25.0 cm	Pr.
51	"	25.5 cm	"
52	"	26.0 cm	"
53	"	26.5 cm	"
54	"	27.0 cm	"
11 01 55	Jogging shoes	27.5 cm	Pr.
56	"	28.0 cm	"

Exercise Shoes

Zapatos de Deporte　運動靴　运动鞋



A wide variety of sneakers are available with the materials and design depending upon the sport that they are used for. When ordering, specify what kind of sneakers you require along with any necessary details about the brand name and type.

11 01 60	Exercise shoes	25.0 cm (Kind of Sports)	Pr.
61	"	25.5 cm "	"
62	"	26.0 cm "	"
63	"	26.5 cm "	"
64	"	27.0 cm "	"
11 01 65	Exercise shoes	27.5 cm (Kind of Sports)	Pr.
66	"	28.0 cm "	"

Playing Balls

Pelotas de Juego　運動用ボール　运动用球

Balls are available for a variety of sports, the most popular of which are volley balls, soccer balls, and basket balls. When ordering, specify whether you require a leather or rubber made ball.



Basketball hoop, Portable type



Basketball hoop, Wall mount type

11 01 80	Volley ball, rubber	Pc.
81	" leather	"
11 01 82	Soccer ball, rubber	Pc.
83	" leather	"
11 01 84	Basket ball, rubber	Pc.
85	" leather	"
86	Basketball hoop, portable type	Set
87	" wall mount type	"

Fishing Tackles

Aparejos de pesca　釣り道具　钓具



Various equipment for fishing.

11 01 88	Fishing rod, with further details	Pc.
89	Fishing reel, with further details	"
90	Fishing line, with further details	Mtr
91	Fishing hook, with further details	Pc
92	Fishing sinker, with further details	"
11 01 93	Fishing float, with further details	Pc.
94	Fishing lure, with further details	"

Sporting Wear

Ropa Deportiva　スポーツ用衣類　运动服装

Various types of sports wear are available. The most common types are listed below. Be sure to specify size and colour when ordering.



Cotton Sweat Suits

Unit Per Pr.

CODE	Item	CODE	Item
With Hood		Without Hood	
11 02 01	Grey M	11 02 06	Grey M
02	" L	07	" L
03	" LL	08	" LL

Jogging Pants Coloured

Unit Per Pr.

CODE	Size	CODE	Size
11 02 11	M	11 02 13	LL
12	L		

Cotton Socks

Unit Per Pr.

CODE	Size	CODE	Size
11 02 30	White	11 02 31	Coloured

Swimming Trunks

Unit Per Pr.

CODE	Size	CODE	Size
11 02 40	M	11 02 42	LL
41	L		

Bathroom Scales

Básculas, Pesos de Baño　ヘルスメーター　浴室磅秤



Spring balanced bathroom scales with maximum weight registration of 100 kg or 130 kg. Enameled steel case. Manual adjustment.

Unit Per Pc.

Analog Type		Digital Type	
CODE	Capacity kg	CODE	Capacity kg
11 02 70	0 - 100	11 02 75	0 - 100
71	0 - 130	76	0 - 130

Games

Juegos　ゲーム　游戏器具



11 04 01	Card, Plastic	Set
02	Cribbage and cards	"
11 04 05	Chess & checker game	Set
06	Chess board	Pc.
07	Chessmen	Set
11 04 10	Dartboard with arrow 6's	Set
11	Darts 3's	"
11 04 15	Domino game	Set
16	Backgammon	"
17	Mahjong Set	"
20	Monopoly game	"
25	Scrabble game	"
11 04 26	Sho-gi, Japanese Chess	Set
27	"Go" game	"
11 04 28	Othello Game (Reversi)	Set
11 04 29	Rubik's Cube	Pc.
11 04 30	Dice with leather cup	Set
11 04 31	Bingo Books Assorted	Set
32	Bingo random number generator	Pc.
11 04 39	Game, Hard ware (name of game)	Pc.
11 04 40	Game soft (with name of game)	Pc.

Billiard Games

Juego de billar　ビリヤード　台球

Sure to complement any game room. The wool blend on top is designed to resist wear and deliver a smooth, consistent roll. Table set is including two billiard cues, a set of billiard balls, a brush, a triangle rack, and chalk.



Billiard Table



Cues



Billiard Balls

11 04 41	Billiard Table Set	Set
42	Cues for Billiard	Pc.
43	Balls for Billiard	Set

Table Soccer

Futbolín　テーブルサッカー
桌式足球

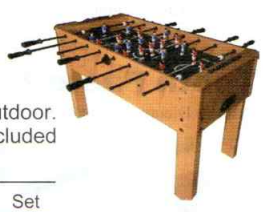


Table Soccer game at indoor & outdoor. Play with 2-4 people. Balls are included and simple to assemble.

11 04 45	Table Soccer Game	Set

Electric Massage Chairs

Sillones de masaje　マッサージチェア
按摩椅



The electric full body massage chair equipped with internal electronic motors and gears. With an attached controller, you can choose variety of the type, location, or intensity of massage. Reclining function is also equipped and it is automatic.

11 04 46	Electric Massage Chair, 110V	Set
11 04 47	Electric Massage Chair, 220V	"

Humidifying Air Purifier

Purificador de aire humidificador
加湿空気清浄機　加湿空气净化器



Humidifying air purifier is the machine that adds moisture to the air while also removing pollutants such as dust, pollen, bacteria, smoke and odor. Some of them use HEPA filter to trap extra small particles like virus (between 0.3-0.1 microns) or have ionizer. Especially beneficial for the dry season to prevent dry skin or other respiratory issues while purification function improves overall air quality. Please specify brand name and features when ordering.

11 04 48	Humidifying Air Purifier, AC 100V 50Hz/60Hz	Set
49	Humidifying Air Purifier, AC 200V 50Hz/60Hz	Set

Smoker's Sets

Equipos para Fumadores　喫煙具　吸烟用具

Smoking Pipes



Brier, Straight



Brier, Curved



Brier, Two-way



Brier, Corn



Smoking Pipe Cleaner



Butane Gas

Cigarette Lighters



Oneway Use



Windproof



Lighter Flint

11 05 01	Smoking pipe, brier, straight	Pc.
02	Smoking pipe, brier, curved	Pc.
03	Smoking pipe, brier, two-way	Pc.
04	Smoking pipe, brier, corn	Pc.
06	Smoking pipe cleaner 50's / pkt	Pkt
11 05 10	Cigarette lighter, one-way use	Pc.
11	Cigarette lighter, windproof	Pc.
15	Butane gas for cigarette lighter 78 grm	Tin
16	Butane gas Ronson's 30 grm	Tin
20	Fuel for cigarette lighter 130 ml	Btl
11 05 22	Flint for cigarette lighter 5's / pkt	Pkt

Sunglasses

Gafas de Sol　サングラス　太阳镜



Various types of sunglasses are available. When ordering, please specify the material, frame shape and lens colour.

11 05 50	Sunglasses, plastic frame (With further details)	Pr.
11 05 51	Sunglasses, metal frame (With further details)	Pr.

Cosmetics

Cosméticos 化粧品 化妆品





11 06 01	Hair shampoo 220 ml	Btl
02	Hair shampoo 350 ml	Btl
03	Shampoo for hair & shoulder 200 ml	Btl
04	Shampoo for hair & shoulder 300 ml	Btl
05	Shampoo for hair & shoulder 400 ml	Btl
06	Shower gel 250 ml	Btl
07	Hair conditioner 300 ml	Btl
08	Hair oil 200 ml	Btl
10	Hair tonic 150 ml	Btl
20	Hair cream 75 grm	Tub
30	Hair liquid 150 ml	Btl
35	Pomade brilliantine 85 grm	Btl
40	Hair spray 150 ml	Btl
11 06 50	Shaving cream 4-3/4 oz	Tub
51	Shaving cream 90 grm	Tub
60	Shaving foam 177 grm	Tin
61	Shaving foam 300 ml	Tin
62	Shaving gel 200 ml	Btl
71	After shave lotion 50 ml	Btl
72	After shave lotion 100 ml	Btl
70	After shave lotion 125 ml	Btl
11 06 80	Deodorant roll-on 30 ml	Btl
87	Deodorant roll-on 40 ml	Btl
82	Deodorant roll-on 50 m	Btl
81	Deodorant spray 70 ml	Tin
88	Deodorant spray 100 ml	Tin
83	Deodorant spray 150 ml	Tin
84	Deodorant spray 200 ml	Tin
85	Body lotion 250 ml	Tin
86	Body lotion 400 ml	Tin
89	Lip balm (Chap Stick)	Pc.
90	Perfume for men 100 ml	Btl
91	Perfume for ladies 100 ml	Btl
11 06 92	Facial wash 100ml	Tub
93	Facial scrub 100ml	Tub

Medicine, Skin Guards

Medicinas, Protecciones para la Piel 薬品類 护服品





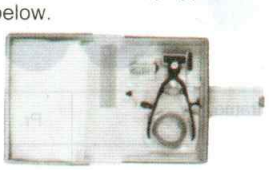


11 07 01	Alka seltzer 12's	Btl
05	Fruit salt 4 oz	Btl
06	Fruit salt 8 oz	Btl
11 07 10	Skin cream 56 grm	Tin
11	" 150 ml	Tin
12	" 250 ml	Tin
13	" 400 ml	Tin
20	Suntan oil 100 ml	Btl
21	Sunscreen 100 ml	Btl

Barber Sets

Equipos para Peluquero 整髪用具 理发用具

Available in many types but the most common are shown below.



Clippers Set



Scissors Set

Contents of each set

Clipper Set		Scissors Set	
Hair Clipper	1	Hair Cutting Scissors	1
Hair Comb	1	Hair Combing Scissors	1
Round Comb	1	Hair Cut Razor	1
Brush	1	Spare Blade for above	1
Cape	1	Hair comb	1
Oil	1	Cape	1
Carrying Case	1	Carrying Case	1

11 09 01	Barber hair clipper set	Set
02	Barber hair scissors set	Set

Electric Hair Clippers

Maquinilla Eléctrica para Cortar el Pelo

電気バリカン 電推髪剪



Unit Per Set

CODE	Voltage	CODE	Voltage
11 09 03	AC 110 V	11 09 04	AC 220 V

Hair Goods

Artiículos para el Cabello 整髪用品 发制品





11 09 05	Hair comb, pocket type with sack	Pc.
10	Hair brush, plastic	Pc.
11	Hair brush, bristle	Pc.

Hair Dryers

Secadores de pelo ヘアードライヤー 吹风机



Available in both 110V and 220V, approx. 1,200W – 1,800W. Normally they have 2 or 3 levels of heat / speed settings and cold shot. Please specify voltage and brand name when ordering.

11 09 12	Hair dryer, 110V 50/60Hz	Set
13	Hair dryer, 220V 50/60Hz	Set

Tooth Paste & Brushes

Pasta de Dientes y Cepillos 歯みがき，歯ブラシ 牙膏、牙刷





11 09 17	Tooth paste Colgate 75 grm	Tub.
20	Tooth paste Colgate 198 grm	Tub.
22	Tooth paste 100 grm	Tub.
21	Tooth paste 200 grm	Tub.
11 09 25	Tooth brush bristle	Pc.
26	Tooth brush nylon	Pc.
27	Tooth brush nylon hard	Pc.
29	Dental floss holder type	Pc.
30	Dental floss roll type 50 mtr	Pc.

Electric Toothbrushes

Cepillo de dientes eléctrico

電動式歯ブラシ 电动牙刷



Electric powered toothbrush with oscillating, rotating and pulsating technology. Power toothbrushes reach deep between teeth and along the gum line for a thorough clean.

Available in battery type, and rechargeable battery type, so please specify the battery or rechargeable type (voltage 110V or 220V) when ordering.

11 09 28	Electric Tooth Brush	Set

Shavers, etc.

Afeitadoras, etc. ひげそり 刮胡刀等



11 09 35	Shaver, hand, disposable 5's	Pkt
36	" , injector type	Pc.
40	Shaving blade, injector type	Pkt
45	Shaving brush	Pc.

Electric Shavers



Unit Per Set

CODE	Voltage	CODE	Voltage
11 09 37	AC 110V	**11 09 38**	AC 220V

Moustache Beard Trimmers

Recortadora para bigote y barba
ヒゲトリマー 胡须修剪器



Adjustable to 3, 6, 9, 12 and 15 mm hair cutting length. Can operate 45 minutes continuously on batteries.

Weight: Approx.120 g with batteries.

Unit Per Set

CODE	Voltage	CODE	Voltage
11 09 39	AC 110V	**11 09 41**	AC 220V

Nail Goods

Artiicylas para las Uñas つめ用品 指甲刀



11 09 50	Nail clipper regular	Pc.
51	Nail clipper with pared nail pocket	"
55	Nail brush, nylon	"

Cotton Buds

Bastoncillo de Algodón 綿棒 綿棒



11 09 61	Cotton buds, 100 sticks	Pkt

Shoe Goods

Artículos para los Zapatos 靴用品 鞋用品



11 09 70	Shoe polish liquid	75 ml	Btl
71	Shoe polish solid	45 grm	Tin
75	Shoe Laces		Pr.
77	Shoe polishing brush		Pc.

Interchangeable Lens Digital Camera

Cámara digital de objetivos intercambiables
レンズ交換式デジタルカメラ
可更换镜头数码相机



A digital camera that you can change lenses on the camera body to take different types of photography, such as portrait, landscape, or sports.

It has two different formats, Digital Single-lens Reflex (DSLR) and mirrorless cameras. DSLR camera has mirror and prism system to reflect light from the lens and preview the picture through viewfinder. Mirrorless camera uses electronic viewfinder or LCD screen on the back of the camera to preview the picture image without mirror and prism system.

Available in various brands and models, so please specify brand name, format and features when ordering.

11 11 26	Interchangeable Lens Digital Camera, DSLR	Pc.
11 11 27	Interchangeable Lens Digital Camera, mirrorless	Pc.

International Shortwave Broadcast Receivable Radios

Radios receptoras de emisiones internacionales de onda corta
小型短波ラジオ 国际短波广播可接收收音机



A short wave (SW) radio which can receive shortwave broadcast in many different locations around the world. It has LCD screen and many other features such as MP3 or Bluetooth playback and various kinds of build in recording systems. Available various types from many different manufacturers, so please specify brand name and model with power source voltage when ordering.

11 11 09	Handy type SW radio	Pc.
10	Portable type SW radio	Pc.

Digital Media Players

Reproductor multimedia digital
デジタルメディアプレイヤー
数字媒体播放器



Portable media players which can serve as data storage devices. Storage capacity varies by model and containing musics, photos, videos, and games etc.
Please specify the type of media player, model number, storage capacity etc. when ordering.

11 11 19	Digital Media Player	Pc.

Tablet Computers (Touch Panel)

Computadora tableta (pantalla táctil)
タブレットコンピューター（タッチパネル）
平板电脑（触摸式平板）



To help you achieve maximum usage across various demanding applications by "touch screen".

Designed for reading books and magazines, watching movies, playing games, and more (view larger) by various applications.

Those applications should be pre-installed or be able to download under the Internet access environment.

When ordering, please specify the maker name, model, size of storage(GB), size of display, and name of applications for pre-install.

11 11 20	Tablet Computer	Pc.

Headphones / Earphones

Auriculares/Audífonos　ヘッドホン / イヤホン　头戴耳机 / 耳机



A pair of small loudspeaker which let a single user listens to an audio source privately.

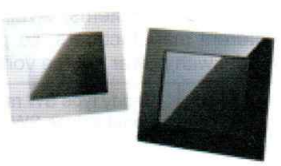
Basic functions are as follows;
- Connect to Bluetooth-enabled device.
- Ergonomically designed to fit ears.
- Wireless.
- Noise Canceling technology.

More functions are available in various manufacturers. Please specify the functions or models when ordering.

11 11 24	Headphones, with further details	Set
11 11 25	Earphones, with further details	"

Digital Photo Frames

Marco de fotos digital　デジタルフォトフレーム　数码相框



A picture frame that displays digital photos without the need of a computer or printer. You can create your digital photo gallery and have it displayed with its screen. This stylish digital frame lets you attach a memory card and start the photo slide show right away.

Please specify the flame size, kind of memory you use for. Ex) SD card, USB stick, Memory stick, etc when ordering.

Unit Per Set

CODE	Voltage	CODE	Voltage
11 11 21	AC 110 V	**11 11 22**	AC 220 V

IC Recorders
(Digital Voice Recorders)

Grabadoras IC　IC レコーダー　IC 录音机



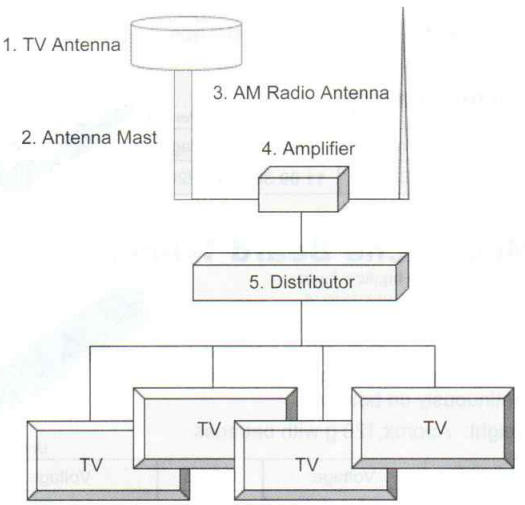
The IC recorder is recording data and storing it on the memory media, such as voice note at a meeting, an interview, music performance, any sounds and so on. And, the recording data files from IC recorder can be copied to your computer to store. Vice versa, MP3 files from your computer can be copied to the IC recorder to play them back.
Please note the computer operating system should be compatible between the IC recorder and your computer.

11 11 23	IC recorder (Digital voice recorder)	Pc.

Marine TV / Radio Antenna Systems

Sistema de antena de TV/radio para barcos
船舶用テレビ・ラジオ受信アンテナシステム
船用广播电视信号接受天线系统

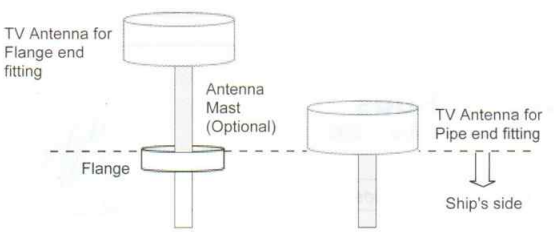
Omni-directional marine TV and radio antenna system assembled by optional component. The system is introduced as reference purpose for ordering the marine TV antenna. If you need more practical information, please contact your local supplier to satisfy your curiosity.



1. TV Antenna

Specification

Frequency Range (for FM and TV)	45 – 880 MHz
Frequency Range (for AM, FM and TV)	0.1 – 880 MHz
Supply Voltage	DC12V from Amp.
Average Gain	30 dB
Material	FRP redome



For 40A flange end ship's pole　For 40A pipe end ship's pole

Unit Per Pc.

CODE	Fitting	Type of Radio Wave		
		AM	FM	TV
11 11 51	For 40A flange end ship's pole	-	O	O
52		O	O	O
11 11 53	For 40A pipe end ship's pole	-	O	O
54		O	O	O

Remark : Antenna mast is optional.

2. Antenna Mast
It is necessary to install the TV antenna at 40A flange end ship's pole. Made of stainless steel.

11 11 55	Mast for TV antenna joint, stainless steel	Pc.

3. AM Radio Antenna (Whip Type)

11 11 56	Antenna, AM radio, whip type, FRP, L:2.6 mtr	Pc.

4. Antenna Amplifier
Automatic gain control type with F-connector. Supply voltage is AC 110V or 220V, and average gain is 40dB.

4-band automatic gain control circuits
AM TV FM Amplifier

Frequency (MHz)	0.1-30 AM	45-108 VHF-L	170-222 VHF-H	470-880 UHF
Gain (dB)	40	40	40	40
A.G.C (dB)	40	40	40	40
Max. Out (dB)	110	105	105	105

Amplifier only
External distributor is optional order.

Unit Per Pc.

CODE	Input	Output	Suitable Antenna
11 11 71	F × 2	F × 1	111151/53 (FM/TV) and 111156 (AM)
11 11 72	F × 1	F × 1	111152 / 54 (AM/FM/TV)

Amplifier with Built-in Distributor

Unit Per Pc.

CODE	Input	Output	Suitable Antenna
11 11 73	F × 2	F × 6	111151/53 (FM/TV) and 111156 (AM)
11 11 74	F × 1	F × 6	111152 / 54 (AM/FM/TV)

5. Antenna Distributor
Frequency range: 0.1 – 1,350 MHz
Connector: F-type connector

Unit Per Pc.

CODE	Input	Output	Distribution Loss
11 11 76	1	2	IN – OUT 4 dB
77	1	4	IN – OUT 8 dB
78	1	6	IN – OUT 12 dB

Marine TV Antennas
Antenas de Televisión Marina　船舶用アンテナ　船用电视天线



Marine TV antenna systems are omnidirectional, receiving signals in a full 360 degree radius, and require no additional adjustment when properly installed.

Receiving wideband TV–AM–FM signals (Frequency Range 40 – 890 MHz), antenna brings in beautiful colour pictures on both VHF and UHF television and provides for FM stereo reception at sea.

All internal electronic components are environmentally protected with a corrosion resistant coating. Exterior is made of white ABS plastic, which requires no maintenance.

Supplied with a mount for installation. Please specify if you require a straight mount, for parallel mounting on deck or the roof of the wheel house, or a bracket or mast mount, for mounting on a mast or a wall.

Also specify how many television units will be used with the antenna so the dealer can determine if a signal amplifier or booster is necessary.

Specification

Frequency Range	40 - 890 MHz
Average Gain	20 dB
Supply Voltage	AC 110 / 220 Volt

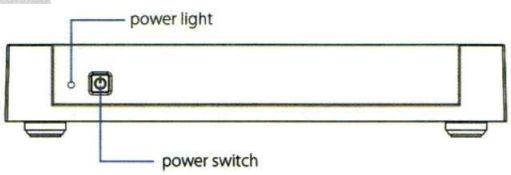
11 12 05	Marine TV antenna supply voltage AC 110/220V with assembly	Set

Smart Digital Tuner® Worldwide
Sintonizador universal de televisión digital terrestre
地上デジタルテレビチューナー　地面数字电视调谐器

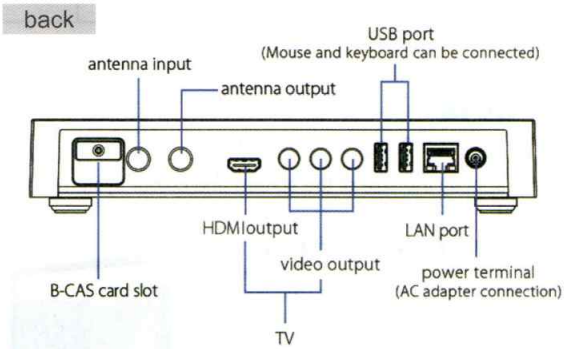


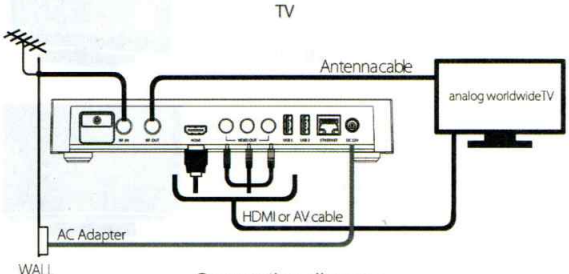
A worldwide digital terrestrial TV (DTT) receiver for ocean going ships. Designed to tune-in to all approved DTT broadcast standards, such as, ATSC, DVB-T/T2, ISDB-T, ISDB-Tb, and DTMB. This enables viewing of terrestrial digital broadcasts, on ships in port or navigating along a coastline, simply by connecting it for ships to an existing TV and antenna. Furthermore, internet browsing function is provided using built-in lightweight browser.

front



back





Connection diagram

Digital Terrestrial TV Broadcasting Standards by region

DVB-T/T2	European countries, Russia, Australia, Taiwan, Singapore, UAE etc.
ATSC	USA, Canada, Korea etc.
ISDB-T	Japan
ISDB-Tb	South America, Philippines etc.
DTMB	China, Hong Kong etc.

* To receive terrestrial digital broadcasts, it is necessary to have the corresponding TV antenna.
* Even if the antenna and this product are set up properly, and correctly connected, reception of terrestrial digital broadcasts will be impossible in countries without terrestrial digital broadcasting.
  In addition, various problems may occur such as blocking of signals by neighboring buildings, inability to receive weak signals, only being able to receive specific broadcasting channels, audio cutting out, and stopping of video, and appearance of block noise.
* Topographic conditions as well as weather conditions have great influence on TV terrestrial reception range.
* Pay broadcasts (scrambled broadcast) cannot be viewed.
* Internet (communication line and Internet service provider contract) is required to enjoy web browsing.

Specifications

Model	KST-2000-W
TV formats supported	ATSC1.0, DVB-T, DVB-T2/T2 HEVC, ISDB-T, ISDB-Tb, DTMB (Not supported AVS China)
Ports	HDMI output, RCA video output, USB×2, LAN, Antenna input/output (RF pass-through output), DC Jack
AC adaptor	100-240V, 50/60Hz
Power consumption	8W
Operating temperature	0 - 40°C
Operating humidity	20-80% No condensation
Dimension	242(W) × 44(H) × 125 mm(D)
Mass (Approx.)	450g
Accessories	AC Adapter, HDMI Cable, Remote controller, Foot plates, mini B-CAS card (for Japan)

11 12 06	Smart Digital Tuner Worldwide Model: KST-2000-W	Set

Name of Mfr: Kyokuyo Electric Co. Ltd.

11 Welfare Items

TV Sets

Aparatos de Televisión　テレビ　电视机

Please specify the size of the screen and colour system when ordering.

LCD (Liquid Crystal Display)



Unit Per Set

CODE	Size	CODE	Size
11 12 15	20" colour	**11 12 18**	37" colour
16	26" "	**19**	42" "
17	32" "	**20**	46" "

Plazma



Unit Per Set

CODE	Size	CODE	Size
11 12 28	37" colour	**11 12 43**	46" colour
29	42" colour	**44**	50" colour

DVD Players

Reproductores de DVD
DVD プレーヤー
DVD 播放器



Please specify manufacturer's name and model with power source voltage when ordering.

11 12 33	Digital video disc player	Set

Home Theater Systems

Soundbar & Subwoofer

Sistema de cine en casa　ホームシアターシステム
家庭影院系统



The soundbar is a basically small and wide speaker which can be placed above or below the display device (TV, home theater screen and computer monitor etc.).

Multiple speakers are placed in the soundbar cabinet which helps to create dynamic audio sounds. Subwoofer is also connected to create more dynamic bass sound.

Please specify the models when ordering.

11 12 39	Home Theater System, Soundbar & Subwoofer	Set

Wireless Speaker

Altavoz inalámbrico　ワイヤレススピーカー　无线扬声器



A speaker that uses Bluetooth or wi-fi technology to connect and stream audio from computer, smartphone or other compatible device without cables. It is usually portable and some are waterproof so easily placed both indoor and outdoor. Available in various types and manufacturers so please specify model and manufacturer with power sources when ordering.

11 12 40	Wireless speaker for further details	Pc.

Portable DVD Players

Reproductor de DVD portátil
ポータブル DVD プレイヤー　便携式 DVD 播放机



Enjoy your movies anytime, anyplace.

This portable DVD player comes with a compact built-in rechargeable battery for long-lasting power.

Please specify the brand/model name, and "DVD Region Code" for use with your regional software when ordering.

DVD Region Codes and Where They Are Used

DVD Region Code	Geographic Region(s) Used
1	USA and Canada (not Mexico or Greenland)
2	Western Europe, the Middle East, South Africa, and Japan
3	Southeast Asia
4	Central and South America and Oceania
5	Africa, India, and countries of the Former Soviet Union
6	Mainland China

11 12 38	Portable DVD Player	Set

Digital Video Cameras

Cámaras de video digital
デジタルビデオカメラ　8㎜ 摄像机



For recording, manipulating, and displaying moving images in digital format, and images can be

presented on a LCD monitor or television. Available various models from various manufacturers, and colour systems will differ from country. Please ask for and model with colour system. Please contact with your local dealer about further details.

Unit Per Set

CODE	Description	CODE	Description
11 12 41	PAL	11 12 42	NTSC

Karaoke Singing Instruments

Aparato para cantar karaoke　カラオケセット　卡拉 OK 机

11 12 45	Karaoke DVD, with further details	Pc.
11 12 46	Karaoke singing microphone, plug and play system, with built in songs.	Pc.
47	Song chip for upgrading Karaoke singing microphone, WITH YOUR LANGUAGE to be specified.	"

Blank DVD-R and DVD-RW

DVD-R y DVD-RW Vírgenes　ブランク DVD-R, DVD-RW

DVD-R 及 DVD-RW

An extremely large capacity digital versatile disc for storage video movies. Typically storage capacity is 4.7 GB per disc. DVD-R is for recording only, and DVD-RW is for rewritable.



Unit Per Pkt

CODE	Q'ty/Pkt	CODE	Q'ty/Pkt
DVD-R (Recordable)		DVD-RW (Rewritable)	
47 26 91	5's	47 26 96	5's
92	10's	97	10's
93	20's	99	20's
94	50's	47 27 00	50's
98	100's		

Films with Lens

Cámaras Desechables　使い捨てカメラ

一次性照相机

Films with lens and recyclable frame. Available with flash type, also.



Unit Per Pc.

CODE	Films	CODE	Films
Without Flash		With Flash	
47 18 75	27 shots	47 18 76	27 shots
77	39 shots	78	39 shots

Christmas Decorations

Decoraciones para la Navidad

クリスマスデコレーション

圣诞节用品



11 18 01	Xmas tree with pot, plastic, 1.2 mtr height	Pc.
02	Xmas tree with stand, plastic, 1.5 mtr height	"
05	Decoration set for Xmas tree M	Set
06	Decoration set for Xmas tree L	"
07	Decoration set for Xmas tree deluxe	"
11	Illumination for Xmas tree AC 110V 50's	"
12	Illumination for Xmas tree AC 220V 40's	"
13	Illumination for Xmas tree AC 220V 30's	"
11 18 15	Interior decoration set for Xmas	Set
20	Poinsettia in pot fresh	Pc.
25	Artificial snow spray in tin	Tin
30	Napkin paper for Xmas 20's	Pkt
35	Paper table cloth for Xmas 120 x 180 cm	Sht
11 18 40	Balloon, rubber coloured	Pc.
43	Cracker	"
45	Candle, straight	"
46	Candle, twisted	"

Wears

Ropa　衣類　衣服类



Sporting Collared Shirt Coloured (Short Sleeve)



T-Shirt (Short Sleeve)



Short Pants

Open Collared Shirts Short Sleeve

Unit Per Pc.

CODE	Colour/Size	CODE	Colour/Size
11 20 01	White M	11 20 06	Khaki M
02	" L	07	" L
03	" LL	08	" LL

Sporting Collared Shirts Coloured

Unit Per Pc.

CODE	Colour/Size	CODE	Colour/Size
11 20 21	Short sleeve M	11 20 26	Long sleeve M
22	" L	27	" L
23	" LL	28	" LL

T-Shirts (Short Sleeve)

Unit Per Pc.

CODE	Colour/Size	CODE	Colour/Size
11 20 31	White M	11 20 36	Colour M
32	" L	37	" L
33	" LL	38	" LL

Short Pants

Unit Per Pr.

CODE	Colour/Size	CODE	Colour/Size
11 20 41	White M	11 20 46	Khaki M
42	" L	47	" L
43	" LL	48	" LL

Fleece Jackets and Trousers

Chaqueta y pantalones de tela polar antiestática

フリースジャケット・ズボン　摇粒绒外套、裤子



Anti-static

Made of 100% Polyester Polar Fleece, with anti-pilling and anti-static property.
Jacket : Adjustable bottom hem, and zipped side pockets with contrasting mesh lining. Weight: 280 grm. Trousers : Elasticated waistband with draw string, and elasticated hems at bottom. Two single welted side pockets.
Weight: 280 grm.

Jacket

Unit Per Pc.

CODE	Size	CODE	Size
Black / Orange		**Navy / Yellow**	
11 20 51	S	**11 20 58**	S
52	M	**59**	M
53	L	**60**	L
54	XL	**61**	XL
55	2XL	**62**	2XL
11 20 56	3XL	**11 20 63**	3XL
57	4XL	**64**	4XL

Trousers

Unit Per Pr.

CODE	Size	CODE	Size
Black / Orange		**Navy / Yellow**	
11 20 65	S	**11 20 72**	S
66	M	**73**	M
67	L	**74**	L
68	XL	**75**	XL
69	2XL	**76**	2XL
11 20 70	3XL	**11 20 77**	3XL
71	4XL	**78**	4XL

Seamen's Sweaters

Suéter de Marinero シーメン用セーター 水手用毛衣

A military type round neck woolen sweater with patches on shoulders and elbows. Normally supplied in Navy Blue colour.



Unit Per Pc.

CODE	Neck Size	Height Cm	CODE	Neck Size	Height Cm
19 06 81	36	160	**19 06 84**	42	175
82	38	165	**85**	44	180
83	40	170	**86**	46	190

Underwears

Ropa Interior 下着類 内衣



Cotton Undershirts

Unit Per Pc.

CODE	Colour/Size	CODE	Colour/Size
Shortsleeve (Crew Neck)		**Sleeveless (Athletic Shirt)**	
11 21 01	White M	**11 21 11**	White M
02	White L	**12**	White L
03	White LL	**13**	White LL
11 21 06	Colour M	**11 21 16**	Colour M
07	Colour L	**17**	Colour L
08	Colour LL	**18**	Colour LL

Cotton Briefs

Unit Per Pr.

CODE	Colour/Size	CODE	Colour/Size
11 21 31	White M	**11 21 36**	Colour M
32	White L	**37**	Colour L
33	White LL	**38**	Colour LL

Cotton Trunks

Unit Per Pr.

CODE	Size	CODE	Size
11 21 41	Colour M	**11 21 43**	Colour LL
42	Colour L		

Socks Acryl / Cotton

Unit Per Pr.

CODE	Colour	CODE	Colour
11 21 51	White	**11 21 52**	Coloured

Sandals

Sandalias サンダル 拖鞋



Beach Plastic Plastic Slipper Type

Unit Per Pr.

CODE	Size	CODE	Size	CODE	Size
Beach		**Plastic**		**Plastic Slipper Type**	
11 22 01	M	**11 22 06**	M	**11 22 11**	M
02	L	**07**	L	**12**	L
03	LL	**08**	LL	**13**	LL

House Shoes (Slippers)

Zapatillas スリッパ 室内鞋

A soft and lightweight shoes for indoor use.



11 22 15	House shoes (Slippers)	Pr.

00 & 10

Provisions & Slop Chest

Fresh Vegetables  P.00 & 10-1 ~ 2	Frozen Vegetables  P.00 & 10-2 ~ 3	Fresh Fruits/ Frozen Fruits  P.00 & 10-3	Fish (Common Fish) Fresh, Frozen  P.00 & 10-3 ~ 4	Fish, Salted, Dried, Smoked  P.00 & 10-4 ~ 5
Shell Fish/Molluscs  P.00 & 10-5	Bread/ Cake/ Pastry  P.00 & 10-6	Eggs/Milk/ Yogurt/ Ice Cream  P.00 & 10-6 ~ 7	Butter, Cheese  P.00 & 10-7 ~ 8	Oil and Fat  P.00 & 10-8
Tinned Vegetables  P.00 & 10-8	Tinned Fruits  P.00 & 10-8 ~ 9	Tinned fish  P.00 & 10-9	Beans and Peas, Dry  P.00 & 10-9 ~ 10	Fruits and Nuts, Dry  P.00 & 10-10
Jam and Marmalade  P.00 & 10-10 ~ 11	Juice  P.00 & 10-11	Syrup  P.00 & 10-11 ~ 12	Coffee/Cocoa/ Tea  P.00 & 10-12	Pasta and Noodle  P.00 & 10-12 ~ 13
Cereals  P.00 & 10-13	Grains/ Cake Mix  P.00 & 10-13 ~ 14	Salt and Sugar  P.00 & 10-14	Food Colour/ Essence/ Pudding/ Gelatin  P.00 & 10-14	Biscuit/ Cracker Snack/ Wafer  P.00 & 10-15
Sauce and Gravy/ Sauce Mix  P.00 & 10-15 ~ 16	Dressing and Vinegar  P.00 & 10-16	Seasoning and Flavor/ Bouillon  P.00 & 10-16	Pickles (Olive, Caper) Western & Oriental  P.00 & 10-16 ~ 17	Spices and Herbs  P.00 & 10-17 ~ 18
Soup Powder  P.00 & 10-18 ~ 19	Soy Bean Products & Oriental Speciality  P.00 & 10-19	Meat: Beef/Veal  P.00 & 10-19 ~ 20	Meat: Pork  P.00 & 10-20	Meat: Mutton/Lamp  P.00 & 10-20 ~ 21
Meat: Poultry  P.00 & 10-21	Meat Products: Ham/ Bacon/ Sausage  P.00 & 10-21	Tinned Meat  P.00 & 10-21 ~ 22	Ready Made Products  P.00 & 10-22	Beer P.00 & 10-22
Japanese Beer P.00 & 10-22	Whisky P.00 & 10-22 ~ 23	Wine/Brandy/Sherry P.00 & 10-23 ~ 24	Spirits & Liqueur P.00 & 10-24	Japanese Spirits & Liqueur P.00 & 10-24
Soft Drinks P.00 & 10-24 ~ 25	Cigarettes & Tobaccoes P.00 & 10-25		Japanese Cigarettes &Tobaccoes P.00 & 10-25	

CODE	Description		UOM
Fresh Vegetables			
000101	ASPARAGUS GREEN FRESH		KGS
000103	BAMBOO SHOOT FRESH		KGS
000104	BASIL FRESH		KGS
000105	BEAN SPROUT FRESH		KGS
000106	BEAN SPROUT LARGE (SOYA) FRESH		KGS
000107	BEANS STRING FRESH		KGS
000108	BEETROOT TOPPED FRESH		KGS
000102	BOTTLE GOURD FRESH (LOUKI)		KGS
000109	BROCCOLI FRESH		KGS
000110	BRUSSELS SPROUT FRESH		KGS
000111	BURDOCK (GOBO) FRESH		KGS
000114	CABBAGE CHINESE FRESH		KGS
000115	CABBAGE HARD WHITE FRESH		KGS
000153	CABBAGE KALE FRESH		KGS
000116	CABBAGE RED FRESH		KGS
000117	CARROT TOPPED FRESH		KGS
000118	CAULIFLOWER TRIMMED FRESH		KGS
000120	CELERY JAPANESE (MITSUBA)	FRESH	KGS
000112	CELERY ROOT FRESH		KGS
000119	CELERY TABLE FRESH		KGS
000113	CHAYOTE FRESH		KGS
000121	CHICORY FRESH		KGS
000127	CHILI PADI FRESH		KGS
000122	CHIVES STEM FRESH		KGS
000123	CORN ON COB FRESH		KGS
000125	CORIANDER FRESH		KGS
000124	CUCUMBER FRESH		KGS
000126	DILL FRESH		KGS
000128	DRUM STICK FRESH (INDIAN)		KGS
000129	EGGPLANT FRESH		KGS
000130	ENDIVE FRESH		KGS
000131	ENDIVE BELGIAN FRESH		KGS
000132	FENNEL WEED FRESH		KGS
000134	GARLAND CHRYSANTHEMUM FRESH		KGS
000135	GARLIC DRY		KGS
000173	GARLIC FLOWER STEM		KGS
000133	GARLIC PEELED FRESH		KGS
000136	GINGER ROOT FRESH		KGS
000137	GINGER YOUNG (HAJIKAMI) FRESH		KGS
000199	GOURD BITTER FRESH		KGS
000184	GOURD SNAKE FRESH		KGS
000138	HORSERADISH FRESH		KGS
000140	LEEK FRESH		KGS
000141	LETTUCE ICEBERG FRESH		KGS
000143	LETTUCE SALAD FRESH		KGS
000144	LETTUCE SUNNY FRESH		KGS
000145	LOTUS ROOT FRESH		KGS
000146	MARJORAM FRESH		KGS
000147	MARROW JAPANESE TOGAN FRESH		KGS
000148	MINT LEAF FRESH		KGS
000149	MUSHROOM FRESH		KGS
000151	MUSHROOM FRESH STRAW	(ENOKI-TAKE)	KGS
000152	MUSHROOM FRESH DARK (SHIITAKE)		KGS
000154	OKRA LADY FINGER FRESH		KGS
000159	ONION RED DRY		KGS
000155	ONION SCALLION FRESH		KGS
000156	ONION SPRING FRESH		KGS
000157	ONION WHITE SMALL FRESH		KGS

CODE	Description		UOM
000158	ONION YELLOW DRY		KGS
000161	PAC CHOI FRESH		KGS
000162	PARSLEY FRESH		KGS
000163	PEANUTS RAW		KGS
000164	PEAS GREEN FRESH		KGS
000165	PEPPER BELL GREEN FRESH		KGS
000166	PEPPER BELL RED FRESH		KGS
000160	PEPPER BELL YELLOW FRESH		KGS
000167	PEPPER CHILLI GREEN FRESH		KGS
000168	PEPPER CHILLI RED FRESH		KGS
000170	POTATO LARGE BAKING RUSSET	FRESH	KGS
000169	POTATO SELECTED FRESH		KGS
000171	POTATO SWEET FRESH		KGS
000172	PUMPKIN FRESH		KGS
000175	RADISH RED FRESH		KGS
000176	RADISH WHITE FRESH (DAIKON)		KGS
000139	RIDGE GOURD INDIAN (TURAI)		KGS
000177	ROSEMARY FRESH		KGS
000178	RUCOLA (ROCKET) WHOLE FRESH		KGS
000180	SAGE FRESH		KGS
000182	SPINACH FRESH		KGS
000179	SPINACH WATER(KANG KONG) FRESH		KGS
000183	SQUASH YELLOW		KGS
000185	TARRAGON (ESTRAGON) FRESH		KGS
000186	TARO (SATOIMO) FRESH		KGS
000187	TOMATO SELECTED FRESH		KGS
000188	TOMATO CHERRY RIPE FRESH		KGS
000190	TURNIP WHITE ROUND FRESH	(KABU)	KGS
000191	TURNIP YELLOW FRESH		KGS
000194	WATERCRESS FRESH		KGS
000196	YAM CHINESE (NAGAIMO) FRESH		KGS
000198	ZUCCHINI (SQUASH) FRESH		KGS
Frozen Vegetables			
000301	ASPARAGUS SPEAR FROZEN		KGS
000305	BEANS BROAD FROZEN		KGS
000307	BEANS GREEN FRENCH CUT FROZEN		KGS
000308	BEANS LIMA FORDHOOK FROZEN		KGS
000309	BEANS STRING WHOLE FROZEN		KGS
000311	BEANS YELLOW WAX FROZEN		KGS
000315	BROCCOLI FROZEN		KGS
000316	BRUSSELS SPROUT FROZEN		KGS
000313	CARROT BABY FROZEN		KGS
000319	CARROT CHATEAU CUT FROZEN		KGS
000320	CARROT DICED FROZEN		KGS
000318	CARROT WHOLE FROZEN		KGS
000321	CAULIFLOWER FROZEN		KGS
000323	COLLARD GREENS FROZEN		KGS
000324	CORN ON COB FROZEN		PCS
000326	CORN KERNEL FROZEN		KGS
000329	EGGPLANT FROZEN		KGS
000330	HORSERADISH GRATED FROZEN		KGS
000333	LOTUS ROOT FROZEN		KGS
000334	MIXED VEGETABLE FROZEN		KGS
000335	MUSHROOM SLICED FROZEN		KGS
000337	OKRA CUT FROZEN		KGS
000338	ONION RING BREADED FROZEN		KGS
000341	PEAS GREEN FROZEN		KGS
000342	PUMPKIN FROZEN		KGS
000363	POTATO CROQUETTE FROZEN		KGS

CODE	Description		UOM
000361	POTATO FRENCH FRY FROZEN		KGS
000364	POTATO HASH BROWN FROZEN		KGS
000367	POTATO WEDGE FROZEN		KGS
000345	RHUBARB FROZEN		KGS
000348	SPINACH FROZEN		KGS
000352	TARO (SATOIMO) FROZEN		KGS
000356	ZUCCHINI SLICED FROZEN		KGS
Fresh Fruits / Frozen Fruits			
000501	APPLE RED FRESH		KGS
000507	APPLE GOLDEN DELICIOUS FRESH		KGS
000511	APPLE GREEN FRESH		KGS
000515	APRICOT FRESH		KGS
000517	AVOCADO FRESH		KGS
000519	BANANA HALF RIPE		KGS
000521	CHERRY FRESH		KGS
000524	CHESTNUT FRESH		KGS
000523	DRAGON FRUITS FRESH		KGS
000526	GRAPE BLACK FRESH		KGS
000527	GRAPE DELAWARE FRESH		KGS
000530	GRAPE GREEN FRESH		KGS
000528	GRAPE RED FRESH		KGS
000533	GRAPEFRUIT FRESH		KGS
000532	GUAVA FRESH		KGS
000535	KIWIFRUIT FRESH		KGS
000538	LEMON FRESH		KGS
000540	LIME FRESH		KGS
000541	LYCHEE FRESH		KGS
000542	MANGO FRESH		KGS
000543	MANGOSTEEN FRESH		KGS
000544	MELON SWEET CANTALOUPE FRESH		KGS
000545	MELON SWEET HONEYDEW FRESH		KGS
000546	MELON SWEET MUSK FRESH		KGS
000547	MELON SWEET PRINCE FRESH		KGS
000548	MELON WATER FRESH		KGS
000552	NECTARINE FRESH		KGS
000551	ORANGE MANDARIN FRESH		KGS
000554	ORANGE FRESH		KGS
000558	PAPAYA FRESH		KGS
000557	PEACH FRESH		KGS
000559	PEAR FRESH		KGS
000561	PEAR JAPANESE FRESH		KGS
000562	PERSIMMON FRESH		KGS
000563	PINEAPPLE FRESH		KGS
000564	PLUM FRESH		KGS
000566	RAMBUTAN FRESH		KGS
000565	STRAWBERRY FRESH		KGS
000581	APRICOT HALVES FROZEN		KGS
000584	BLUEBERRY FROZEN		KGS
000585	BOYSENBERRY FROZEN		KGS
000588	RASPBERRY FROZEN		KGS
000590	STRAWBERRY FROZEN		KGS
Fish (Common Fish) Fresh, Frozen			
000723	BISUGO FISH FROZEN		KGS
000704	BONITO WHOLE FROZEN		KGS
000709	BIGEYE SCAD FISH FROZEN	FILIPINO (MATAMBAKA)	KGS
000705	CAT FISH FROZEN		KGS
000707	CODFISH HEADLESS FROZEN		KGS
000708	CODFISH FILLET FROZEN		KGS
000702	DORY FILLET FROZEN		KGS

CODE	Description		UOM
000710	EEL WHOLE FROZEN		KGS
000713	FLOUNDER WHOLE FROZEN		KGS
000714	FLOUNDER FILLET FROZEN		KGS
000712	GROUPER/LAPU LAPU FROZEN		KGS
000716	HADDOCK HEADLESS FROZEN		KGS
000717	HADDOCK FILLET FROZEN		KGS
000718	HAIR TAIL(BELT FISH, TACHIUO)	FROZEN	KGS
000715	HAKE FILLET FROZEN		KGS
000720	HALIBUT FILLET FROZEN		KGS
000719	HALIBUT HEADLESS FROZEN		KGS
000721	HERRING FROZEN		KGS
000722	MACKEREL KING FISH FROZEN		KGS
000725	MACKEREL FROZEN		KGS
000728	MACKEREL HORSE FROZEN		KGS
000729	MACKEREL PIKE (SANMA) FROZEN		KGS
000791	MILK FISH FROZEN		KGS
000733	MULLET WHOLE FROZEN		KGS
000734	PANGASIUS FISH FILLET FROZEN		KGS
000739	PERCH FILLET FROZEN		KGS
000738	PLAICE FILLET FROZEN		KGS
000742	POLLOCK FILLET FROZEN		KGS
000740	POMFRET WHOLE FROZEN		KGS
000741	POND SMELT (WAKASAGI) FROZEN		KGS
000743	RAINBOW TROUT FROZEN		KGS
000744	RED FISH (GAROUPA) HEADLESS	FROZEN	KGS
000746	SALMON FILLET FROZEN		KGS
000747	SALMON WHOLE FROZEN		KGS
000750	SARDINE FROZEN		KGS
000751	SEABASS WHOLE FROZEN		KGS
000752	SEABASS FILLET FROZEN		KGS
000757	SEAFOOD MIX FROZEN		KGS
000753	SNAPPER RED SMALL FROZEN		KGS
000754	SNAPPER RED LARGE FROZEN		KGS
000755	SNAPPER RED MEDIUM FROZEN		KGS
000758	SOLE FISH FROZEN		KGS
000763	SWORD FISH FROZEN		KGS
000771	THREADFIN BREAM FROZEN	FILIPINO (BISUGO)	KGS
000764	TREVALLY FISH FROZEN	FILIPINO(TALAKITOK)	KGS
000769	TUNA FISH FILLET FROZEN		KGS
000768	TUNA FISH WHOLE FROZEN		KGS
000781	YELLOW FISH FROZEN		KGS
000782	YELLOW TAIL (BURI) FROZEN		KGS
000790	TILAPIA FROZEN		KGS
Fish, Salted, Dried, Smoked			
000901	ABALONE DRIED		KGS
000902	ANCHOVY SALTED		KGS
000905	CODFISH DRIED		KGS
000908	CODFISH SMOKED		KGS
000910	COD ROE SALTED (MENTAIKO)		KGS
000912	COMPOY (SCALLOP) DRIED		KGS
000916	CRAB STICK		KGS
000917	EEL SMOKED OPEN BONELESS	VACUUM PACKED	KGS
000921	HADDOCK FILLET SMOKED		KGS
000923	HERRING KIPPERED		KGS
000925	JELLYFISH SALTED (SHIOKURAGE)		KGS
000928	MACKEREL DRIED		KGS
000929	MACKEREL SALTED		KGS
000930	MACKEREL HORSE DRIED		KGS
000931	MACKEREL PIKE (SANMA) DRIED		KGS

CODE	Description		UOM
000932	MACKEREL PIKE (SANMA) "HIRAKI"	(AJI HIRAKI)	KGS
000933	MACKEREL PIKE (SANMA) "HIRAKI"	(AJI MIRIN)	KGS
000934	POLLACK DRIED SALTED BONELESS		KGS
000936	RAINBOW TROUT SMOKED		KGS
000938	SALMON WHOLE SMOKED		KGS
000939	SALMON RED HALFSIDE SMOKED		KGS
000940	SALMON ROE SALTED (IKURA)		KGS
000943	DRIED FISH FOR SOUP	(IRIKO/NIBOSHI)	KGS
000945	SARDINE DRIED SALTED	(MARUBOSHI)	KGS
000946	SARDINE DRIED SALTED (MEZASHI)		KGS
000948	SEA CUCUMBER (TREPANG) DRIED		KGS
000949	SHARK'S FIN DRIED		KGS
000950	SHRIMP SALTED & FERMENTED		KGS
000951	SHRIMP PEELED DRIED		KGS
000952	SQUID DRIED		KGS
000953	SQUID SALTED & FERMENTED		KGS
000954	TINY CRAPED DRIED FISH	(SHIRASUBOSHI)	KGS
000957	TINAPA GALLUNGONGS	(SMOKED SMALL FISH)	KGS
000955	TROUT SALTED (SHIOMASU)		KGS
000971	AGAR-AGAR (TOKOROTEN)	160GRM/PKT	KGS
000991	BONITO DRIED FLAKE	(HANAKATSUO) 5GX5S	KGS
000972	LAVER DRIED SHEET		PCS
000973	LAVER FLAVOURED (AJITSUKENORI)	100PCS/BTL	PCS
000974	SEA TANGLE DRIED FOR SOUP	(DASHI-KOBU)	KGS
000975	SEA WEED DRIED (HOSHI WAKAME)		KGS
000976	SEA WEED SALTED (SHIO WAKAME)		KGS
000980	FISH FINGER FROZEN		KGS
000982	FISH PASTE FRIED (SATSUMAAGE)		PCS
000984	FISH PASTE STEAMED (KAMABOKO)		PCS
000985	FISH PASTE STEAMED KAMABOKO	CRAB FLAVOR	KGS
000990	FISH (SQUID) BALL		KGS
Shell Fish / Molluscs			
001102	BLOODY CLAM (AKAGAI) W/O SHELL	FROZEN	KGS
001105	CLAM WITH SHELL FROZEN		KGS
001109	COCKLE (TORIGAI) W/O SHELL	FROZEN	KGS
001111	MUSSEL WITHOUT SHELL		KGS
001112	MUSSEL WITH SHELL		KGS
001115	OYSTER W/O SHELL FROZEN		KGS
001117	SCALLOP FROZEN		KGS
001121	CRAB WHOLE FROZEN		KGS
001122	CRAB LEG KING FROZEN		KGS
001124	CRAB FLOWER FROZEN		KGS
001127	LOBSTER WHOLE FROZEN		KGS
001128	LOBSTER TAIL FROZEN		KGS
001131	PRAWN WHOLE FROZEN		KGS
001132	PRAWN HEADLESS MEDIUM FROZEN		KGS
001133	PRAWN HEADLESS LARGE FROZEN		KGS
001136	SHRIMP HEADLESS FROZEN		KGS
001137	SHRIMP PEELED FROZEN		KGS
001138	SHRIMP WHOLE FROZEN		KGS
001151	CALAMARY FROZEN		KGS
001152	SQUID (CUTTLE-FISH) FROZEN		KGS
001153	INK FISH FROZEN		KGS
001155	SQUID CLEANED TUBE FROZEN		KGS
001157	OCTOPUS SMALL FROZEN		KGS
001158	OCTOPUS LARGE FROZEN		KGS
001159	OCTOPUS BOILED FROZEN		KGS
001161	FROG LEG FROZEN		KGS

CODE	Description		UOM
Bread / Cake / Pastry			
001506	BAGUETTES		PCS
001507	BAKLAVA FROZEN		KGS
001571	BAKLAVA LEAF FRESH		KGS
001509	BREAD BROWN SLICED APP. 1KG		KGS
001510	BREAD BROWN SMALL 350G		KGS
001513	BREAD RYE 420GRM (50% RYE)		LOV
001514	BREAD RYE 1KG (50% RYE)		KGS
001516	BREAD RYE STANDARD FROZEN		KGS
001517	BREAD RYE FULLCORN FROZEN		KGS
001520	BREAD BAGEL		PCS
001521	BREAD FRENCH MINI		LOV
001523	BREAD FRENCH 500GRM/LOV		KGS
001527	BREAD CROISSANT		PCS
001528	BREAD DINNER ROLL		PCS
001588	BREAD DONUT		PCS
001529	BREAD HOT DOG ROLL		PCS
001530	BREAD TABLE ROLL		PCS
001531	BREAD ENGLISH MUFFIN 4'S/PKT		KGS
001532	BREAD HAMBURGER BUN		PCS
001574	BREAD NAAN 425GRM 5'S/PKT		KGS
001534	BREAD PUMPERNICKEL 1.5KG		KGS
001535	BREAD PUMPERNICKEL LONG LIFE	250GRM	PKT
001537	BREAD PITTA 5'S/PKT		KGS
001502	BREAD WHITE APP	APP. 1KG/LOV	LOV
001503	BREAD WHITE SLICED	APP. 1KG/LOV	LOV
001539	BREAD WHOLE MEAL SLICED	APP. 1KG	KGS
001591	CAKE BUTTER CREAM FANCY	24CM DIA	PCS
001592	CAKE BUTTER CREAM FANCY	32CM DIA	PCS
001541	CAKE CHEESE FROZEN 6'S/PKT		PKT
001593	CAKE CHOCOLATE FANCY	24CM DIA	PCS
001594	CAKE CHOCOLATE FANCY	32CM DIA	PCS
001543	CAKE CHOCOLATE FROZEN 6'S/PKT		PKT
001548	CAKE LAYER BASE		PCS
001544	CAKE ROLLED W/ICE CREAM FROZEN	6'S/PKT FROZEN	PCS
001545	CAKE ROLLED		PCS
001587	CAKE SWISS ROLL 300GRM		PCS
001547	CAKE YOGURT W/FRUIT SAUCE	730GRM FROZEN	PCS
001578	CHAPPATI 10'S		PCS
001581	CRISPBREAD 250GRM		PCS
001561	HALVA GREEK 450GRM/PKT		KGS
001550	PAPADUM 200GRM/PKT		KGS
001570	PARATHA PLAIN 400GRM/PKT		KGS
001552	PASTRY DANISH ASSORTED		PCS
001553	PASTRY PUFF READY ASSORTED		PCS
001554	PASTRY PUFF UNCOOKED FROZEN		KGS
001556	PIE FRUIT ASSORTED FROZEN		PCS
001557	PIE PIZZA READY TO COOK MIXED	7" FROZEN	PCS
001559	PIZZA BASE 7 INCH FROZEN		PCS
001560	PIZZA BASE 10 INCH FROZEN		PCS
001576	RICE PAPER 22CM 20'S/PKT		PCS
001573	SPRING ROLL SKIN 50'S/PKT		PCS
001568	TORTILLA WRAP 8" PRESSED	10'S/PKT	PCS
001569	TORTILLA CORN 6" PRESSED	10'S/PKT	PCS
001597	X'MAS PUDDING 15CM DIA		PCS
001577	WANTON WRAPPER 30'S		PCS
Eggs / Milk / Yogurt / Ice Cream			
001701	EGG FRESH MEDIUM		PCS
001702	EGG FRESH LARGE		PCS

CODE	Description		UOM
001705	EGG WHOLE LIQUID PASTEURIZED		KGS
001707	EGG DUCK SALTED		PCS
001708	EGG DUCK PRESERVED		PCS
001706	EGG QUAIL FRESH 10'S/PKT		PKT
001799	MILK ALMOND 330ML X 24TIN		LTR
001709	MILK BUTTER		LTR
001710	MILK COCONUT		LTR
001718	MILK CONDENSED	APPROX. 400GRM/TIN	KGS
001745	MILK EVAPORATED	APPROX. 410GRM/TIN	KGS
001713	MILK FRESH PASTEURIZED 1 LTR		LTR
001715	MILK LONG LIFE 1 LTR		LTR
001716	MILK LOW FAT PASTEURIZED 1LTR		LTR
001798	MILK SOYA 330ML X 24TIN		LTR
001747	MILK POWDER		KGS
001719	MILK POWDER FULL CREAM 28%BF		KGS
001731	CREAM SOUR		KGS
001735	CREAM WHIPPING FRESH		LTR
001738	CREAM FOR COFFEE FRESH	INDIVIDUAL PACK 50'S	PCS
001751	ICE CREAM ASSORTED 130ML		CUP
001752	ICE CREAM ASSORTED		LTR
001755	ICE CREAM CHOCOLATE		LTR
001756	ICE CREAM STRAWBERRY		LTR
001754	ICE CREAM VANILLA		LTR
001761	ICE CREAM MIX POWDER FAT 18%	900GRM/BAG	KGS
001762	ICE CREAM SOFT MIX LIQUID	1LTR/PKT	LTR
001763	ICE CREAM CONE		PCS
001772	SHERBET ASSORTED		LTR
001781	YEAST FRESH 500GRM/PKT		KGS
001724	YOGURT FRUIT ASSORTED		KGS
001728	YOGURT GREEK		LTR
001721	YOGURT PLAIN		KGS
Butter, Cheese			
002001	BUTTER FRESH SALTED		KGS
002003	BUTTER FRESH UNSALTED		KGS
002043	CHEESE SLICED YELLOW		KGS
002044	CHEESE BLUE		KGS
002045	CHEESE CAMEMBERT		KGS
002046	CHEESE CREAM PHILADELPHIA		KGS
002047	CHEESE JARLSBERG		KGS
002048	CHEESE PROVOLONE		KGS
002049	CHEESE RICOTTA		KGS
002051	CHEESE BOURSIN GARLIC		KGS
002052	CHEESE BOURSIN PEPPER		KGS
002053	CHEESE BRIE		KGS
002054	CHEESE CHEDDAR RINDLESS		KGS
002055	CHEESE CHEDDAR		KGS
002057	CHEESE COTTAGE		KGS
002058	CHEESE CREAM		KGS
002071	CHEESE EDAM		KGS
002077	CHEESE EMMENTAR		KGS
002072	CHEESE FETA		KGS
002059	CHEESE GOAT		KGS
002073	CHEESE GOUDA		KGS
002085	CHEESE MASCARPONE		KGS
002062	CHEESE MOZZARELLA		KGS
002063	CHEESE MOZZARELLA SHREDDED		KGS
002064	CHEESE PARMESAN GRATED		KGS
002084	CHEESE PANEER		KGS
002066	CHEESE PORT SALUT		KGS

CODE	Description		UOM
002067	CHEESE PROCESSED		KGS
002068	CHEESE SLICED WHITE		KGS
002079	CHEESE SPREAD BACON		KGS
002080	CHEESE SPREAD HAM		KGS
002081	CHEESE SPREAD PLAIN		KGS
002082	CHEESE SPREAD MUSHROOM		KGS
002083	CHEESE SPREAD SHRIMP		KGS
Oil and Fat			
002201	OIL COOKING		KGS
002202	OIL COCONUT		KGS
002228	OIL CORN		LTR
002203	OIL OLIVE		KGS
002204	OIL PEANUT		KGS
002205	OIL SALAD		KGS
002207	OIL CHILLI HOT CHINESE		KGS
002224	OIL MUSTARD INDIAN		LTR
002208	OIL SESAME		KGS
002226	OIL SUNFLOWER 5LTR CAN		LTR
002227	OIL SUNFLOWER		LTR
002232	GHEE VEGETABLE FAT		KGS
002221	LARD PURE		KGS
002240	MARGARINE SALTED TABLE		KGS
002242	MARGARINE COOKING		KGS
002243	MARGARINE FOR PASTRY		KGS
002245	MARGARINE INDIVIDUAL 100'S		KGS
002251	SHORTENING		KGS
Tinned Vegetables			
002401	ARTICHOKE HEART	TINNED	KGS
002404	ASPARAGUS SPEAR	TINNED	KGS
002408	BAMBOO SHOOT	TINNED	KGS
002410	BEANS BAKED IN TOMATO SAUCE	TINNED	KGS
002416	BEANS BAKED WITH PORK	TINNED	KGS
002417	BEANS GREEN CUT	TINNED	KGS
002418	BEANS KIDNEY RED	TINNED	KGS
002421	BEANS SPROUTS	TINNED	KGS
002422	BEANS BROAD (FOUL MEDAMES)	TINNED	KGS
002428	BEETROOT WHOLE DRAINED	TINNED	KGS
002430	BEETROOT SLICED	TINNED	KGS
002433	BEETROOT SLICED PICKLED BEET	TINNED	KGS
002450	CABAGE RED	TINNED	KGS
002484	CORN YOUNG	TINNED	KGS
002454	MIXED VEGETABLE	TINNED	KGS
002456	MUSHROOM PIECE&STEM	TINNED	KGS
002457	MUSHROOM SLICED	TINNED	KGS
002458	MUSHROOM WHOLE	TINNED	KGS
002465	PEAS CHICK (GARBANZOS)	TINNED	KGS
002467	PEAS GREEN	TINNED	KGS
002469	PIMENTO RED WHOLE DRAINED	TINNED	KGS
002472	POTATO WHOLE SWEET (YAM)	TINNED	KGS
002483	SWEET CORN WHOLE KARNEL	TINNED	KGS
002485	SWEET CORN CREAM	TINNED	KGS
002486	TOMATO WHOLE PEELED	TINNED	KGS
002482	TOMATO CHOPPED/CRUSHED 400GM	TINNED	KGS
002495	WATER CHESTNUT CHINESE	TINNED	KGS
Tinned Fruits			
002601	APPLE DRAINED	TINNED	KGS
002603	APPLE PIE FILLING	TINNED	KGS
002607	APRICOT HALVES DRAINED	TINNED	KGS
002611	BLUEBERRY	TINNED	KGS

CODE	Description		UOM
002615	CHERRY MARASCHINO GREEN	TINNED	KGS
002616	CHERRY MARASCHINO RED	TINNED	KGS
002618	CHERRY RED DRAINED	TINNED	KGS
002623	FIG KADOTA	TINNED	KGS
002626	FRUIT COCKTAIL IN SYRUP	TINNED	KGS
002622	JACKFRUIT IN TIN		KGS
002632	LONGAN IN SYRUP	TINNED	KGS
002633	LYCHEE IN SYRUP	TINNED	KGS
002635	MANDARIN	TINNED	KGS
002636	PALM IN SYRUP	TINNED	KGS
002642	PEACH YELLOW HALVES	TINNED	KGS
002652	PEAR HALVES	TINNED	KGS
002655	PINEAPPLE GRATED	TINNED	KGS
002657	PINEAPPLE SLICED	TINNED	KGS
002659	RAMBUTAN SYRUP	TINNED	KGS
Tinned Fish			
002805	ANCHOVY FILLET FLAT	TINNED	KGS
002806	ANCHOVY FILLET ROLLED	TINNED	KGS
002812	CAVIAR TINNED		KGS
002813	CLAM BOILED	TINNED	KGS
002816	COD ROE TINNED		KGS
002817	CRAB MEAT	TINNED	KGS
002818	CRAB MEAT FANCY	TINNED	KGS
002821	DACE FRIED W/SALTED BLACK	BEANS TINNED	KGS
002823	ESCARGOT WITH SHELL IN PLASTIC	JAR	KGS
002824	FISH BALL TINNED		KGS
002825	FISH CAKE TINNED		KGS
002826	HERRING BISMARCK	TINNED	KGS
002827	HERRING KIPPERED	TINNED	KGS
002829	HERRING IN TOMATO	TINNED	KGS
002831	HERRING FILLET SALTED TINNED		KGS
002835	MACKEREL BOILED	TINNED	KGS
002836	MACKEREL IN OIL	TINNED	KGS
002837	MACKEREL IN TOMATO TINNED		KGS
002841	MUSSEL IN BRINE	TINNED	KGS
002845	OYSTER SMOKED	TINNED	KGS
002851	SALMON RED	TINNED	KGS
002852	SALMON PINK FANCY	TINNED	KGS
002853	SALMON PINK MISCELLANEOUS	TINNED	KGS
002862	SARDINE IN OIL	TINNED	KGS
002864	SARDINE IN TOMATO	TINNED	KGS
002861	SILD SARDINE IN OIL TINNED		KGS
002869	SILD SARDINE IN TOMATO TINNED		KGS
002868	SQUID SEASONED	TINNED	KGS
002872	SHRIMP BOILED	TINNED	KGS
002881	TUNA IN OIL LIGHT	TINNED	KGS
002882	TUNA IN OIL "SPRUCE"	TINNED	KGS
002884	TUNA IN TOMATO TINNED		KGS
Beans and Peas, Dry			
003201	BEANS BROAD DRY		KGS
003202	BEANS BUTTER DRY DAIFUKU		KGS
003203	BEANS GREEN MONGO DRY		KGS
003204	BEANS HARICOT DRY		KGS
003205	BEANS KIDNEY BROWN DRY	TAISHO-KINTOKI	KGS
003206	BEANS KIDNEY LIGHT RED DRY		KGS
003246	BEANS LIMA DRY		KGS
003209	BEANS NAVY DRY		KGS
003208	BEANS RAJMA		KGS
003211	BEANS RED JAPANESE (AZUKI) DRY		KGS

CODE	Description		UOM
003212	BEANS SOY DRY		KGS
003213	BEANS WHITE DRY KOTEBO		KGS
003215	BEANS WHITE LARGE DRY	(GREAT NORTHERN)	KGS
003242	BUCKWHEAT		KGS
003243	DHAL CHANA		KGS
003244	DHAL CHANA BLACK		KGS
003233	DHAL MASOOR 25KG/CTN		KGS
003234	DHAL MOONG		KGS
003235	DHAL TOOR		KGS
003245	DHAL URAD		KGS
003251	FUNGUS DRIED		KGS
003239	LENTILS DRY		KGS
003238	LENTILS RED DRY		KGS
003255	LILY FLOWER DRIED		KGS
003253	MUSHROOM DRIED		KGS
003225	PEAS BLACK EYE DRY		KGS
003226	PEAS CHICK (GARBANZOS) DRY		KGS
003228	PEAS GREEN SPLIT DRY		KGS
003227	PEAS GREEN WHOLE DRY		KGS
003231	PEAS YELLOW SPLIT DRY		KGS
003230	PEAS YELLOW WHOLE DRY		KGS
Fruits and Nuts, Dry			
003404	APRICOT DRY		KGS
003408	BANANA CHIPS DRY		KGS
003415	CURRANT DRY		KGS
003416	DATES		KGS
003419	FIG DRY		KGS
003413	FRUITS MIXED DRIED		KGS
003447	PERSIMMON DRIED		KGS
003425	PRUNE DRY W/O SEED		KGS
003426	PRUNE DRY		KGS
003428	RAISIN DRY		KGS
003431	SULTANA DRY		KGS
003441	PEEL CANDY LEMON		KGS
003442	PEEL CANDY ORANGE		KGS
003443	PEEL CANDY MIXED		KGS
003450	ALMOND RAW SHELLED		KGS
003451	ALMOND WITHOUT SHELL		KGS
003452	ALMOND POWDER		KGS
003453	ALMOND SLICED		KGS
003456	CASHEW NUTS SHELLED		KGS
003457	CASHEW NUTS WITHOUT SHELL		KGS
003461	COCONUT SHREDDED		KGS
003465	HAZEL NUT WITHOUT SHELL		KGS
003482	MIXED NUTS WITH SHELL		KGS
003486	MIXED NUTS SALTED		KGS
003472	PEANUTS SALTED		KGS
003492	PINE NUTS		KGS
003493	PISTACHIO NUTS SALTED		KGS
003476	WALNUTS WITH SHELL		KGS
003477	WALNUTS WITHOUT SHELL		KGS
Jam and Marmalade			
003602	JAM APPLE IN JAR		KGS
003605	JAM APRICOT IN JAR		KGS
003613	JAM BLACK CURRANT IN JAR		KGS
003614	JAM BLUEBERRY IN JAR		KGS
003615	JAM CHERRY IN JAR		KGS
003627	JAM COCONUT IN JAR		KGS
003616	JAM GOOSEBERRY IN JAR		KGS

CODE	Description		UOM
003617	JAM GRAPE IN JAR		KGS
003618	JAM LINGONBERRY IN JAR		KGS
003630	JAM MANGO IN JAR		KGS
003619	JAM ORANGE PRESERVED IN JAR		KGS
003620	JAM ORANGE IN JAR		KGS
003621	JAM PEACH IN JAR		KGS
003623	JAM PINEAPPLE IN JAR		KGS
003625	JAM PLUM IN JAR		KGS
003628	JAM RASPBERRY IN JAR		KGS
003631	JAM STRAWBERRY IN JAR		KGS
003638	JAM STRAWBERRY LOW-CALORIE	IN JAR	KGS
003642	JAM MIXED FRUITS IN JAR		KGS
003644	MARMALADE ORANGE LOW-CALORIE	IN JAR	KGS
003645	MARMALADE ORANGE IN JAR		KGS
003651	JAM ASSORTED INDIVIDUAL PACK		PCS
003658	LEMON CURD IN JAR		KGS
003684	CHOCOLATE SPREAD IN JAR		KGS
003681	PEANUT BUTTER IN JAR		KGS
Juice			
003823	JUICE APPLE 1LTR X 12PKT		LTR
003815	JUICE APPLE & PINEAPPLE	1LTR X 12PKT	LTR
003812	JUICE CRANBERRY 1LTR X 12PKT		LTR
003813	JUICE GRAPE 1LTR X 12PKT		LTR
003811	JUICE GRAPEFRUIT 1LTR X 12PKT		LTR
003853	JUICE GUAVA 1LTR X 12PKT		LTR
003814	JUICE LYCHEE 1LTR X 12PKT		LTR
003816	JUICE MANGO 1LTR X 12PKT		LTR
003844	JUICE MULTI VITAMIN 1LTR X 12PKT		LTR
003819	JUICE ORANGE 1LTR X 12PKT		LTR
003848	JUICE PINEAPPLE-ORANGE	1LTR X 12PKT	LTR
003826	JUICE PINEAPPLE 1LTR X 12PKT		LTR
003817	JUICE POMEGRANATE 1LTR X 12PKT		LTR
003834	JUICE TROPICAL 1LTR X 12PKT		LTR
003835	JUICE TOMATO 1LTR X 12PKT		LTR
003843	JUICE VEGETABLE MIX	1LTR X 12PKT	LTR
003863	JUICE LEMON CONCENTRATED	SWEET 2000ML/BTL	LTR
003864	JUICE LEMON CONCENRATED	UNSWEET 780ML/BTL	LTR
003865	JUICE LIME CONCENTRATED	UNSWEET 780ML/BTL	LTR
003866	JUICE ORANGE CONCENTRATED	550ML/BTL	LTR
003867	JUICE PINEAPPLE CONCENTRATED	550ML/BTL	LTR
003868	JUICE STRAWBERRY CONCENTRATED	550ML/BTL	LTR
003861	JUICE MANGO CONCENTRATED	550ML/BTL	LTR
003862	JUICE GRAPEFRUIT CONCENTRATED	550ML/BTL	LTR
003870	JUICE CRANBERRY CONCENTRATED	550ML/BTL	LTR
003858	NECTAR PEACH 250GRM		LTR
003859	NECTAR MIXED 250GRM		LTR
003871	SQUASH LEMON CONCENTRATED	550ML/BTL	LTR
003872	SQUASH ORANGE CONCENTRATED	550ML/BTL	LTR
003881	JUICE POWDER 'TANG' ORANGE	750GRM X 12PKT	KGS
003883	JUICE POWDER CHERRY	156GRMX24PKT	KGS
003884	JUICE POWDER GRAPE	156GRMX24PKT	KGS
003885	JUICE POWDER LEMON	156GRMX24PKT	KGS
003886	JUICE POWDER ORANGE	156GRMX24PKT	KGS
003887	JUICE POWDER STRAWBERRY	156GRMX24PKT	KGS
003895	SPORTS DRINK POWDER		KGS
Syrup			
004001	SYRUP CHERRY	550ML/BTL	LTR
004002	SYRUP LEMON	550ML/BTL	LTR
004003	SYRUP ORANGE	550ML/BTL	LTR

CODE	Description		UOM
004004	SYRUP PEACH	700ML/BTL	LTR
004016	SYRUP RASBERRY 550ML/BTL		LTR
004005	SYRUP ROSE	700ML/BTL	LTR
004017	SYRUP STRAWBERRY	550ML/BTL	LTR
004010	SYRUP CHOCOLATE	450GRM/BTL	KGS
004011	SYRUP CORN WHITE	473GRM/BTL	KGS
004012	SYRUP COCONUT	425GRM/BTL	KGS
004013	SYRUP GOLDEN	500GRM/BTL	KGS
004014	SYRUP MAPLE	500GRM/BTL	KGS
004015	SYRUP MOLASSES DARK	355ML/BTL	LTR
004022	SYRUP ROOH AFZA 700ML/BTL		LTR
004023	TOPPING CARAMEL		KGS
004051	HONEY PURE INDIVIDUAL PACK		PCS
004054	HONEY PURE 650GRM/JAR		KGS
Coffee / Cocoa / Tea			
004201	COFFEE BEANS FOR ICED COFFEE		KGS
004202	COFFEE BEANS REGULAR BLEND		KGS
004203	COFFEE BEANS ROASTED (ITALIAN	TYPE)	KGS
004206	COFFEE GROUND HILLS BROS		KGS
004207	COFFEE GROUND MAXWELL-HOUSE		KGS
004208	COFFEE GROUND GREEK BRAVO		KGS
004209	COFFEE GROUND GREEK TYPE		KGS
004210	COFFEE GROUND MIXED		KGS
004213	COFFEE GROUND FINE	FOR PAPER FILTER	KGS
004214	COFFEE GROUND INDIVIDUAL BAG		PCS
004221	COFFEE INSTANT INDIVIDUAL	100'S/PKT	PCS
004222	COFFEE INSTANT DECAFEINATED	INDIVIDUAL 10'S/PKT	PCS
004223	COFFEE INSTANT DECAFEINATED		KGS
004224	COFFEE INSTANT GOLD BLEND		KGS
004225	COFFEE INSTANT NESCAFE		KGS
004231	COCOA POWDER PURE		KGS
004234	COCOA INSTANT INDIVIDUAL		PCS
004235	COCOA INSTANT		KGS
004238	CHOCOLATE INSTANT NESQUICK		KGS
004242	MILO		KGS
004243	OVALTINE		KGS
004251	TEA BLACK CEYLON BULK		KGS
004254	TEA BAG CEYLON 100'S/BOX		PCS
004255	TEA BAG FRUIT	100'S/BOX	BOX
004256	TEA BAG	100'S/BOX	PCS
004257	TEA BAG LIPTON	100'S/BOX	PCS
004258	TEA BAG GREEN 100'S/BOX		PCS
004259	TEA BAG PEPPERMINT 100'S/BOX		PCS
004276	TEA CHAMOMILE		KGS
004271	TEA GREEN		KGS
004273	TEA GREEN MATCHA(POWDER)		KGS
004275	TEA JASMIN		KGS
004278	TEA GINSENG INDIVIDUAL PACK		PCS
004279	TEA LOOSE BLACK		KGS
004261	TEA INSTANT ICED		KGS
Pasta & Noodle			
004445	LASAGNE SHEET		KGS
004401	MACARONI ALPHABET BULK		KGS
004402	MACARONI CUT BULK		KGS
004438	MACARONI ELBOW BROWN	GLUTEN FREE	KGS
004403	MACARONI ELBOW BULK		KGS
004408	MACARONI FUSILLI (TWIST) BULK		KGS
004411	MACARONI LONG BULK		KGS
004415	MACARONI ORZO BULK		KGS

CODE	Description		UOM
004417	MACARONI PENNE BULK		KGS
004437	MACARONI PENNE GLUTEN FREE		KGS
004419	MACARONI RIGATONI BULK		KGS
004422	MACARONI SHELL BULK		KGS
004455	NOODLE BUCKWEAT NIHONSOBA		KGS
004451	NOODLE CHINESE		KGS
004452	NOODLE CHINESE EGG		KGS
004442	NOODLE EGG		KGS
004460	NOODLE INSTANT BEEF	85GRM X 24PKT	C/T
004461	NOODLE INSTANT CHICKEN	85GRM X 24PKT	C/T
004465	NOODLE INSTANT IN CUP 20'S		C/T
004464	NOODLE INSTANT KOREAN	SHIN RAMEN 20PKT	C/T
004463	NOODLE INSTANT SEA FOOD	85GRM X 24PKT	C/T
004462	NOODLE INSTANT SPECIAL BRAND	30PKT	C/T
004457	NOODLE JAPANESE UDON		KGS
004439	PASTA COUSCOUS		KGS
004434	PASTA FETTUCCINI		KGS
004435	PASTA LINGUINI		KGS
004436	SPAGHETTI GLUTEN FREE		KGS
004431	SPAGHETTI LONG BULK		KGS
004471	VERMICELLI		KGS
004475	VERMICELLI BEAN CHINESE		KGS
004482	VERMICELLI RICE CHINESE		KGS
Cereals			
004602	ALL BRAN	375GRM/PKT	KGS
004611	CORN FLAKE	375GRM/PKT	KGS
004660	MUESLI 375GRM/PKT		KGS
004618	RAISIN BRAN		KGS
004619	OAT ROLLED QUICK	500GRM/TIN	KGS
004626	RICE KRISPIES	150GRM/PKT	KGS
004638	WEETABIX	400GRM/PKT	KGS
Grains / Cake Mix			
004801	BARLEY PEARL		KGS
004802	RICE BASMATI		KGS
004803	RICE JAPANESE GRADE A		KGS
004807	RICE FOR RICE PUDDING		KGS
004808	RICE WHITE LONG GRAIN		KGS
004810	GLUTINOUS RICE		KGS
004811	SAGO		KGS
004812	TAPIOKA PEARL		KGS
004813	CORN MEAL YELLOW		KGS
004821	CORN STARCH		KGS
004823	FLOUR ATTA 25KG		KGS
004829	FLOUR BREAD		KGS
004830	FLOUR BACKWHEAT		KGS
004825	FLOUR CORN		KGS
004833	FLOUR MAIDA		KGS
004828	FLOUR POTATO		KGS
004831	FLOUR RICE		KGS
004835	FLOUR RYE		KGS
004838	FLOUR SEMOLINA		KGS
004846	FLOUR SUNFLOWER SEEDS		KGS
004839	FLOUR WHEAT		KGS
004843	FLOUR WHOLE MEAL		KGS
004849	BREAD CRUMB		KGS
004845	POTATO INSTANT #10 TINNED		KGS
004868	RICE FLAKES POHA		KGS
004848	QUINOA		KGS
004862	CAKE MIX DEVILS FOOD	500GRM/PKT	KGS

CODE	Description		UOM
004863	CAKE MIX SPICE	500GRM/PKT	KGS
004864	CAKE MIX VANILLA	500GRM/PKT	KGS
004865	CAKE MIX YELLOW	500GRM/PKT	KGS
004867	CHOCOLATE BLOCK COOKING	500GRM/PKT	KGS
004851	FROSTING CREAMY DELUXE	CHOCOLATE FLAVORED 500GRM/PKT	KGS
004852	FROSTING CREAMY DELUXE	VANILLA FLAVORED 500GRM/PKT	KGS
004866	MIX PIE CRUST	500GRM/PKT	KGS
004881	AMMONIA POWDER		KGS
004882	BAKING POWDER		KGS
004884	BICARBONATE OF SODA		KGS
004885	CITRIC ACID	500GRM/BTL	KGS
004888	YEAST DRY		KGS
004891	DOSA MIX 200GRM/PKT		KGS
004893	GULAB JAMUN MIX 175GRM/PKT		KGS
004896	GULAB JAMUN 1KGS/PKT		KGS
004894	IDLI MIX 200GRM/PKT		KGS
004895	RASGULLA 1KGS/PKT		KGS
004897	UTTAPAM MIX 500GRM/PKT		KGS
004892	VADA MIX 200GRM/PKT		KGS
Salt and Sugar			
005001	SALT COOKING		KGS
005002	SALT ROCK		KGS
005003	SALT TABLE		KGS
005005	SALT INDIVIDUAL PACK		PCS
005006	SALT SUBSTITUTE		KGS
005051	SUGAR BROWN		KGS
005054	SUGAR CUBE		KGS
005057	SUGAR DIET		KGS
005060	SUGAR GRANULATED INDIVIDUAL	PACK	PCS
005062	SUGAR GRANULATED		KGS
005063	SUGAR POWDER ICING		KGS
005053	SUGAR VANILLA		KGS
005070	SWEETENER TABLETS 1000PCS/PKT		PCS
Food Colour / Essence / Pudding / Gelatin			
005201	ESSENCE ALMOND		KGS
005204	ESSENCE BANANA		KGS
005207	ESSENCE BEARNAISE		KGS
005209	ESSENCE LEMON		KGS
005211	ESSENCE MAPLE		KGS
005213	ESSENCE ORANGE		KGS
005215	ESSENCE PINEAPPLE		KGS
005217	ESSENCE RASPBERRY		KGS
005219	ESSENCE RUM		KGS
005222	ESSENCE STRAWBERRY		KGS
005225	ESSENCE VANILLA		KGS
005231	FOOD COLOR YELLOW		KGS
005233	FOOD COLOR RED		KGS
005237	FOOD COLOR GREEN		KGS
005252	CUSTARD POWDER		KGS
005255	GELATIN PLATE	450GRM/PKT	KGS
005257	GELATIN POWDER	450GRM/PKT	KGS
005259	JELLY POWDER ASSORTED	85GRM/PKT	KGS
005261	PUDDING INSTANT POWDER	80GRM/PKT	KGS
005263	PUDDING INSTANT POWDER	BUTTERSCOTCH	KGS
005265	PUDDING INSTANT POWDER	CHOCOLATE	KGS
005267	PUDDING INSTANT POWDER VANILLA		KGS
005268	ROSE WATER 600ML/BTL		LTR
005269	NATA DE COCO		KGS

CODE	Description		UOM
Biscuit / Cracker Snack / Wafer			
005401	BISCUIT ASSORTED SWEET BULK		KGS
005402	BISCUIT ASSORTED SWEET	OVER 130GRM NET/PKT	KGS
005403	BISCUIT MARIE	200GRM/PKT	KGS
005491	CHOCOLATE CADBURY 500GRM		PCS
005488	CHOCOLATE KIT KAT 41.5 GRM	4 FINGERS	PCS
005489	CHOCOLATE SNICKERS 50GRM		PCS
005490	CHOCOLATE TOBLERONE 100GRM		PCS
005406	COOKIE ASSORTED SWEET	200GRM/PKT	KGS
005407	COOKIE BUTTER ASSORTED	900GRM/TIN	KGS
005408	COOKIE OREO VANILLA CREAM	24PCS/PKT	KGS
005413	CRACKER CREAM	200GRM/PKT	KGS
005415	CRACKER PRAWN KREOPOK	230GRM/PKT	KGS
005418	CRACKER RICE ARARE	100GRM/PKT	KGS
005421	CRACKER RITZ	227GRM/PKT	KGS
005426	CRACKER SODA	453GRM/PKT	KGS
005427	CRACKER SODA	448GRM/PKT	KGS
005479	CORN CHIPS TACOS FLAVOR	60GRM/PKT	KGS
005480	CORN CHIPS CHEESE FLAVOR	60GRM/PKT	KGS
005435	GINGER SNAP	340GRM/PKT	KGS
005430	POPCORN FOR MICROWAVE	95GRM/PKT INDIVIDUAL	PCS
005476	POTATO CHIPS(CRISPS) "LAYS"	140GRM	KGS
005456	POTATO CHIPS (CRISPS)	"PRINGLES" APP.100GRM	KGS
005477	TORTILLA CHIPS UNSALTED	454GRM/PKT	KGS
005478	TORTILLA CHIPS SALTED	454GRM/PKT	KGS
005437	SOAN PAPDI 250GRM/PKT		KGS
005441	WAFER W/CREAM	30PCS/PKT	PCS
005444	WAFER VANILLA	350GRM/PKT	KGS
Sauce and Gravy / Sauce Mix			
005601	SAUCE A-1	240GRM/BTL	KGS
005603	SAUCE ANCHOVY	170GRM/BTL	KGS
005602	SAUCE APPLE 720GRM X 12BTL		KGS
005607	SAUCE BARBECUE	454GRM/BTL	KGS
005611	SAUCE CHILLI	340GRM/JAR	KGS
005612	SAUCE CHILLI SWEET 500GRM/JAR		KGS
005615	SAUCE CRANBERRY JELLY TYPE	454GRM/TIN	KGS
005634	SAUCE FISH		LTR
005613	SAUCE GARLIC CHILLI 300GRM/BTL		KGS
005621	SAUCE HORSERADISH "GABAN"	130GRM/JAR	KGS
005625	SAUCE HP	255GRM/BTL	KGS
005696	SAUCE MANG TOMAS LECHEON	325G/BTL	KGS
005629	SAUCE MINT	135GRM/BTL	KGS
005631	SAUCE OYSTER	170GRM/BTL	KGS
005632	SAUCE OYSTER	450GRM/BTL	KGS
005653	SAUCE SOY SWEET KECAP MANIS	600ML/BTL	LTR
005635	SAUCE SOYA BEAN TABLE	150ML/BTL	LTR
005636	SAUCE SOYA BEAN	1LTR/BTL	LTR
005638	SAUCE SOYA BEAN	1.8LTR/BTL	LTR
005640	SAUCE SOYA BEAN 18LTR/CAN	"KIKKOMAN"	LTR
005642	SAUCE SOYA BEAN CHINESE DARK	SEICHU-AN 750ML/BTL	LTR
005643	SAUCE SOYA BEAN CHINESE LIGHT	SEICHU-AN 750ML/BTL	LTR
005645	SAUCE SPAGHETTI W/OUT MEAT	1KG/BTL	KGS
005697	SAUCE SRIRACHA (CHILI) HOT	200ML/BTL	LTR
005650	SAUCE STEAK 500ML/BTL		LTR
005647	SAUCE SWEET & SOUR 340ML/BTL		LTR
005648	SAUCE TABASCO 2 OZ		LTR
005649	SAUCE TERIYAKI 1LTR/BTL		LTR
005654	SAUCE WORCESTERSHIRE L&P	150GRM/BTL	KGS

CODE	Description		UOM
005655	SAUCE WORCESTERSHIRE L&P	290GRM/BTL	KGS
005656	SAMBAL OLEK 250ML/BTL		LTR
005657	SAUTEED SHRIMP FRY	"BAGOONG ALAMANG" 340GRM/BTL	KGS
005698	SHRIMP PASTE	250GRM/JAR	KGS
005685	KETCHUP BANANA		KGS
005663	TOMATO KETCHUP		KGS
005669	TOMATO PASTE		KGS
005671	TOMATO PUREE		KGS
005673	TOMATO SAUCE	TINNED	KGS
005691	GRAVY BROWNING	500GRM/BTL	KGS
Dressing and Vinegar			
005801	DRESSING BLUE CHEESE	200GRM/JAR	KGS
005803	DRESSING FRENCH	200GRM/BTL	KGS
005809	DRESSING ITALIAN 200GRM/JAR		KGS
005818	DRESSING SALAD 250GRM/JAR		KGS
005821	DRESSING THOUSAND-ISLAND	200GRM/JAR	KGS
005843	MAYONNAISE READY 1KG/TUBE		PCS
005845	MAYONNAISE READY, 960MLX15BTL/CASE		LTR
005831	SALAD CREAM		KGS
005848	SAKE FOR COOKING		LTR
005852	VINEGAR		LTR
005853	VINEGAR MALT		LTR
005855	VINEGAR WHITE		LTR
005857	VINEGAR WINE RED		LTR
005858	VINEGAR WINE WHITE		LTR
005859	VINEGAR CITRUS FRUIT (PONZU)		LTR
005860	VINEGAR W/TARAGON (ESTRAGON)		LTR
005861	VINEGAR APPLE CIDER		LTR
005862	VINEGAR BALSAMICO		LTR
005871	WINE COOKING		LTR
005872	WINE COOKING SWEET		LTR
Seasoning and Flavour / Bouillon			
006001	SEASONING MONOSODIUM GLUTAMATE		KGS
006012	SEASONING MAGGI		KGS
006020	SEASONING SHRIMP/CRAB BOIL MIX		KGS
006032	PASTE TOM YAM 227GRM/PKT		KGS
006033	SMOKE LIQUID		KGS
006035	BOUILLON BEEF		KGS
006036	BOUILLON BEEF CUBE		KGS
006037	BOUILLON CHICKEN		KGS
006038	BOUILLON CHICKEN CUBE		KGS
006041	BOUILLON PORK CUBE		KGS
006042	BOUILLON SHRIMP CUBE		KGS
006039	BOUILLON VEGETABLE		KGS
006040	BOUILLON VEGETABLE CUBE		KGS
006081	BOUILLON CUBE MAGGI		KGS
006083	BOUILLON POWDER GRANULATED		KGS
006084	BOUILLON POWDER BONITO	(KATSUO DASHI)	KGS
006095	MEAT EXTRACT BOVRIL		KGS
Pickles (Olive, Caper) Western & Oriental			
006201	PICKLE BRANSTON		KGS
006202	PICKLE GHERKINS MUSTARD DRAINED		KGS
006206	PICKLE GHERKINS SOUR	DRAINED	KGS
006207	PICKLE GHERKINS SWEET	DRAINED	KGS
006208	PICKLE GHERKINS W/DILL DRAINED		KGS
006214	PICKLE ONION SILVER DRAINED		KGS
006221	PICKLE MIXED SOUR		KGS
006224	PICCALILLI		KGS
006229	PEPPER JALAPENO		KGS

CODE	Description		UOM
006231	RELISH HAMBURGER GREEN		KGS
006232	RELISH HOT DOG		KGS
006233	RELISH SWEET		KGS
006235	ASIER DANISH		KGS
006241	OLIVE BLACK RIPE		KGS
006244	OLIVE GREEN		KGS
006245	OLIVE GREEN JUMBO		KGS
006247	OLIVE STUFFED DRAINED		KGS
006249	OLIVE STUFFED EXTRA LARGE		KGS
006256	CHUTNEY MANGO SWEET		KGS
006258	CUCUMBER IN VINEGAR		KGS
006261	CAPER		KGS
006267	SAUER-KRAUT		KGS
006271	CABBAGE SALTED GREEN		KGS
006273	CABBAGE SALTED CHINESE	MOI CHOI	KGS
006274	CABBAGE SALTED PRESERVED	SZECHUEN	KGS
006276	CARBAGE SALTED PRESERVED	TUNG CHYE	KGS
006294	KIMCHCI CABBAGE FROZEN		KGS
006278	GARLIC SHOOT/STEM PICKLED		KGS
006280	VEGETABLE SALTED KOREAN		KGS
006281	PICKLE CHILLI GREEN	W/BEAN PASTE	KGS
006282	PICKLE FUKUJIN-ZUKE		KGS
006285	PICKLE GINGER RED BENI SHOGA		KGS
006286	PICKLE NOZAWANAZUKE		KGS
006287	PICKLE PLUM SOUR (UMEBOSHI)		KGS
006288	PICKLE RAKKYO-ZUKE		KGS
006289	PICKLE NARA-ZUKE		KGS
006277	TURNIP SALTED (TAKUAN-ZUKE)		KGS
006295	PICKLE CHILLI INDIAN		KGS
006296	PICKLE GARLIC INDIAN		KGS
Spices and Herbs			
006401	ALLSPICE		KGS
006403	ANISEED WHOLE		KGS
006405	BASIL WHOLE		KGS
006406	BAY LEAF		KGS
006408	CARAWAY SEED		KGS
006409	CARDAMON WHOLE		KGS
006411	CARDAMON GROUND		KGS
006413	CHILLI WHOLE DRY		KGS
006416	CHILLI POWDER		KGS
006417	CHILLI GROUND W/O SEED MEDIUM	ORIENTAL	KGS
006418	CHILLI GROUND W/O SEED FINE	ORIENTAL	KGS
006419	CHILLI GROUND W/SEED COARSE	ORIENTAL	KGS
006420	CHILLI GROUND W/SEED MEDIUM	ORIENTAL	KGS
006422	CINNAMON STICK		KGS
006423	CINNAMON POWDER		KGS
006425	CLOVE WHOLE		KGS
006426	CLOVE GROUND		KGS
006428	CORIANDER SEED WHOLE		KGS
006429	CORIANDER SEED GROUND		KGS
006431	CUMMIN SEED WHOLE		KGS
006432	CUMMIN SEED GROUND		KGS
006435	CURRY POWDER		KGS
006437	GARLIC GROUND		KGS
006430	GARLIC PASTE TUBE 40GRM/TUB		KGS
006440	GARUM MASALA POWDER		KGS
006441	GINGER GROUND		KGS
006444	GINGER PASTE TUBE 40GRM/TUB		KGS
006445	HORSERADISH PASTE (WASABI)	50GRM	KGS

CODE	Description		UOM
006494	HORSERADISH POWDER JAPANESE	(WASABI)	KGS
006446	LEMON GRASS		KGS
006449	MARJORAM GROUND		KGS
006452	MINT LEAF		KGS
006454	MIXED 5 SPICES CHINESE		KGS
006455	MUSTARD SEED WHOLE		KGS
006456	MUSTARD POWDER		KGS
006459	MUSTARD DIJON		KGS
006460	MUSTARD READY INDIVIDUAL 10'S		KGS
006461	MUSTARD READY		KGS
006463	MUSTARD READY "FRENCH" BRAND		KGS
006465	NUTMEG WHOLE		KGS
006466	NUTMEG GROUND		KGS
006470	OREGANO WHOLE		KGS
006471	OREGANO GROUND		KGS
006472	PAPRIKA POWDER		KGS
006473	PAPRIKA GROUND		KGS
006474	PARSLEY FLAKE		KGS
006475	PEPPER BLACK WHOLE		KGS
006476	PEPPER BLACK GROUND		KGS
006477	PEPPER WHITE WHOLE		KGS
006478	PEPPER WHITE GROUND		KGS
006479	PEPPER CAYENNE GROUND		KGS
006481	POPPY SEED WHITE		KGS
006483	ROSEMARY WHOLE		KGS
006402	SAFFRON		KGS
006484	SAGE GROUND		KGS
006485	SESAME SEED WHITE		KGS
006486	STAR ANISE WHOLE		KGS
006488	TARRAGON (ESTRAGON) WHOLE DRY		KGS
006489	THYME GROUND		KGS
006491	TURMERIC GROUND		KGS
006404	ADOBO MIX		KGS
006400	ANNATO POWDER MIX		KGS
006450	CALDERETA MIX POWDER		KGS
006496	CREAM OF TARTAR		KGS
006497	MEAT TENDERIZER		KGS
Soup Powder			
006501	ASAFOETIDA 100GRM/PKT		KGS
006502	CURRY LEAF DRIED		KGS
006503	CURRY LEAF FRESH		KGS
006557	INDIAN JAGGERY 1KGS/PKT		KGS
006539	MASALA BIRIYANI 60GRM		KGS
006554	MASALA CHANNA 500GRM/PKT		KGS
006555	MASALA CHAT 500GRM		KGS
006540	MASALA CHICKEN 100GRM		KGS
006541	MASALA CHICKEN TANDOORI 100GRM		KGS
006542	MASALA CURRY CHICKEN 100GRM		KGS
006543	MASALA CURRY FISH 100GRM		KGS
006544	MASALA CURRY MEAT 100GRM		KGS
006545	MASALA CURRY VEGETABLE 100GRM		KGS
006546	MASALA FISH 100GRM		KGS
006547	MASALA KITCHEN KING 100GRM		KGS
006548	MASALA MUTTON 100GRM		KGS
006549	MASALA PAV BHAJI 100GRM		KGS
006550	MASALA RAJMA 100GRM		KGS
006551	MASALA SAMBAR 200GRM		KGS
006552	RASAM POWDER 200GRM		KGS
006553	SAMBAR POWDER 200GRM		KGS

CODE	Description		UOM
006603	SOUP POWDER ASPARAGUS		KGS
006606	SOUP POWDER BEANS		KGS
006608	SOUP POWDER BEEF BARLEY		KGS
006612	SOUP POWDER BEEF CONSOMME		KGS
006614	SOUP POWDER BEEF NOODLE		KGS
006615	SOUP POWDER CANADIAN PEA		KGS
006617	SOUP POWDER CHICKEN CONSOMME		KGS
006620	SOUP POWDER CHICKEN CREAM		KGS
006623	SOUP POWDER CHICKEN NOODLE		KGS
006624	SOUP POWDER CHICKEN RICE		KGS
006631	SOUP POWDER GREEN PEAS		KGS
006634	SOUP POWDER LEEK		KGS
006636	SOUP POWDER LENTILS		KGS
006638	SOUP POWDER MINESTRONE		KGS
006642	SOUP POWDER MUSHROOM		KGS
006647	SOUP POWDER ONION CONSOMME		KGS
006648	SOUP POWDER ONION		KGS
006651	SOUP POWDER OX TAIL		KGS
006653	SOUP POWDER PORK		KGS
006656	SOUP POWDER TOMATO		KGS
006659	SOUP POWDER VEGETABLE		KGS
006662	SOUP POWDER VICHYSSOISE		KGS
006665	SOUP BASE POWDER CHINESE	SHANTAN	KGS
006667	SOUP BASE POWDER TAMARIND		KGS
Soy Bean Products & Oriental Specialty			
006801	TOFU (BEAN CURD) FRESH	IN POLY PACKET 300GRM	KGS
006804	BEAN CURD INSTANT POWDER	HI-PROTON	KGS
006807	BEAN CURD BAKED (YAKIDOFU)		PCS
006808	BEAN CURD FRIED THIN (USUAGE)		PCS
006809	BEAN CURD FRIED THICK	(ATSUAGE)	PCS
006813	BEAN CURD PRESERVED CHINESE	TINNED	KGS
006814	BEAN CURD RED CHINESE TINNED		KGS
006821	BEANS BLACK SALTED CHINESE		KGS
006826	BEAN PASTE W/CHILLI HOT	CHINESE	KGS
006827	BEAN PASTE W/CHILLI HOT KOREAN	GOCHUJANG	KGS
006831	BEAN PASTE YELLOW (CHUJIRO)	JAPANESE	KGS
006832	BEANS FERMENTED (NATTO)		PKT
006833	BEAN STICK DRIED CHINESE 1LB		PCS
006836	TEMPEH FRESH		KGS
006841	DEVIL'S TONGUE(ITOKONNYAKU)	FRESH PACK	KGS
006843	DEVIL'S TONGUE WHITE	(SHIRATAKI) FRESH PACK	KGS
006851	COOKED BEANS	(KINTOKIMAME)	KGS
006852	COOKED BEANS	(UGUISUMAME)	KGS
006853	COOKED BEANS	(YASAIMAME)	KGS
006854	COOKED CLAM (ASARI-TSUKUDANI)		KGS
006855	COOKED SEA TANGLE	(KOBU-TSUKUDANI)	KGS
006856	COOKED TINY FISH	(HAZE-TSUKUDANI)	KGS
006857	COOKED TINY FISH	(KONAGO-TSUKUDANI)	KGS
006871	WHEAT-GLUTEN BREAD (FU)		KGS
006872	RICE CAKE (MOCHI)		KGS
Meat : Beef / Veal			
007001	BEEF HINDQUARTER		KGS
007003	BEEF ROUND LEG (BUTT)		KGS
007011	BEEF BONELESS BRISKET P.E.		KGS
007017	BEEF BONELESS RUMP	(SIRLOIN BUTT)	KGS
007018	BEEF BONELESS RIBEYE		KGS
007019	BEEF BONELESS SILVERSIDE	(OUTSIDE)	KGS
007020	BEEF BONELESS SHANK		KGS
007021	BEEF BONELESS STRIPLOIN		KGS

CODE	Description		UOM
007023	BEEF BONELESS TENDERLOIN		KGS
007027	BEEF BONELESS TOPSIDE	(INSIDE)	KGS
007037	BEEF BONELESS SIRLOIN		KGS
007030	BEEF KNUCKLE BONELESS		KGS
007005	BEEF BONE-IN SHORT RIB		KGS
007029	BEEF BONE-IN T-BONE STEAK		KGS
007031	BEEF MINCED		KGS
007051	BEEF KIDNEY		KGS
007052	BEEF LIVER		KGS
007053	BEEF TAIL		KGS
007054	BEEF TONGUE		KGS
007055	BEEF TRIPE SCALDED CLEANED		KGS
007061	BEEF BONE WITH MARROW		KGS
007013	OX BONELESS CHUCK&BLADE		KGS
007025	OX BONELESS THICKFLANK		KGS
007071	VEAL HALFSIDE		KGS
007075	VEAL SIDE BONE-IN		KGS
007077	VEAL LEG		KGS
007079	VEAL LOIN BONE-IN		KGS
007081	VEAL TENDERLOIN		KGS
Meat : Pork			
007213	PORK BELLY BONELESS		KGS
007217	PORK BELLY SALTED FROZEN		KGS
007226	PORK BLOOD FROZEN		KGS
007227	PORK EAR FROZEN		KGS
007204	PORK FILLET TENDERLOIN		KGS
007220	PORK FEET FROZEN		KGS
007201	PORK HALFSIDE GRADE A		KGS
007203	PORK HALFSIDE		KGS
007228	PORK HEAD FROZEN		KGS
007222	PORK HEART FROZEN		KGS
007223	PORK INTESTINE CLEANED FROZEN		KGS
007205	PORK KNUCKLE (SHANK)		KGS
007207	PORK LEGS BONE-IN		KGS
007218	PORK LEG BONELESS		KGS
007215	PORK LIVER		KGS
007209	PORK LOIN BONE-IN		KGS
007210	PORK LOIN BONELESS		KGS
007229	PORK MINCE FROZEN		KGS
007221	PORK NECK(COLLAR) BONELESS		KGS
007219	PORK RIBLET		KGS
007211	PORK SPARERIB		KGS
007224	PORK SHOULDER BONELESS		KGS
007225	PORK TRIPE FROZEN		KGS
007230	SUCKLING PIG		KGS
Meat : Mutton / Lamb			
007401	MUTTON CARCASS EWE		KGS
007405	MUTTON CARCASS EWE MK UNDER		KGS
007403	MUTTON CARCASS WETHER		KGS
007410	MUTTON CUBED FROZEN		KGS
007407	MUTTON LEG BONE-IN		KGS
007408	MUTTON LEG BONELESS		KGS
007409	MUTTON MINCED FROZEN		KGS
007421	LAMB CARCASS		KGS
007426	LAMB KIDNEY FROZEN		KGS
007423	LAMB LEG BONE-IN		KGS
007424	LAMB LEG BONELESS		KGS
007427	LAMB LIVER FROZEN		KGS
007425	LAMB LOIN BONE-IN		KGS

CODE	Description		UOM
007428	LAMB SWEETBREAD FROZEN		KGS
Meat : Poultry			
007615	CHICKEN BREAST BONELESS		KGS
007616	CHICKEN DRUMSTICK		KGS
007622	CHICKEN FEET FROZEN		KGS
007601	CHICKEN FRYER EVISCERATED		KGS
007620	CHICKEN GIZZARD (SUNAGIMO)	FROZEN	KGS
007603	CHICKEN MK FRYER EVISCERATED		KGS
007604	CHICKEN LEG BONELESS		KGS
007605	CHICKEN LEG BONE IN		KGS
007617	CHICKEN LIVER		KGS
007618	CHICKEN MINCED FROZEN		KGS
007619	CHICKEN SPRING EVISCERATED	FROZEN	KGS
007607	CHICKEN WING		KGS
007621	DUCK WHOLE EVISCERATED GRADE A		KGS
007613	FOWL EVISCERATED FROZEN		KGS
007645	QUAIL		KGS
007643	TURKEY BREAST BONELESS		KGS
007644	TURKEY BREAST BONE-IN		KGS
007631	TURKEY TOM EVISCERATED GRADE A		KGS
Meat Products : Ham / Bacon / Sausage			
007809	BACON BACK SLICED		KGS
007810	BACON BEEF FROZEN		KGS
007801	BACON STREAKY SLAB BONELESS		KGS
007803	BACON STREAKY SLICED	VACUUM PACK	KGS
007816	BEEF KEBAB		KGS
007814	CHICKEN SEEK KEBAB		KGS
007820	CHICKEN MORTADELLA FROZEN		KGS
007823	CHICKEN NUGGETS FROZEN		KGS
007822	COLD CUTS ASSORTED		KGS
007811	GAMMON SMOKED BONELESS		KGS
007812	HAM FRESH		KGS
007813	HAM SMOKED		KGS
007859	LIVERPASTE FROZEN		KGS
007817	MUTTON SEEK KEBAB		KGS
007807	PORKLOIN SMOKED BONELESS	(CANADIAN BACK)	KGS
007818	PORK TOCINO FROZEN		KGS
007831	SAUSAGE BEEF FRANKFURTER		KGS
007860	SAUSAGE CHICKEN		KGS
007861	SAUSAGE CHICKEN FRANKFURTER		KGS
007832	SAUSAGE LIVER		KGS
007843	SAUSAGE PORK		KGS
007833	SAUSAGE PORK BOLOGNA		KGS
007845	SAUSAGE PORK COLLARED		KGS
007837	SAUSAGE PORK FRANKFURTER		KGS
007884	SAUSAGE PORK LINK		KGS
007844	SAUSAGE PORK MEDISTER		KGS
007849	SAUSAGE PORK MORTADELLA		KGS
007852	SAUSAGE PORK POLISH		KGS
007847	SAUSAGE PORK SALAMI		KGS
007851	SAUSAGE PORK SAVELOY		KGS
007855	SAUSAGE PORK VIENNA		KGS
Tinned Meat			
008003	BEEF LUNCHEON MEAT TINNED		KGS
008018	BEEF MORTADELLA (ROLL +/-3KG)		KGS
008001	CORNED BEEF TINNED		KGS
008004	CHICKEN LUNCHEON MEAT TINNED		KGS
008009	HAM SHOULDER PICNIC TINNED		KGS
008015	HAM BOILED & BONELESS TINNED		KGS

CODE	Description		UOM
008030	LIVER PASTE TINNED CHICKEN		KGS
008033	LIVER PASTE TINNED PORK		KGS
008035	MEAT BALL TINNED		KGS
008016	PORK & BEANS IN TOMATO TINNED		KGS
008005	PORK LUNCHEON MEAT TINNED		KGS
008062	RAVIOLI BEEF TINNED		KGS
008063	RAVIOLI CHEESE TINNED		KGS
008024	SAUSAGE HOTDOG TINNED		KGS
008091	SAUSAGE PORK VIENNA TINNED		KGS
008081	SPAM TINNED		KGS
008082	SPAM WITH CHEESE CHUNK TINNED		KGS
Ready Made Products			
008816	FALAFEL FROZEN		KGS
008817	NUGGETS VEGETABLE FROZEN		KGS
008818	PATTI VEGETABLE FROZEN		KGS
008819	SAMOSA CHICKEN FROZEN		KGS
008820	SAMOSA VEGETABLE FROZEN		KGS
008821	SIO PAO PORK FROZEN		PCS
008822	SPRING ROLL CHICKEN FROZEN		KGS
008815	SPRING ROLL VEGETABLE FROZEN		KGS
Beer			
100122	BEER BECKS 24X330ML IN BTL		BTL
100130	BEER DARGUNER GOLD LAGER	330ML X 24CAN	C/T
100131	BEER DARGUNER WEIZEN, 330ML X 24CAN	330ML X 24CAN	C/T
100120	BEER EFES PILSENER	330ML X 24CAN	C/T
100103	BEER HEINEKEN 330MLX24TIN		C/T
100105	BEER KRONENBOURG 330MLX24TIN		C/T
100107	BEER RINGNES 330MLX24BTL		C/T
100110	BEER SAN MIGUEL 330MLX24TIN		C/T
100123	BEER NON ALCOHOL 0.00%	330ML X 24CAN	C/T
Japanese Beer			
100339	BEER ASAHI SUPER-DRY	500MLX12BTL	C/T
100340	BEER ASAHI SUPER-DRY 3LTRX6TIN		C/T
100341	BEER ASAHI SUPER-DRY	350MLX24TIN	C/T
100342	BEER ASAHI SUPER-DRY	633MLX12BTL	C/T
100343	BEER ASAHI SUPER-DRY	334MLX24BTL	C/T
100344	BEER ASAHI SUPER-DRY	500MLX24TIN	C/T
100352	BEER ASAHI NON ALCOHOL 0.00%	350MLX24TIN	C/T
100345	BEER KIRIN LAGAR 350MLX24TIN		C/T
100346	BEER KIRIN LAGAR 334MLX24BTL		C/T
100347	BEER KIRIN ICHIBAN-SHIBORI	350MLX24TIN	C/T
100348	BEER KIRIN ICHIBAN-SHIBORI	500MLX24TIN	C/T
100349	BEER KIRIN LAGAR 633MLX12BTL		C/T
100350	BEER KIRIN LAGAR 500MLX12BTL		C/T
100351	BEER KIRIN LAGAR 500MLX24TIN		C/T
100321	BEER SAPPORO 350MLX24TIN		C/T
100329	BEER SAPPORO 633MLX12BTL		C/T
100323	BEER SAPPORO DRAFT 2LTRX6KEG		C/T
100301	BEER SUNTORY 350MLX24TIN		C/T
100315	BEER SUNTORY 633MLX12BTL		C/T
100307	BEER SUNTORY DRAFT 2LTRX6KEG		C/T
100309	BEER SUNTORY DRAFT 3LTRX6KEG		C/T
Whisky			
100514	WHISKY SCOTCH BALLANTINE'S	FINEST 750ML	BTL
100501	WHISKY SCOTCH BELL'S 40°	700MLX12BTL	C/T
100504	WHISKY SCOTCH BELL'S 20YRS	750MLX12BTL	C/T
100534	WHISKY SCOTCH CHIVAS REGAL	12 YEARS 700MLX 12BTL	C/T
100511	WHISKY DUFFTOWN-GLENLIVET 8YR	750MLX12BTL	C/T
100513	WHISKY SCOTCH DUNHILL	OLD MASTER 750MLX6BTL	C/T

CODE	Description		UOM
100503	WHISKY EDINBURGH WAIN MEGREZ	700MLX12BTL 40°	C/T
100515	WHISKY GLENFIDDICH 750MLX12BTL		C/T
100516	WHISKY SCOTCH GLENMARK 3YRS	750MLX12S	C/T
100517	WHISKY SCOTCH GLENMARK 12YRS	750MLX6S	C/T
100518	WHISKY SCOTCH GRANT'S	750MLX12BTL	C/T
100519	WHISKY GRANT'S ROYAL 12YEARS	750MLX12S	C/T
100521	WHISKY SCOTCH HAIG 750MLX12BTL		C/T
100523	WHISKY SCOTCH J&B 700MLX12BTL		C/T
100524	WHISKY SCOTCH J&B RESERVE	750MLX12BTL	C/T
100527	WHISKY SCOTCH J.WALKER RED	750MLX12BTL	C/T
100528	WHISKY SCOTCH J.WALKER BLACK	750MLX12S	C/T
100529	WHISKY J. WALKER SWING	750MLX12BTL	C/T
100520	WHISKY KING CASTLE 700ML		BTL
100533	WHISKY SCOTCH THE ANTIQUARY	750MLX12S	C/T
100535	WHISKY SCOTCH VAT69	750MLX12BTL	C/T
100551	WHISKY IRISH JOHN JAMESON	750MLX12BTL	C/T
100552	WHISKY IRISH J.JAMESON 12YRS	750MLX12S	C/T
100555	WHISKY IRISH TULLAMORE DEW	750MLX12BTL	C/T
100561	WHISKY BOURBON EARLY TIMES	750MLX12BTL	C/T
100563	WHISKY BOURBON I.W. HARPER	750MLX12BTL	C/T
100567	WHISKY BOURBON WILD TURKEY	750MLX12BTL	C/T
100565	WHISKY JACK DANIEL'S BLACK	750MLX12BTL	C/T
100571	WHISKY CANADIAN CLUB	750MLX12BTL	C/T
Wine / Brandy / Sherry			
100933	WINE RED 750ML		BTL
100935	WINE RED 3LTR		BOX
100934	WINE WHITE 750ML		BTL
100936	WINE WHITE 3LTR		BOX
100937	WINE SPARKLING 750ML		BTL
100905	WINE BORDEAUX DELOR ROUGE	750MLX12BTL	C/T
100906	WINE BORDEAUX DELOR BLANC	750MLX12BTL	C/T
100907	WINE BORDEAUX DELOR MEDOC	750MLX12BTL	C/T
100909	WINE BORDEAUX SUPERIEUR ROUGE	750MLX12BTL	C/T
100910	WINE BORDEAUX SUPERIEUR BLANC	750MLX12BTL	C/T
100901	WINE CALIFORNIA RED	750MLX12BTL	C/T
100902	WINE CALIFORNIA INGLENOOK ROSE	750MLX12BTL	C/T
100903	WINE CALIFORNIA WHITE	750MLX12BTL	C/T
100913	WINE CUVEE D'ANTAN ROUGE	700MLX12BTL	C/T
100914	WINE CUVEE D'ANTAN ROSE	700MLX12BTL	C/T
100915	WINE CUVEE D'ANTAN BLANC	700MLX12BTL	C/T
100917	WINE MOSELLE GREEN GOLD	700MLX12BTL	C/T
100932	WINE PORTUGUESE MATEUS ROSE	1000MLX6S	C/T
100921	WINE ROSENHAG LIEBFRAUMILCH	700MLX12S	C/T
100923	WINE TAFEL KELLERWINE	700MLX12BTL	C/T
100941	BRANDY COMTE DE LAFFITTE EXTRA	DECANTER 700ML	BTL
100943	BRANDY DE VALCOURT NAPOLEON	750MLX12S	C/T
100955	COGNAC F.O.V. 700MLX12BTL		C/T
100956	COGNAC HINE VSOP 700MLX12BTL		C/T
100957	COGNAC HINE ARC DE TRIOMPHE	700MLX12S	C/T
100958	COGNAC HINE NAPOLEON	700MLX12BTL	C/T
100961	COGNAC MARTELL 3-STAR	700MLX6BTL	C/T
100965	COGNAC REMY MARTIN VSOP	700MLX6BTL	C/T
100966	COGNAC R.MARTIN NAPOLEON	700MLX6BTL	C/T
100967	COGNAC R.MARTIN CENTAURE XO	700MLX12BTL	C/T
100968	COGNAC R.MARTIN C. EXTRA	700MLX6BTL	C/T
100969	COGNAC R.MARTIN C.CRYSTAL	700MLX6BTL	C/T
100970	COGNAC R.MARTIN C. LIMOGES	700MLX6BTL	C/T
100971	COGNAC R.MARTIN LOUIS XIII	700MLX6BTL	C/T

CODE	Description		UOM
100991	SHERRY W.&HUMBERT DRY SACK	700MLX12BTL	C/T
100996	SHERRY HARVEYS BRISTOL CREAM	750MLX12S	C/T
Spirits & Liqueur			
101101	AKVAVIT AALBORG 700MLX12BTL		C/T
101105	DRY GIN BEEFEATER 750MLX12BTL		C/T
101107	DRY GIN GORDON'S 750MLX12BTL		C/T
101115	RUM BACARDI GOLD 750MLX12BTL		C/T
101116	RUM BACARDI SILVER 750MLX12BTL		C/T
101117	RUM BACARDI BLACK 750MLX12BTL		C/T
101121	VERMOUTH CINZANO DRY	750MLX12BTL	C/T
101122	VERMOUTH CINZANO RED	750MLX12BTL	C/T
101124	VERMOUTH MARTINI DRY	1000MLX12S	C/T
101125	VERMOUTH MARTINI ROSSO	1000MLX12S	C/T
101126	VERMOUTH NOILLY PRAT DRY	1000MLX12BTL	C/T
101127	VERMOUTH NOILLY PRAT ROUGE	1000MLX12S	C/T
101134	VODKA ABSOLUT 1000ML		BTL
101131	VODKA SMIRNOFF 80PF	750MLX12BTL	C/T
101132	VODKA SMIRNOFF 100PROOF	750MLX12BTL	C/T
101151	LIQUOR CAMPARI 1000MLX12BTL		C/T
101153	LIQUOR CHERRY PETER HEERING	700MLX12BTL	C/T
101157	LIQUOR COFFEE KAHLUA	700MLX12BTL	C/T
101159	LIQUOR DRAMBUIE 750MLX12BTL		C/T
101161	LIQUOR KOREAN GINSENG JU	720MLX6BTL	C/T
Japanese Spirits & Liqueur			
101301	BRANDY SUNTORY VO 640ML		BTL
101362	SAKE JAPANESE DELUX 1800ML		BTL
101363	SAKE JAPANESE DELUX 720ML		BTL
101377	SPIRIT JAPANESE SHOUCHU (MUGI)	1.8LTR	BTL
101378	SPIRIT JAPANESE SHOUCHU (IMO)	1.8LTR	BTL
101379	SPIRIT JAPANESE SHOUCHU (SOBA)	1.8LTR	BTL
Soft Drinks			
101501	COCA COLA 250MLX30TIN		C/T
101502	COCA COLA 350MLX24TIN		C/T
101505	PEPSI COLA 250MLX30TIN		C/T
101506	PEPSI COLA 330MLX24TIN		C/T
101507	PEPSI COLA LIGHT(LESS SUGAR)	250MLX30S	C/T
101508	PEPSI COLA DIET (NON SUGAR)	250MLX30S	C/T
101561	GINGER ALE CANADADRY	250MLX30TIN	C/T
101562	GINGER ALE CANADADRY	210MLX24BTL	C/T
101511	GRAPEADE FANTA 250MLX30TIN		C/T
101512	GRAPEADE FANTA 350MLX24TIN		C/T
101513	GRAPEADE MIRINDA 250MLX30TIN		C/T
101517	GRAPEFRUIT SODA SUNTORY POP	250MLX30TIN	C/T
101521	LEMONADE FANTA 250MLX30TIN		C/T
101522	LEMONADE MIRINDA 250MLX30TIN		C/T
101523	LEMONADE ROYAL ISLAND	354MLX24TIN	C/T
101531	ORANGEADE FANTA 250MLX30TIN		C/T
101532	ORANGEADE FANTA 350MLX24TIN		C/T
101533	ORANGEADE MIRINDA 250MLX30TIN		C/T
101534	ORANGEADE NORA SOLO	250MLX24BTL	C/T
101535	ORANGEADE ROYAL ISLAND	354MLX24TIN	C/T
101541	SEVEN UP 250MLX30TIN		C/T
101542	SEVEN UP 330MLX24TIN		C/T
101545	SPRITE COKE 250MLX30TIN		C/T
101551	BITTER LEMON 330MLX24TIN		C/T
101552	BITTER LEMON 250MLX24BTL		C/T
101565	APPLE CIDER SPARKLING	340MLX24TIN	C/T
101566	APPLE CIDER SPARKLING	200MLX24BTL	C/T
101571	MINERAL WATER FUJI 780MLX20BTL		C/T

CODE	Description		UOM
101573	MINERAL WATER 900MLX15BTL		C/T
101574	MINERAL WATER 1000MLX15BTL		C/T
101577	MINERAL WATER IN TETRA PACK	500MLX6BTL	C/T
101578	MINERAL WATER IN TETRA PACK	1000MLX6BTL	C/T
101579	MINERAL WATER IN TETRA PACK	1500MLX6BTL	C/T
101581	SODA WATER CANADADRY	250MLX30TIN	C/T
101582	SODA WATER 200MLX24BTL		C/T
101585	ISOTONIC DRINK POCARI SWEAT	250MLX30S	C/T
101591	TONIC WATER CANADADRY	330ML X 24TIN	C/T
101592	TONIC WATER 190MLX24BTL		C/T
101593	TONIC WATER CANADADRY	250MLX30TIN	C/T
101594	TONIC WATER CANADADRY	207MLX24BTL	C/T
101597	TONIC WATER WILKINSON	190MLX24BTL	C/T
Cigarettes & Tobaccoes			
101741	CIGARETTES BENSON & HEDGES SF	200S	C/T
101701	CIGARETTES CAMEL REG W/O	FILTER 200S	C/T
101702	CIGARETTES CAMEL FK 200S		C/T
101751	CIGARETTES DUNHILL INT'L	FILTER 200S	C/T
101703	CIGARETTES KENT FK 200S		C/T
101721	CIGARETTES KENT SUPER LIGHTS	BOX	C/T
101704	CIGARETTES MARLBORO FK	SOFT PACK 200S	C/T
101708	CIGARETTES MARLBORO BOX	HARD PACK 200S	C/T
101711	CIGARETTES MARLBORO LIGHT	FK 200S	C/T
101706	CIGARETTES MARLBORO LIGHTS	MENTHOL KS BOX	C/T
101714	CIGARETTES MARLBORO MENTHOL	KS BOX	C/T
101745	CIGARETTES L&M RED LABEL	210'S	C/T
101790	CIGARETTES L&M BLUE LABEL	210'S	C/T
101779	CIGARETTES L&M BOX		C/T
101742	CIGARETTES ROTHMANS FK 200S		C/T
101752	CIGARETTES ROTHMANS INT'L	FILTER 200S	C/T
101705	CIGARETTES SALEM FK 200S		C/T
101723	CIGARETTES SALEM FSK 200S		C/T
101743	CIGARETTES STATE EXPRESS 555	200S	C/T
101707	CIGARETTES WINSTON FK 200S		C/T
101782	CIGAR CORONAS SUMATRA 25'S		PKT
101783	CIGAR KING EDWARD PANETELA	DELUXE 5'S	PKT
101784	CIGAR OLD PORT 5'S		PKT
101781	CIGARILLO ROI TAN TIPS 5'S		PKT
101791	TOBACCO ARGOSY BLACK 50GRM		PKT
101792	TOBACCO BORKUM RIFF CHERRY	CAVENDISH	PKT
101793	TOBACCO ERINMORE MIXTURE 50GRM		TIN
101761	TOBACCO PETTEROE'S BLANDING	NO3 200GRM	TIN
101794	TOBACCO SKANDINAVIK AROMATIC	50GRM	PKT
101795	TOBACCO SINCLAIRS NAVY FLAKE	50GRM	TIN
101796	TOBACCO SWEET DUBLIN BLACK	CAVENDISH	PKT
101797	TOBACCO SWEET DUBLIN IRISH	WHISKEY 50G	PKT
101762	TOBACCO TIEDEMANNS GUL MIX	NO2 200GRM	TIN
Japanese Cigarettes & Tobaccoes			
101902	CIGARETTES HI-LITE SOFT PACK	200S	C/T
101980	CIGARETTES MEVIUS BOX	200S	C/T
101981	CIGARETTES MEVIUS LIGHT BOX	200S	C/T
101982	CIGARETTES MEVIUS SUPER LIGHT	BOX 200S	C/T
101915	CIGARETTES PEACE KS 200S		C/T
101916	CIGARETTES SEVEN STARS KING	HARD PACK 200S	C/T
101931	CIGARETTES WINSTON CABIN	RED BOX 5MG	C/T
101939	CIGARETTES WINSTON	CASTER WHITE BOX 3MG	C/T

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New & Deleted Code List from 7th Edition

The following IMPA Codes are newly added or deleted from 7th edition (2018)

New Code

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